After Action Report
Winter Storm Comm Outage
Communication Exercise
CUP-26-29T

Overview

Description:	Winter Storm Communications Outage, Communications Exercise
Event Type:	Cupertino ARES Exercise
Event Name	WSCO CommEx
Activation No:	CUP-26-29T
Managing Entity:	Cupertino ARES
Event Date:	21 February 2026
Report Date:	3 March 2026
Report Revision:	1.2, **Final**
Submitted by:	Jim Oberhofer

Requirements for Reporting[1]

Completing an After-Action Report is part of the required California SEMS reporting process. The Emergency Services Act, Section 8607 (f) mandates that the Office of Emergency Management (OEM) 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 OEM within ninety (90) days of the close of the incident period as specified in the California Code of Regulations, Title 19, s2900(q)." Additionally, “Section 2450 (b) The after-action report shall, at a minimum, be a review of response actions taken, application of SEMS, suggested modifications to SEMS, necessary modifications to plans and procedures, identified training needs, and recovery activities to date.”

Terms

AAR[2]: After Action Report - a document intended to capture observations of an exercise and make recommendations for post-exercise improvements. The final AAR and Improvement Plan (IP) are printed and distributed jointly as a single AAR/IP following an exercise.

AAR/IP: Improvement Plan - identifies specific corrective actions, assigns them to responsible parties, and establishes targets for their completion.

[1] https://www.caloes.ca.gov/office-of-the-director/operations/planning-preparedness-prevention/planning-preparedness/after-action-corrective-action-reporting/

[2] https://preptoolkit.fema.gov/documents/d/cip-citap/after_action_review_user_guide_november_2023_f

ARES	Amateur Radio Emergency Service, created by the ARRL, consists of licensed volunteers using their equipment to provide backup, auxiliary communications for public safety agencies and disaster relief organizations. See RACES.
ARK:	Shipping Containers used by CERT for resource and information collection, coordination, and volunteer deployment.
CAP (FEMA):	Corrective Action Plan; FEMA; HSEEP[3] - actions identified during activations or exercises that are tracked to completion, ensuring that exercises yield tangible preparedness improvements.
CARES:	Cupertino Amateur Radio Emergency Service - a volunteer organization of FCC-licensed amateur radio operators who will respond to requests from the city during times of emergencies. Their focus is on understanding risks facing the city and putting plans, communications processes, and tools in place to respond to these risks.
CCC:	Cupertino Citizen Corps - the City's umbrella organization for CARES, CERT, and MRC.
Comm 469, C469:	City of Cupertino Public Safety Communications Vehicle #469.
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.
H&W:	Health & Welfare - used within the context of a Health & Welfare Check. This is usually a check of field teams to ensure they are OK.
NCO/NCS:	Net Control Operator / Net Control Station - the control function that ensures the efficient passing of messages between stations on the frequency.
OEM:	Office of Emergency Management
PSAP:	Public Safety Answering Point; a 24/7 call center designated to receive emergency 9-1-1 calls (both wireline and wireless) and route them to police, fire, or emergency medical services.
SCCo:	Santa Clara County
RACES:	Radio Amateur Civil Emergency Service, created by the Federal Communications Commission, RACES replaces the conventional "Amateur Radio Service" during wartime or civil emergencies.

i. Background

Introduction

The purpose of an After-Action Report (AAR) is to analyze the management and response to an incident, event, or exercise by identifying the operational strengths to be maintained and promoted, as well as the areas that need improvement.

The focus of this AAR is on the Cupertino Amateur Radio Emergency Service (CARES) exercise that was designed to test the Cupertino ARES tools and procedures at field sites throughout the city where CARES would receive and transmit simulated emergency (9-1-1) messages to the EOC for relay to the County's

[3] https://www.fema.gov/emergency-managers/national-preparedness/exercises/hseep

