2015 Communications Outage Drill Prep

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Updated: 9 November 2015



Agenda

- 1. Drill introduction what's the plan?
- 2. Our 21 November scenario
- 3. The assignment

Communications Outage Drill Introduction

Scenario, 21 November 2015

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.



Communications Outage Drill Introduction

Scenario, 21 November 2015

Concept

This will be a functional exercise based on a communications outage event that directly impacts the City and the bay area.

- 1. The Exercise will occur over a 4 hour period on Saturday November 21, 2015.
- 2. The CCC DOC will simulate the EOC response as necessary.
- 3. Field responders will be deployed to County Fire Stations, specific ARKs, and strategic locations throughout the city.
- 4. Assignments are made based on the CARES response model, resource availability, and location priority.
- Because of the number of field positions that need to be staffed, CERT responders and non-CARES Buddies will be actively promoted.
- 6. Field message traffic will be based on time-released scripted messages and simulated interactions with other responders.
- 7. 911 drill traffic will be originated in the field and sent for SCC dispatch.



2015 Communications Outage Drill

*** THIS IS DRILL TRAFFIC **

Power is out throughout the City; there is a risk that residential communications will be out within 2 days.

Thursday morning, Nov 19, 8:00am

Bay Area power outage

Almost all of the Bay Area woke up (late) with no power.

As people scrambled to find and turn on their battery-powered AM Radios, they learned that as massive power failure occurred sometime early Thursday morning, about 2:15am, that took out most of northern California's power system. PG&E and CAISO issued press releases saying that finding and fixing the cause of the outage is in progress.



Thursday afternoon, Nov 19, 1:00pm

Bay Area power outage

10 hours into the blackout.

PG&E holds a press conference and states that some unidentified fault was hampering them from bringing up the power grid per their usual procedures.

- The good news is that they isolated the source of the problem to the Cortina Substation, about 73 miles north of Sacramento.
- The bad news is that the cause is still unknown.





Friday morning, Nov 20, 8:00am

Bay Area power outage

30 hours into the blackout.

County OES holds a press conference and reports the following:

- Essential services remain in operation throughout most of the bay area. In some places, backup generation systems failed.
- Telephone networks are operational, but an increased demand triggered by the blackout left many circuits overloaded.
- Water systems in a few cities lost pressure forcing boil-water advisories to be put into effect.
- Cellular service was spotty as mobile networks were overloaded due to the increase in call volume.
- Major cellular providers continued to operate on standby power.
- Most television and radio stations remain on the air, with the help of backup generators.





Friday afternoon, Nov 20, 3:00pm

Bay Area power outage

38 hours into the blackout.

A joint press conference was held with County OES, PG&E, and several telephone/internet carriers. The news is not good.

- There still is no cause for the problem yet (although there is suspicion of a software defect or worse... a worm or virus).
- Attempts to bring up the grid have failed and PG&E thinks this could go on for another 24 hours.
- AT&T and other carriers stated that the network continues to be overloaded, long delays getting a dial tone, and some backup power systems have started to fail.
- Wireline services may still be working, but most VRAD batteries that support digital phone service will run down tonight. At that point, home phone service for a most of the County will be out.



Friday afternoon, Nov 20, 4:00pm

Bay Area power outage

39 hours into the blackout.

The Cupertino City Manager requested CARES and CERT to activate Saturday *if they wake up to no telephone service at home*. The request is to do the following:

- Set up communications outreach points throughout the City to receive and report on any resident requests for help.
- Support the EOC with the CCC DOC.

A CAS message is sent to all CARES members with instructions to report Saturday to the EOC by 8:00am for field assignments.

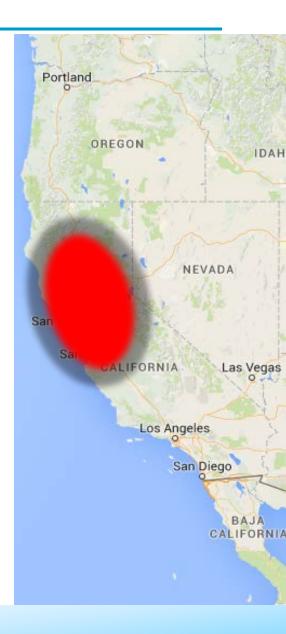


Saturday, Nov 21, early morning, 1:30am

Bay Area power outage

Almost 48 hours into the blackout.

- Wireline and cell phone communications are lost through all of Santa Clara County.
- No dial tones were heard on picking up the handset.
- 911 calling is impossible.



