

After Action Report Post-Earthquake Windshield Survey Assessment Exercise

Cupertino ARES

19 October 2024

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Overview

Description:	Post-Earthquake Windshield Survey Exercise
Event Type:	Cupertino ARES Exercise
Event Name:	Windshield Survey Assessment
Activation No:	CUP-24-18T
Managing Entity:	Cupertino ARES
Event Date:	9 October 2024
Report Date:	1 November 2024
Report Revision:	1.1 REVIEW
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Requirements for Reporting¹

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 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)."

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.
CAP	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 is 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

1 [After-Action / Corrective Action Reporting | California Governor's Office of Emergency Services](#)

[Planning & Preparedness | California Governor's Office of Emergency Services](#)

2 <https://training.fema.gov/programs/emischool/el366toolkit/glossary.htm>

3 https://www.fema.gov/media-library-data/20130726-1914-25045-8890/hseep_apr13_.pdf

- DOC Department Operations Center manages the overall field CCC deployment aggregates data to be passed to the EOC Advices EOC Staff on CCC capabilities readiness and activities.
- DPW Department of Public Works
- H&W Health & Welfare used within the context of a Health & Welfare Check. Usually check of field teams to sure they are OK.
- Mike-Mike The Modified Mercalli, or Mike-Mike scale, is used by Santa Clara County ARES/RACES to standardize and make more efficient the reporting of earthquake damage. This value is quick and simple to communicate over the air and equates to a standard level of damage as defined in the scale below.

Mike-Mike-1	Not felt at all
Mike-Mike-2	Barely noticed
Mike-Mike-3	Know it was an earthquake somewhere
Mike-Mike-4	Windows, dishes rattle
Mike-Mike-5	Pictures move, doors swing, small items on floor
Mike-Mike-6	Glassware broken, books off shelf, floor lamps topple
Mike-Mike-7	Furniture broken, cannot stand, chimneys fall
Mike-Mike-8	Buildings collapsed

- NCO Net Control Operator
- NCS Net Control Station the control function that ensures the efficient passing of messages between stations on the frequency.
- OEM Office of Emergency Management
- WSA Window Survey Assessment means driving the streets of 33 Survey Areas on which access and infrastructure assessment will be made.

Background and Timeline

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 strengths to be maintained and promoted as well as the potential areas for improvement.

The exercise started with a simulated earthquake at 07:00 on 19 October. Net control came on at 08:00 and called for Mike-Mike reports. The Mike-Mike reports were summarized and communicated via radio to the DOC. Based upon the Mike-Mike reports, the DOC decided to activate the Citizen Corps. Teams of the Cupertino Amateur Radio Emergency Service (CARES) were assigned to conduct a Windshield Survey Assessment.

The focus of this AAR is on the test of Cupertino ARES tools and procedures for performing the Windshield Survey Assessment (WSA). This report is submitted to Cupertino OEM and Cupertino DPW by CARES as a record of our findings, planned follow-up actions, and recommendations to the City.

Summary

Cupertino DPW is tasked with managing City streets, public spaces, right of way trees, facilities, and its vehicle fleet. The Service Center is staffed with about 70 employees who live throughout the Bay Area with commute times ranging between 10 minutes to 30 minutes.

Ideally the best time for an earthquake to strike would be during working hours when Service Center staff would be in house. However, this represents about 25% of the total week meaning the chances that an earthquake could occur when Service Center staff is not present is greater. Assuming an earthquake occurs during non-working hours, CARES proposes to perform an initial city-wide access assessment during the period immediate after an earthquake to ensure city streets are clear for Sheriff Fire and EMS access. The intent is for all 142 centerline miles of City streets to be visually inspected, with problems identified and reports submitted to the Public Works Service Center to jump-start any City access repair activities.

This exercise was designed to test the feasibility of deploying Cupertino Citizen Corps (CCC) members – CARES specifically – to perform the assessment that includes key infrastructure such as bridges, buildings, and schools. Procedures and mapping tools were developed creating 33 Survey Areas of the city so a Windshield Survey of a Survey Area could be completed. The boundaries of the Search Areas are comprised of natural boundaries such as creeks and major boulevards.

CARES members were activated and deployed from our respective homes. All planned objectives were tested.

1. Record and assimilate Mike-Mike reports.
2. Create and dispatch survey teams.
3. Execute the Windshield Area assessments.

A general summary of exercise results is:

Total Survey Area Assessments made:	29 out of 33 survey areas.
Average time per SA	20 minutes
Ave reported miles per SA	4.5 miles
Average Speed	16.9 mph
CARES Participants	16
Field teams with household buddies	1
Field responders going solo	2 (one on bicycle and one in vehicle)

Key Findings

Following the exercise CARES performed an after-action review of our existing operating procedures and new aspects under test. The lessons learned from this review will drive specific activities within key areas of the CARES response. Three specific findings from this exercise are:

Mike-Mike Process

When the net came up after the simulated earthquake, NC requested members call in with their ARK Zone and Mike-Mike number, along with callsign, availability and buddy. The MM reports were recorded on a COES 311, with the summary figures radioed to the DOC. Based upon those summary numbers, the DOC activated the Citizen Corps.

At the request of the OEM, CARES members entered into QuickCapture: 1) "I am OK" and 2) their MM number.

Windshield Survey Process

Seven field teams completed 29 of the 33 defined Survey Areas over a 2.0-hour period. With this level of staffing, the entire city could be checked in about a 2.5-hour period (excludes time used to report MMs, derive teams, and buddies to team up at City Hall). Importantly, this work needs to be prioritized with other response activities with some survey coverage handled by CERT and Block Leaders.

Key infrastructure structures were identified and mapped in most of the survey areas. These assets were displayed on the survey area maps. Survey teams were instructed to note issues with these structures.