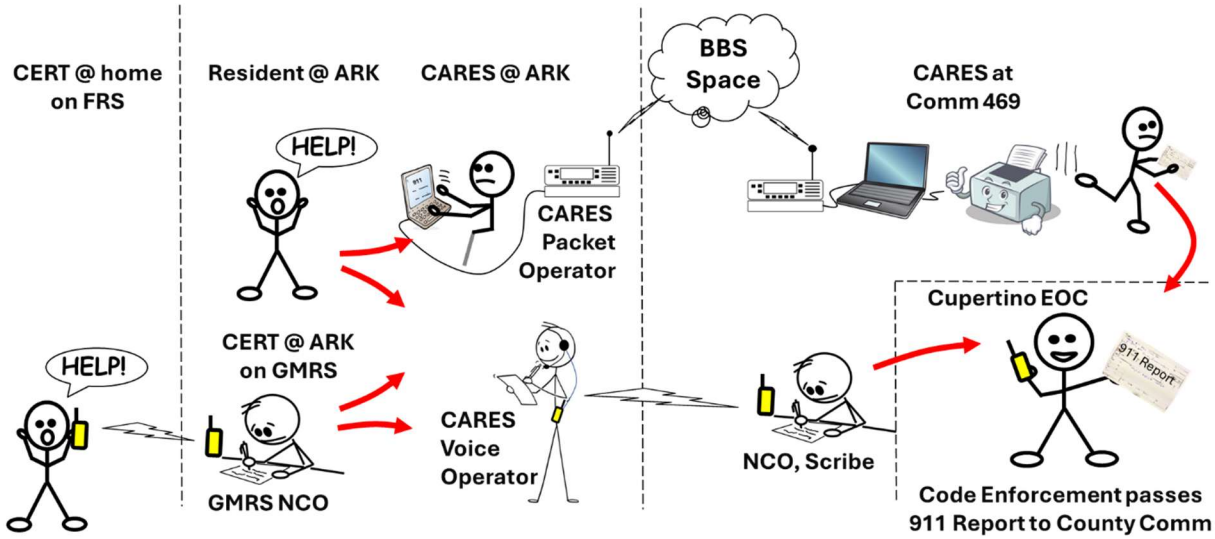
PSAP. This report is submitted to Cupertino OEM and SCCo RACES as a record of our findings, planned follow-up actions, and recommendations to the city.

Summary

The Cities of Cupertino, Saratoga, and Los Altos Hills exclusively use Sheriff, Fire, and EMS for their local SCCo Public Services. Dispatch is handled by Santa Clara County Communications, located in San Jose. In the event of a commercial telephone and cell phone service outage, these three jurisdictions do not have a way to pass emergency requests to County Comm.

This exercise was designed to test the Incident Report (911) form for passing emergency 911 messages. In general, when commercial communications is out of service, the flow for these messages is:

1. CARES sets up emergency reporting stations at ARKs or other high-visibility locations that are accessible by the community. Residents may walk to these locations to place help requests.
2. Additionally, CERT responders operating within their neighborhood could collect and pass messages by FRS to the ARKs over the GMRS nets. These messages are then handed off to the CARES responders.
3. CARES transmits all emergency messages to the EOC.
4. The EOC hands the message to the city's Code Enforcement officer for relay to County Comm (Plan B).
5. If Code Enforcement is not available, CARES will place a satellite phone call directly to County Comm (Plan C).
6. If that fails, then the message is passed as a plain text message to SCCo EOC (Plan D).



The purpose of this exercise was for Cupertino Citizen Corps field responders to deploy to real locations in Cupertino and pass simulated 911 messages. Messages originated from CARES scenario sheet injects and neighborhood CERT responders by FRS/GMRS.

CARES members were activated and responded to the Exercise Staging (Cupertino City Hall) for sign-in, briefing, assignment paperwork, and then, they proceeded to their respective assignments. CERT GMRS operators responded directly to their assigned ARKs. CERT FRS operators responded from their respective neighborhoods.

Key Findings

Following the exercise, CARES performed an after-action review of our existing operating procedures and new aspects under test. Feedback was received from all exercise participants. The lessons learned from this review will drive specific Corrective Action Plan activities within key areas of the general CCC (CARES and CERT) response. Three specific findings from this exercise are:

1. ***Operational Capabilities Were Validated*.** This exercise demonstrated CARES' ability to manage several field responders and transmit actionable 9-1-1 traffic from different locations to the EOC by both voice and packet. Field deployment, Net Control performance, and message handling were executed in a professional and organized manner. The exercise confirmed that core emergency communication capabilities are operationally sound and capable of functioning under sustained activity.
2. ***The message passing system performed at near capacity*.** High volumes of immediate-priority messages placed significant demand on Net Control and our message handling processes. While the system functioned as designed and successfully processed all traffic, operations frequently approached or exceeded workload limits. This revealed opportunities to formalize a dual Net Control staffing approach, process triggers, and traffic polling practices.
3. **Procedural Refinement and Deployment Realism.** The exercise validated existing processes while highlighting areas for refinement, including realistic setup timelines (particularly for packet operations), radio readiness standardization ("normal your radio"), clearer CERT integration procedures, and formal validation of fire station equipment readiness. These are not capability gaps, but rather the opportunities for organizational refinement. If anything, we are transitioning from capability validation to optimization and scalability.