Is this scenario likely?

Accidental Power Outages

Date	Location	Description / Report	Recovery	User Impact
and Canada supply of electricity affecting parts states in the United States. The b tripping of a 230-kilovolt transmis which caused several other heavil cause was human error that happ maintenance personnel incorrectly		The Northeast blackout of 1965 was a significant disruption in the supply of electricity affecting parts of Ontario in Canada and 8 states in the United States. The blackout was caused by the tripping of a 230-kilovolt transmission line near Ontario, Canada, which caused several other heavily loaded lines to also fail. The cause was human error that happened days before when maintenance personnel incorrectly set a protective relay on one of the transmission lines in Queenston, Ontario.	13 hours	30,000,000
8/14/2003	Northeastern U.S. and Canada	The Northeast blackout of 2003 was a widespread power outage that occurred throughout parts of the Northeastern and Midwestern United States, and the Canadian province of Ontario. The cause was a software bug in the alarm system at a control room located in Ohio. 256 power plants were ultimately affected and brought off-line. Impact: loss of water supply (boil water notices issued), sewage discharge into rivers, loss of transportation and traffic control, loss of internet, loss of cell sites when generators ran out of fuel.	1-2 days	55,000,000
9/8/2011	Pacific Southwest	Pacific Southwest power outage of September 8th that struck about 7 million customers of six electric utilities in Arizona, southern California, and northwestern Mexico. The outage was the result of 23 distinct events that occurred on 5 separate power grids in a span of 11 minutes. Human error caused an intersubstation 400KV switch to open with a substantial ripple affect across the region. A federal investigation reported problems in operations planning and situational awareness. San Diego Gas & Electric had a business continuity plan and procedures for power restoration. ²¹	12 hours	7,000,000

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Is this scenario likely?

Nature-caused Power Outages

Date	Location	Description / Report	Recovery	User Impact
Oct-1989	Bay Area	Loma Prieta Earthquake. 6.9m Earthquake approximately 10 mi (16 km) northeast of Santa Cruz on a section of the San Andreas Fault System. Estimated 1.4 million people lost power following the quake, mainly due to damaged electrical substations. Power was restored to most of San Francisco by midnight, and all but 12,000 customers had their power restored within 2-3 days.	2-3 days	~1,400,000
1/17/1994	Southern CA	Northridge Earthquake. 6.0m Earthquake struck Southern California at 4:31 a.m. 82,000 residential and commercial units and 5,400 mobile homes were damaged or destroyed. Many apartment complexes with "soft story" ground floor parking suffered significant damage. About 125,000 people were made temporarily homeless. Massive power outages were reported across LA, total impact was about 1,400,000, with 300,000 residents without power for 1 week.	1 week	300,000
Sep-2005	Louisiana coast	Hurricane Katrina; one of the deadliest hurricanes ever to hit the United States. Virtually all of the critical infrastructure sectors in the region were put out of commission at the same time. Combination of rains and winds downed trees and power lines, leaving 3.9 million people without power across the gulf states.	weeks	3,900,000



Is this scenario likely?

Intentional Power Outages

Date	Location	Description / Report	Recovery	User Impact
4/16/2013	San Jose, CA	Sniper Attack knocked out substation. Perpetrators cut telephone cables, and then spent 20 minutes shooting at the power station. Seventeen (17) giant transformers that deliver power to the Bay Area were knocked out. PG&E rerouted power to the Bay Area through other substations. Service restoration took 27 days to make repairs and bring the substation back on line.	27 days	unknown

If not, what is?

Solar Storm, Solar Flares?

Date	Location	Description / Report	Recovery	User Impact
Sep-1859	Global	Solar Storm (Carrington Event) hit the earth causing Northern lights as far south as Cuba and Hawaii and global telegraph lines to spark, setting fire to some telegraph offices. ²²	Unknown	Unknown
8/4/1972	Illinois	Solar Flare knocked out long-distance telephone communication across Illinois. This event caused AT&T to redesign its power system for transatlantic cables.	Unknown	Unknown
3/13/1989	Quebec	Solar Flare caused geomagnetic storms that disrupted electric power transmission from the Hydro Québec generating station in Canada, blacking out most of the province and plunging 6 million people into darkness for 9 hours; aurora-induced power surges even melted power transformers in New Jersey.	9 hours	6,000,000



If not, what is?

Solar Storm, Solar Flares, Electro Magnetic Pulse (EMP)?