Operating Field Net Control from an ARK

The Net opened at 08:00 from a home station. Once the MM reporting and safety briefing completed, two members were dispatched to the Creekside ARK to set up NC station. Once the station was operational, exercise NC was passed to Creekside. The two experienced operators ran the net successfully.

Responding Resources

CARES deployed under activation number CUP-24-18T. Event resources came from the following organizations:

Cupertino ARES RACES CARES staffed a net control station at Creekside ARK and field positions. Sixteen CARES members participated in the 4-hour exercise. Total CARES volunteer hours were 64.

Household buddy One individual was recruited from member households as a field buddy.

Solo. One CARES member conducted the survey on a bicycle, simulating the most practical transportation mode after a large shock.

Timeline

The approximate timeline of this event is displayed below:

Date	Time	Description, Notes, Comments
Saturday 19 Oct	07:00	Simulated earthquake occurs.
	08:00	Resource Net opens and begins receiving Mike-Mike reports.
	08:25	Mike-Mike Reports radioed to DOC.
	08:30	DOC Activates Citizen Corps
	08:44	Survey teams are created, and assignments are made for Windshield Survey of the City.
	08:45	Message Net is open.
	11:30	End of the exercise begins, and Demob starts.
	12:00	Message Net closed

Observations and Recommendations

Observation #1

Recording Mike-Mike reports from the field and relaying a summary to the DOC worked well.

Taking Mike-Mike reports from the field after the Net opened went smoothly. The reports were recorded on the COES 311 Mike-Mike form by the Shift Supervisor, and the summary communicated via amateur radio to the DOC.

Recommendation:

Implement a method for communicating the summary using fewer words.

Observation #2

The Windshield Survey Area Assessment process essentially worked as intended.

The main intent of this exercise was to refresh and train members on the processes for surveying the 142 miles of city street centerlines. With another hour of field time at this resource level CARES could have completed the city review.

This process works sufficiently as is such that it could be deployed now if required. However, implementing the following recommendations will enhance the overall process.

Several CARES teams neglected to fill out all WSA forms and documents properly.

- Changing/combining forms for simplicity should be pursued.
- There should be a tabletop exercise on forms handling before the drill.

Recommendations:

Cupertino ARES

Review and clarify the field process in terms of what to look for, what to report, and coverage overlap of boundary streets.

Conduct a post-event recreation of the radio communications with members at home. Rough spots can be improved with coaching.

Observation #3

While the intent was to look at road access issues it raised the question on how WSA fits within the context of the other assessments that CCC has developed over the years.

Currently CCC has defined and practiced several types of assessment that focus on different assessments types.

1. Preliminary Safety Assessment CARES: An initial snapshot by CARES members of their immediate surroundings with the goal of providing the EOC with a quick look of a sample of homes and multi-family homes.
2. Preliminary Safety Assessment CERT, Block Leaders: A detailed assessment of an individual's neighborhood
3. Infrastructure Safety Assessment CARES. Under MOUs with utilities that provide retail water service and domestic municipal wastewater service to Cupertino residents CARES visually inspects the integrity and soundness of critical assets owned by these utilities.
 - a. A problem with water delivery could impact fire suppression and public health.
 - b. A problem with wastewater services could impact public health and the environment. and cause the shutoff of water.
4. Windshield Safety Assessment CCC: Intended to identify access issues with city streets that could impact a response by Fire, Sheriff, EMS and other city services.
5. Windshield Survey Assessment CCC: Intended to provide the city with a more detailed look at the state of the city including bridges, schools, high density housing, churches, city buildings, hotels, medical facilities, retail food stores, Stevens Creek Dam transportation, signals main thoroughfares and infrastructure; water sewage electricity gas.

The primary recommendation is to perform a comprehensive look at all known CCC assessments with the goal of optimizing our efforts and ensuring their value add to our served agencies.

Recommendations:

Citizen Corps, OEM:

1. Develop an information sheet describing how to assess each asset type when conducting the survey.

Observation #4

The CARES deployment depends on the number of available resources. The priority to staff various positions need to be set within consideration for the needs of the community.

1. Adding the Windshield Survey Assessment to the CARES task essentially places an additional resource load on the organization on top of field assignments to cover ISA, ARK Level, Fire Stations, C469 support and other ad hoc mission requests.

Recommendations:**CARES**

1. Develop a list of objectives to guide the discussion on CARES task priority setting.
2. Develop the assignment order for deploying resources given the task priorities and number of responders available for assignment.

Observation #5

There was a general problem with forms management and recordkeeping. Some forms were incomplete or skipped. The roles of passenger seem to cause work overload: 1) navigation, 2) surveying, 3) writing notes, 4) logging mileage and times, 4) using a felt marker to indicate streets inspected and 6) communicating with Net Control

Recommendation:

Re-design the forms package to reduce the number of forms while preserving the data elements that need to be captured. We should begin by defining what data elements are needed and wanted, then design a special purpose form or two that will lessen the workload.

The passenger overload contributed to problems with incomplete documentation. Documentation needs to be streamlined to ease the workload.

When disseminating instructions and forms prior to the exercise, combine all forms into a single Acrobat file, **Forms.pdf**.

Observation #6

Members of the Forum elected to not participate in the exercise. They were offered just the survey area they reside in. It would have taken about 10 to 15 minutes to survey this area.

Conclusion

CARES needs to assume Forum members will be Forum-centric after a major earthquake and likely not available for duty outside of The Forum.

Observation #7

The hilly streets in western Zone 12 (Regnart Canyon) posed a problem distinguishing private driveways from public streets. The driving time and effort to survey the upper reaches of the canyon are not worth the effort, especially since it is easy to trespass on private driveways.

Recommendation:

Reduce the survey scope of Area 12 to the eastern area.