ii. Type / Location

Event Type:	City of Cupertino, Cupertino ARES Training Activation
Event Identifier:	CUP-26-29T
Event Name:	Winter Storm Comm Outage Communications Exercise
Location:	City of Cupertino

iii. Description of the Event / Drill / Exercise

Over the course of the exercise, the following objectives were tested:

1. Manage field responders assigned to specific locations throughout the city by the SOP
2. Pass appropriate scenario messages designated as actionable 9-1-1 traffic from the field to Cupertino EOC by voice and packet.
3. Activate neighborhood CERT for message passing to the ARKs.
4. Staff the three SCCFD fire stations in Cupertino.
5. Test the use of 2 Community Access Points as emergency comm field locations.

Event resources came from the following organizations:

1. ***Cupertino ARES/RACES.*** CARES staffed both actual and simulated SNF field sites and Comm 469. Ten (10) CARES members participated during the 4-hour exercise.
2. ***County Mutual Aid Communicators (MACs).*** CARES opened the exercise for County MACs as a means to offer exercise experience to others. Four (4) MACs signed up and participated. , one each from Milpitas, Mountain View, Sunnyvale, and Palo Alto.
3. ***Cupertino CERT.*** CERT staffed 3 ARKs running 4 GMRS net operations for remote CERT responders operating from home. Twelve (12) CERT responders participated: 4 staffing ARK Nets, and 8 from the neighborhoods (estimate).
4. ***SCCo RACES.*** The County held a quarterly countywide exercise at the same time. CARES participated in this exercise by exchanging packet messages with County EOC.
5. ***Cupertino CCC.*** The city's Citizen Corps Coordinator was on site to handle specific tasks related to MAC DSW swearing in and general logistics support for the exercise.

Performance to Objectives

Objective #1 *- Manage field responders assigned to specific locations throughout the city by the SOP.*
Objective Met

Field responders were assigned to designated locations including ARKs, Community Access Points (CAPs), and coordinating positions at the EOC (Comm 469). Pre-event staging, assignment sheets, and briefing materials supported the deployment. Resource Net activation began on schedule, and check-ins were conducted in accordance with SOP.

Net Control operations effectively managed responder tracking and traffic flow across multiple frequencies (TAC3 and TAC7). Adjustments during peak message volumes (including redistributing sending stations to alternate channels) demonstrated operational flexibility and effective supervision of field resources.

Some minor challenges surfaced, such as:

1. Difficulty locating a specific ARK and CAP sites.
2. Setup delays, particularly for packet stations.

These issues did not materially impact overall field deployment and were resolved during the exercise.

Objective #2 *- Pass appropriate scenario messages designated as actionable 9-1-1 traffic from the field to Cupertino EOC by voice or packet.*
Objective Met (Message Passing performance was validated under high load conditions).

Field stations successfully transmitted a total of 46 designated 9-1-1 "Immediate" scenario messages by both voice (20) and packet (26). Message Net Control and C469 staff managed a sustained flow of priority traffic and demonstrated effective workload management under near-capacity conditions.

The means of passing voice messages using the 911 form's field numbers proved to be an effective and efficient means for transmitting the message. Because this is different from the current teaching by SCCo RACES (passing field titles), Net Control allowed either with limited reduction to the message pace.

Packet stations reported successful transmission of multiple assigned scenario messages as well as additional 9-1-1 traffic generated by the GMRS/FRS ARK nets. Voice message nets experienced high utilization, highlighting both capability limits and the need for scalable staffing (e.g., dual Net Control operators or scribe rotation during periods of peak traffic).

The volume of immediate 9-1-1 traffic limited prioritization distinctions among stations, but the system functioned as designed. The exercise validated message flow from field location to EOC under realistic 'surge' conditions.

This was the first exercise for a couple of the responders requiring them to 'shadow' experienced 'mentor' responders. For the most part, this worked out well with all shadows getting the opportunity to pass message traffic. In general, more structured training and field experience is needed to help improve individual comfort level and performance.

Objective #3 *- Activate neighborhood CERT for message passing to the EOC via the ARKs.*
Objective Met (Proof of Concept Demonstrated; Integration Refinement Needed).

Four GMRS ARK Nets were activated. Neighborhood FRS users transmitted reports to ARK locations, and those messages were forwarded through CARES operators to the EOC. The end-to-end message path: Neighborhood → ARK (GMRS) → CARES (Voice or Packet) → EOC was essentially validated.