- In 2012, NASA said the sun unleashed two massive clouds of plasma that barely missed a catastrophic encounter with Earth.
 - "A direct strike could've caused widespread power outages and other damaging effects."
 - "If it had hit, we would still be picking up the pieces."
 - NASA also cited research suggesting that there is a 12% chance of something like this happening in the next decade.
- And EMP causes…
 - Meteor strike
 - nuclear detonation



If not, what is?

Loss of connectivity?

Easily discovered events on the web

Accidental cable cuts
 ... 2

Natural Disasters
 4

• Intentional cable cuts ... 16

Date	Location	Description / Report	Recovery	User Impact	Source
Apr-2009	San Jose, CA	Underground fiber-optic cables in California were cut at 4 sites	unknown	10,000s	Press
7/6/2014	Berkley	9:44pm, Near 7th St. and Grayson St.	unknown	unknown	FBI
7/6/2014	Fremont	11:39pm, Near Niles Canyon Blvd. and Mission Blvd.	unknown	unknown	FBI
7/7/2014	Walnut Creek	12:24am, Near Jones Road and Iron Horse Trail.	unknown	unknown	FBI
7/7/2014	Fremont	12:51am, Near Niles Canyon Blvd. and Alameda Creek.	unknown	unknown	FBI
7/7/2014	San Jose, CA	2:13am, Near Stockton Ave. and University Ave.	unknown	unknown	FBI
Feb-2015	Arizona	Vandals cut through an underground bundle of fiber-optic cables	15 hours	10,000s	Press
2/24/2015	Fremont	11:30pm, Near Niles Canyon Blvd. and Mission Blvd.	unknown	unknown	FBI
2/24/2015	Fremont	11:30pm, Near Niles Canyon Blvd. and Alameda Creek	unknown	unknown	FBI
6/8/2015	Alamo	11:00pm, Near Danville Blvd. and Rudgear Road.	unknown	unknown	FBI
6/8/2015	Fremont	11:40pm, Near Overacker Ave. and Mowry Ave.	unknown	unknown	FBI
6/9/2015	Walnut Creek	1:38am, Near Jones Road and Parkside Dr.	unknown	unknown	FBI
6/30/2015	Sacramento	Bay Area vandalism disrupts service to Sacramento, Rocklin	15 hours	10,000s	Press
7/1/2015	San Jose, CA	Unknown persons broke into an underground vault and cut three	unknown	unknown	Press
7/15/2015	San Joaquin Cty	Fiber optic line intentionally cut causes 911 outages	10 hours	unknown	Press
9/14/2015	Livermore, CA	Unknown persons severed two AT&T fiber optic cables	unknown	unknown	Press

Comments on notifications

- And, if there is an abrupt loss of telephone service, how would we notify CARES, CERT, and MRC?
 - CCC... in general, on detecting a problem (phones, power, etc.), listen to Radio Cupertino, 1670 AM
 - CARES... nothing specific planned, but do we have options? What could we do?

Who are the players?

Communications Outage Scenario

County Fire	 Responds to fights structure fires within their jurisdiction Responds to all medical calls
County Sheriff	Handles traffic controlMaintains law and order
County EMS	Responds to medical emergencies, transports
County Comm	Emergency 911 call answering and dispatching for Sheriff, Fire, and EMS
Cupertino EOC	 Staffs the EOC, monitors the situation Provides community information Makes decisions that serve the best interest of its residents
Citizen Corp	Provides CERT, Medical, and Communications resources as needed to support the City and its served agencies

What does the City need? (an assumption)

Communications Outage Scenario

If the power went out and local communications failed...

What they need	What it includes	How do they get it	
Understand the situation outside the city	Commercial power statusState of telecommunications systemsMitigation plans	County OES briefingsNational commercial news outlets	
Know about conditions in Cupertino	 Traffic conditions on city streets State of city responders and resources Shelter status, evacuations Community welfare 	 County Sheriff & Fire City Staff and Citizen Corps Reports and help requests from the community 	

CARES Response – what we generally do

Communications Outage Scenario

1. Preliminary Safety Assessment	CARES collects and reports information about the state of the city immediately after a city-wide emergency or disaster occurred.
2. Field Response	CARES members respond and operate at field assignments during a declared emergency.
3. Infrastructure Safety Assessment	CARES observes and reports on selected Cupertino critical facilities that are deemed to be important to the City or other Agencies.
4. EOC Support	 Staff the Comm Van / Radio Room Provide situation roll-up of field reports Support the EOC

CARES Response – what we specifically will do

Communications Outage Scenario

	Provide situation roll-up of field reportsSupport the EOC
4. EOC Support	Staff the Comm Van / Radio Room
3. Infrastructure Safety Assessment	CARES observes and reports on selected Cupertino critical facilities that are deemed to be important to the City or other Agencies.
2. Field Response	CARES members respond and operate at field assignments with CCC during a declared emergency. • Public Information Outreach • Community Emergency Assistance Request Intake
Preliminary Safety Assessment	CARES collects and reports information about the state of the city immediately after a city-wide emergency or disaster occurred.

Possible Communications Assignments

Communications Outage Scenario

Field Assignments

- 1. Public Information Outreach locations
 - key intersections and/or popular gathering places throughout the City
 - ARKs, Fire Stations
- 2. Community Emergency Assistance Request Intake locations
 - key intersections and/or popular gathering places throughout the City
 - ARKs, Fire Stations
- 3. 911 Message Intake
- 4. Others?

EOC Assignments

- Comm Van: 1 SS, 1 RRO, 1 Message NCS
- Situation Status

DOC

DOC staff



Public Information Outreach – what is it?

definition: Public Information Outreach

- A field assignment where Citizens Corps disseminates information to the community. This information may include:
 - Status of the event or emergency
 - Where residents can go for help or assistance
 - Information on things the community can do now to cope with the emergency
- Information may originate from the EOC or from observations originated by the local Incident Command Post staff.
- 3. Once available, the information is printed (if arrived by packet) or written down (if arrived by voice), and then posted on the public information board.



Public Information Outreach – what is it?



Public Information Outreach

Creating CCC Field Operations teams

Each team will consist of one of the following:

Role of CARES

- Manages all communications with the EOC and other stations.
- Receives voice or packet messages from the EOC or served agencies.
- For Packet messages, prints the message for posting.
- For Voice messages, creates a legible message for posting (could be a shared task with CERT depending on your handwriting).

Role of CERT

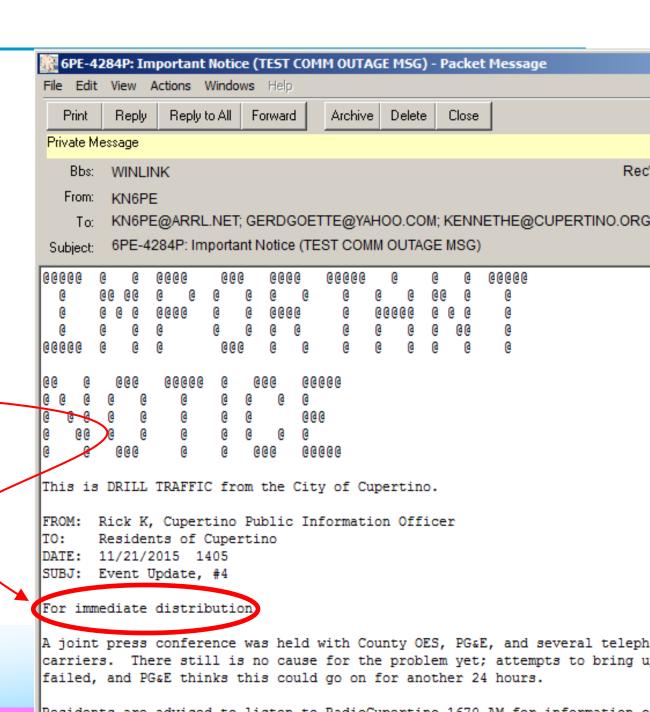
- Public facing member of the team.
- Maintains the accuracy and freshness of messages posted at the information booth.



Public Information Outreach

Packet Messages

- Printing messages for posting means... we have printers at all locations!
- Look for posting instructions



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Public Emergency Information Intake – what is it?

definition: Community Emergency Assistance Request Intake

- A field assignment where Citizens Corps members receive 911-like requests for help because the telephones are out. These requests may include:
 - Medical emergencies
 - Road or utility problems
 - Reports of fire
 - Sheriff assistance requests
- 2. With the loss of residential telephone and cell phone services, residences will need somewhere to go to request help.
- 3. '911' messages will be forwarded to the appropriate agency for dispatch.
- 4. The same CCC Field Operations team structure used for the Public Information Outreach will also be used here.



How will we handle a 911-like call?

- Determine if this is really a 911 request.
 - If this is information only, pass it to the EOC
 - If this is a real emergency (medical, fire, law), pass as a 911 message
- 2. Pass enough information for 911/County Comm to create an actionable and dispatch-able event.
- 3. Use the standard ICS-213 message form to record all information from the Reporting Person (RP). Ask for specifics if necessary.
- 4. Tell the RP to return to their home (or wherever) to wait for assistance to arrive if appropriate.