Some procedural refinements were identified and are needed regarding:

- Clarification of CERT-to-CARES message handling process,
- Coordination between packet and voice operators at ARK locations,
- Improved outreach and pre-drill engagement of neighborhood CERT members.

While participation volume was limited, the operational message passing model proved to be viable.

Objective #4 *- Staff the three SCCFD fire stations in Cupertino.*
Objective Not Met (Equipment Validation Pending).

No personnel were assigned to staff the three fire stations because formal checkout and validation of the station radio equipment did not occur prior to the exercise.

Because station equipment was not formally tested and validated, this objective cannot be considered complete. A follow-up action is required to coordinate with SCCFD to inventory, inspect, and test all station communication kits.

Objective #5 *- Test the use of 2 Community Access Points as emergency comm field locations.*
Objective Met (Operational Concept was Validated; site selection requires further study).

Three CAP locations were staffed:

- Kennedy Middle School
- Jollyman Park
- Cupertino Senior Center

These locations served as visible public-facing communication points. Field teams successfully established voice and packet operations at these sites.

Field observations included:

- Site access challenges (unexpected security personnel, parking constraints).
- Physical layout limitations (fixed seating, uneven terrain, antenna placement constraints).
- Limited spontaneous public engagement during the exercise window.

While the concept of CAP deployment proved viable, further evaluation is needed to determine the optimal site selection criteria and strategies to increase community visibility during a real-world activation.

iv. Chronological Summary of Event / Drill / Exercise

The following timeline is a high level compilation from ICS214s, and other documentation submitted as part of this event. Not all events are recorded. See the individual ICS 214 Unit Logs for details.

Time	Description, Notes, Comments
Saturday 21-Febrary	06:15 Arrived at Service Center to retrieve C469 06:35 Depart Service Center for the City Hall 06:48 Arrived at the City Hall 07:15 C469 Setup Complete 07:30 Started the MAC Resource (travel) Net 08:25 DOC swears in 4 MACs as Cupertino DSW 08:27 Closed the MAC Resource (travel) Net 08:30 Started Exercise Briefing 09:02 Briefing Complete, all responders received assignments 09:05 Opened the Event (assignment) Resource Net 09:11 Started the Message Net 09:18 Activated CUPEOC Packet Station 11:15 End of Event announced 11:25 Opened Demob 11:50 Closed the Message Net 11:55 Closed the Event Resource Net 12:00 Closed Demob 12:21 C469 Departs City Hall for Service Center

v. Response at SEMS Levels (as appropriate):

The Field Response was made up of CARES, SCCo MACs, and CERT responders. Staging was set up at the Cupertino City Hall for the safety and event briefing. and distributing assignments.

The following items were noted:

- Six field team assignments were made.
- The Two-Man Rule (buddy system) was in effect for all field responders operating in public spaces.
- Both the Resource Net and Message Net were established (Learning from CUP-25-31T).
- SCCo RACES held a county-wide exercise from 10:00 to 12:00 on the same day.
- No other organizations were involved.

vi. Interacting Systems, Agencies, and Programs

No notifications were made to County Fire or County Sheriff about this exercise. No other interaction occurred.

vii. Improvements, Conclusions, Corrective Actions:

This exercise validated our core operational capabilities while identifying opportunities for procedural refinement, scalability improvements, and equipment readiness actions. The following recommendations are made for corrective action.

Message Passing

1. **Incident Report (911) Form changes**

   Issue: It was not clear from where received messages originated (e.g.: CARES operator, GMRS, ARK Zone).

   Recommendation:

   a. Revisit the required 911 form fields and what must be filled in.
   b. Update the CARES Field Communications Handbook with the 911 question flow (see Cupertino Packet addendum)
   c. Develop an approach and tools to produce a plain text 911 message to be delivered to SCCo EOC (Plan D).

Operational Timeline & Deployment Readiness

2. **Field Setup Time**

   Issue: Packet stations required 20–50 minutes to become fully operational, reducing effective operational window and contributing to rushed exercise activities (e.g., message passing, demobilization).

   Recommendations:

   a. Consider adjusting future exercise timelines to include realistic setup periods.
   b. Build into the plan staggered activation times (e.g., open GMRS/FRS nets “x” minutes after CARES stations are anticipated to be operational).

3. **Extend Exercise Duration**

   Issue: High message volume compressed operational and debrief windows, particularly for packet stations.

   Recommendations:

   a. Evaluate extending exercise duration by 30–60 minutes.
   b. Alternatively, reduce the scenario number and pace that messages should be passed (e.g., 4 or 5 instead of 6 messages; trigger every 30 minutes)

Net Control & Traffic Management

4. **Define Dual Net Control Surge Procedure**

   Issue: The voice message net operated at near capacity during peak periods.

   Recommendations:

   a. Develop procedure and criteria for activating a second message NCS during message surges.

5. **Re-implement split Resource and Message Nets**

   Issue: The CUP-25-29T SNF exercise pointed to overlapping message and resource radio traffic on the same net. Reverting to the split net model worked well for this exercise.

   Recommendation:

   a. Update the CARES SOP and handbooks to reflect this revised approach.

Organization Integration, ARK Operations, and Training

6. **Clarify CERT-to-CARES Message Handling**

   Issue: Some uncertainty existed regarding message routing responsibility for packet vs voice selection for CERT-originated messages.

   Recommendations:

   a. Include the message flow diagram in future briefings.
   b. Clarify for CARES responders who is the site unit lead.
   c. Clarify at the ARK level:
      - Who determines the transmission method,
      - How CERT forms transition to CARES for sending.
   d. Include expectations for Health & Welfare checks if applicable.

7. **Increase CERT & FRS/GMRS Engagement**

   Issue: Neighborhood participation was lower than anticipated.

   Recommendations:

   a. Enhance pre-exercise outreach to the CERT communities.
   b. Update the CERT Field Communications Handbook to add message form examples
   c. Consider developing a CERT Net Control Station Handbook
   d. Consider developing a *GMRS Net Control* class for Cupertino Community volunteers.

8. **General Communications Training**

   Issue: More frequent and focused training is needed to deal with the influx of new members.

   Recommendations:

   a. Schedule periodic CERT *Comm Refresher and Radio Basics* class and *Hands-on Training* for interested Cupertino Community volunteers.
   b. Continue the mandate to pursue an SCCo RACES Type IV Credential (C4) for all CARES field responders.
   c. Encourage CARES members to take SCCo Field and Packet training.
   d. Look for opportunities to deliver more On-The-Air (OTA) training without the overhead of a full field deployment.

Fire Station Equipment Readiness

9. **Formal SCCFD Equipment Inventory & Validation**

   Issue: Station radio kits were not formally checked out; one kit was missing.

   Recommendations:

   a. Coordinate with SCCFD to:
      - Inventory all communication kits,
      - Confirm equipment location,
      - Conduct functional radio tests.
   b. Document equipment readiness status.
   c. Address fire station access by CARES responders with SCCFD operations staff.

Community Access Point (CAP) Operations

10. Develop CAP Site Selection Criteria

Issue: Site constraints (security, terrain, antenna placement, parking) impacted setup efficiency.

Recommendations:

a. Create CAP site evaluation and selection criteria
b. Conduct pre-exercise site walk-throughs where feasible.

Documentation & Interoperability

11. Document Cupertino Procedural Differences from SCC Training

Issue: Differences between Cupertino procedures and county training caused minor confusion for non-Cupertino participants.

Recommendations:

a. Create a short reference document outlining key procedural differences (e.g., message numbering, no staging net, 911 handling conventions).
b. Include in future exercise packets.

12. Improve Demobilization, Documentation, & Log Preservation

Issue: Some operators rushed demobilization and did not retain copies of logs.

Recommendations:

a. Continue to focus on documentation completion from all participants. Ensure Demob lead focuses on completeness of all forms.
b. Include a reminder during debrief and Demob to photograph ICS logs before submission.
c. Allocate structured demobilization time in schedule.

Conclusion

The Winter Storm Communications Outage Exercise successfully validated CARES' core emergency communications capabilities under realistic operational conditions. Field responders were deployed across the city, actionable 9-1-1 traffic was transmitted from multiple locations to the EOC via voice and packet, and ARK and Community Access Point operations were demonstrated as feasible communication pathways. Net Control operations and field coordination reflected strong preparation and effective execution.

The exercise also highlighted the demands created by sustained 'surge' traffic. Message volume during peak periods approached or exceeded our operational capacity, revealing opportunities to formalize load-balancing practices (such as a dual message Net Control model), and clearer message traffic thresholds. Additional refinements were also identified and essentially represent the next stage of organizational development.

Overall, the exercise provided a valuable opportunity to confirm what is working well while identifying practical steps to improve. The lessons learned will help strengthen future operations and guide continued refinement of the CARES' emergency communications capabilities.