What does 911/County Comm minimally need to know?

Medical Assistance

- 1. *Age
- 2. *Gender
- 3. *Medical problem (difficulty breathing, unconscious, severe bleeding, etc.)
- 4. When seen last (time)
- 5. Location (address)
- 6. (RP's name, contact phone number)

Fire Report

- 1. *What is burning (Car, building, etc.)
- 2. *What has been done (everyone is safe/trapped, heavy smoke, etc.)
- 3. When seen last (time)
- 4. Location (address, cross-street)
- 5. (RP's name, contact phone number)

Road, Utility Report

- 1. *Type of problem
- 2. *What has been done
- 3. When seen last (time)
- 4. Location (address, cross-street)
- 5. (RP's name, phone contact number)

Law Report

- 1. *Nature of the problem (suspicious person, fight, accident)
- 2. When seen last (time)
- 3. Location (address)
- 4. (RP's name, phone contact number)



Medical Emergency – 911 report

1. Incident Name (Optional):			Priority (E, U, R):	Message No:			
2 T- (Name and Decision).	0.4.4						
2. To (Name and Position):	911						
3. From (Name and Position):	Post Office	e					
4. Subject:	Madiaal		5. Date:	6. Time:			
	Medical E	mergency	11/21/15	9:34am			
7. Message:				•			
84 year old	male with	chest pains.					
He is consc	ious and ta	ılking.					
Address is	10061 Adria	ana Avenue, Cupertino					
Address is <u>10001 Adriana Avenas</u> , Supertino							
RP: Anna S	mith, 408-2	52-7310	out DO NOT PA	SS			
	mith, 408-2 n KN6PE	52-7310 		55			
	·	<u> </u>		SS			
8. Approved by: Name Jin	·	<u> </u>		SS			
8. Approved by: Name Jin	·	<u> </u>		SS			
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8. Approved by: Name Jin	·	<u> </u>		SS			
8. Approved by: Name Jin	·	<u> </u>		SS			
8. Approved by: Name Jin 9. Reply:	·	Signature:	Position/Title:	SS			

REV 140605

Report of a Fire – 911 report

1. Incident Name (Optional):			Priority (E, U, R):	Mes 🗞 e No:
			U	Secolo,
2. To (Name and Position):	911		<i>✓</i>	20 0
3. From (Name and Position):	Sears	RP: I	Linda Ying, 408-2	263-8421
4. Subject:	Tunals Cina		5. Date:	6. Time:
	Truck Fire		11/21/15	10:50am
7. Message:	_		<u>'</u>	
Truck Fire o	n <u>Stevens</u>	Creek Blvd, East Bo	ound.	
Closest cros	ss street: <u>I</u>	East Estates Drive.		
2 right lanes	s are block	ed.		
8. Approved by: Name _lim	KN6PE	Signature:	Position/Title:	
9. Reply:	I KINOI L			
10. Replied by: Name		Signature:	Position/Title:	
COES 213		Date/Time:		
		<u> </u>		

REV 140605

Sheriff Request – 911 report

1. Incident Name (Optional):				Priority (E, U, R):	Message No:
2. To (Name and Position):	911				
3. From (Name and Position):	Main Stre	et			
4. Subject:	Sheriff Re	equest		5. Date: 11/21/15	6. Time: 11:15am
	<u>rolved</u> . 19359 Steve	ens Creek E	← Record,	but DO NOT P Position/Title:	ASS
10. Replied by: Name COES 213		Signature: Date/Time:		Position/Title:	

REV 140605

What it sounds like - Sending a 911 Report

KG6TEU: "Net Control, this is Post Office with 911 Traffic"

NCS: Post Office acknowledged. 911, are you ready to copy traffic?

911: "911 is ready"

NCS: Post Office, your message number is 36. Send your traffic to 911.

KG6TEU: "911, This is Post Office with a Medical Emergency, message #36,

Report Time is <u>9:34am</u>. <u>Break</u>"

911: "OK, Continue"

KG6TEU: "84 year old male with chest pains. Break"

911: "OK, Continue"

KG6TEU: "He is conscious and talking. Break"

911: "OK, Continue"

KG6TEU: "Address is 10061 Adriana Avenue, Cupertino. End of Message.

This is Post Office, KG6TEU"

911: "Acknowledged. This is 911, K6FJC back to net."

NCS: This is KD6TQJ, Net Control for the Cupertino Emergency Net.



What it sounds like - Sending a 911 Report

K6KP: "Net Control, this is Sears with 911 Traffic"

NCS: Post Office acknowledged. 911, are you ready to copy traffic?

911: "911 is ready"

NCS: Post Office, your message number is 37. Send your traffic to 911.

K6KP: "911, This is Sears with a Truck Fire, message #37,

Report Time is 10:50am. Break"

911: "OK, Continue"

K6KP: "Truck Fire on Stevens Creek Blvd, East Bound. Break"

911: "OK, Continue"

K6KP: "Closest cross street: East Estates Drive. Break"

911: "OK, Continue"

K6KP: "2 right lanes are blocked. End of Message.

This is Sears, K6KP"

911: "Acknowledged. This is 911, K6FJC back to net."

NCS: This is KD6TQJ, Net Control for the Cupertino Emergency Net.



What it sounds like - Sending a 911 Report

K6FUZ: "Net Control, this is Main Street with 911 Traffic"

NCS: Main Street acknowledged. 911, are you ready to copy traffic?

911: "911 is ready"

NCS: Main Street, your message number is 38. Send your traffic to 911.

K6FUZ: "911, This is Main Street with a Sheriff Request, message #38,

Report Time is 11:15am. Break"

911: "OK, Continue"

K6FUZ: "Fight at Brewski's Bar and Grill. Break"

911: "OK, Continue"

K6FUZ: "Four people involved. Break"

911: "OK, Continue"

K6FUZ: "Address is 19359 Stevens Creek Blvd, Cupertino. End of Message.

This is Main Street, K6FUZ"

911: "Acknowledged. This is 911, K6FJC back to net."

NCS: This is KD6TQJ, Net Control for the Cupertino Emergency Net.



Delivering a 911 message for dispatch – Going with option 3

1. Option 1: Use EOC to EOC radio.

- 1. County Comm agrees to monitor this frequency (37Mhz) for Cupertino 911 traffic.
- 2. 911 calls from the field are first passed to the EOC.
- 3. An assigned CARES operator re-transmits these messages on the EOC-to-EOC radio

2. Option 2: Use County Fire Frequency.

- 1. County Fire assigns CMD 2x frequency for passing 911-like traffic to County Comm.
- 2. CARES nominates one fire station to receive 911 calls, assigned as TacCall "911"
- 3. 911 traffic is directed to this fire station and then relayed to County Comm on CMD 2x.

3. Option 3: Deploy County MACs to County Comm in San Jose

- 1. County Comm agrees to let a County MAC into their facility and use their ham gear.
- 2. County MAC at County Comm is on a separate "911" RACES net
- County non-PSAP cities direct their 911 traffic to the "911" net at County Comm for dispatch



Timeline

Communications Outage Scenario

Friday, 20 November

- 3:00pm A joint press conference was held with County OES, PG&E, and several telephone/internet carriers. Digital phone service will run down tonight. At that point, home phone service for a most of the County will be out.
- 4:00pm The City Manager requested CARES and CERT to activate Saturday if they wake up to no telephone service at home. The request is to do the following:
 - 1. Set up communications outreach points throughout the City to receive and report on any resident requests for help.
 - 2. Support the EOC with the CCC DOC.
- 4:15pm A CAS message is sent to all CARES members with these instructions:
 - CARES & CERT is activated Saturday morning under "CUP-15-26T"
 - ii. Available responders are to report to the EOC Saturday morning at 8:00am for a briefing and assignments.
 - iii. the Resource Net will be activated at 7:30am to track responders to the EOC.



Timeline

Communications Outage Scenario

Saturday, 21 November

- 0730 Comm Van at EOC, resource Net is operational.
- 0800 Assemble at the EOC Parking Lot, Safety Briefing, make Field Assignments
 - 1. Cupertino Fire Station (2)
 - 2. Seven Springs Fire Station (2)
 - 3. Monta Vista Fire Station (2)
 - 4. Post Office (2)
 - 5. City Hall (2)
 - 6. Main Street (2)
 - 7. 5 ARKs (DeAnza, Lawsen, Regnart, Hyde, Garden Gate) (10)
 - 8. The Forum
 - 9. Comm Van
 - 10. Others?
- 0900 911 Net is staffed.
- 0900 All field responders at their posts.
- 1100 Secure field operations, travel back to the EOC for debrief.
- 1130 Hold debrief.
- 1230 End of the Event.



Questions



