

#### **EMERGENCY PREPAREDNESS WORKSHOP:**



# **Communications in Emergencies**

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#### This presentation is available on my website:







- Today, we receive communication from dozens of sources...
- Telephone, Cell Phones, TV, Radio, Cable, Internet, Text Messaging, Email, Mail, Faxes, GPS, etc...
- Our communications network is comprised of Telecom lines, Wireless telephone networks, Broadcast & Cable TV, Radio, Satellites & the Internet.
- Our country has the most extensive & dependable communications infrastructure in the world.





• In emergencies, we can call our loved ones or dial 911 to request the help of emergency services.

• We gather important local breaking news on our televisions or radios.

• Despite the dependability of these networks, we have recently seen events that have overloaded or even caused them to fail.



- How do we communicate with our loved ones or gather important information in emergencies?
- How do we communicate when "traditional" communication lines are down?











# Dial 911 (Land line)

- Teach your children 911 basics.
- When dialing 911 from a landline, the emergency operator will already know your address (In most cases).
- Your 911 call will automatically be connected to the police, fire or EMS agency that handles the area where the telephone is located.



- If you dial 911 and hang-up without speaking to anyone, the emergency operator will call you back, if no one answers, they will dispatch a police officer to your home.
- If you are home alone and for example having a heart attack or choking, consider dialing 911 and setting the phone down (if unable to speak) and opening the front door so emergency services can enter to help you.

• It is believed that 1/3 of all 911 calls are made from cell phones (Increasing).





• When dialing 911 from a cell phone, you may be first connected to a regional operator and then transferred several times or placed on hold before you can speak to your local emergency operator.





Challenges Posed by Wireless 911 Calls

- Cell phones are mobile. They do not represent a fixed location or address.
- A cell phone user could be calling from anywhere.
- 911 dispatch will know the closest cell tower to the caller but not always the exact location.
- This slows down the response time of emergency services as they try to determine where the caller is located.

#### 911 Caller Pin-Pointing

• To improve public safety, the FCC has launched new rules to improve the reliability of wireless 911 services & the location information transmitted with a wireless 911 call.

• Will enable emergency services to provide assistance to 911 callers much more quickly.

• Many metro areas already have this service in place.

• October 2013, 98% of population has wireless location services. (www.nena.org)



Tips for Wireless 911 Calling

- Tell the emergency dispatcher the location of the emergency right away.
- Give the operator your wireless phone number so that, if you get disconnected, they can call you back.

# Emergency Alert System (EAS)





• The Emergency Alert System (EAS) is a national public warning system that requires all TV and radio stations to offer to the President the communications capability to address the American public during a national emergency.





• The system also may be used by state and local authorities to deliver important emergency information such as AMBER (missing children) alerts and emergency weather information targeted to a specific area.







The Federal Communications Commission (FCC) is in charge of the infrastructure



Only the President determines when the EAS will be activated at the national level, and has delegated the administration of this function to the Federal Emergency Management Agency (FEMA).



The National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) uses the EAS on a local and statewide basis to provide the public with alerts and warnings regarding dangerous weather and other emergency conditions.

# Emergency Alert System (EAS)

• The EAS allows stations to send and receive emergency information quickly and automatically, even if their facilities are unattended.

• EAS equipment also provides a method for automatic interruption of regular programming, and in certain instances is able to relay emergency messages in languages other than English.





- A state emergency manager can use EAS to broadcast a warning from one or more major radio stations in a particular state.
- EAS equipment in other broadcast stations, can automatically monitor and rebroadcast the warning.
- EAS equipment can directly monitor the NWS for local weather and other emergency alerts, which other local stations can then rebroadcast, providing an almost immediate relay of local emergency messages to the public.





# EAS / NWR S.A.M.E

• The Emergency Alert System (EAS) is designed so officials can quickly send out important emergency information targeted to a specific area. The EAS is a digital-based automated system and use coding protocols called Specific Area Message Encoding (SAME).

• If you buy a NOAA radio with S.A.M.E. technology, you can receive reports of weather warnings or non-weather related emergencies for your specific area.

# NOAA Radio







#### NOAA RADIO + S.A.M.E.

Emergency Radio With NOAA Frequencies



• NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather & emergency info. NWR also broadcasts warning & post-event info. for all types of hazards – including natural (ex. earthquakes or avalanches), environmental (ex. chemical releases or oil spills), and public safety (ex. AMBER alerts or 911 Telephone outages).

• Broadcasts are found in the VHF public service band at these 7 frequencies:

162.400	162.425	162.450	162.475	162.500	162.525	162.550
MHz						

Phoenix

NWR Radio Frequencies All states: <u>http://www.weather.gov/nwr/indexnw.htm</u> AZ NWR Radio Frequencies <u>http://www.weather.gov/nwr/CntyCov/nwrAZ.htm</u>

#### Arizona - NOAA Weather Radio

COUNTY/CITY/AREA	SAME #	NWR TRANSMITTER	FREQ.	CALL SIGN	WATTS	REMARKS
Apache	004001	Greer	162.525	KXI23	100	NC SC S
Apache	004001	Lake Powell, UT	162.550	WXM89	100	N 1/4
Apache	004001	Show Low	162.400	WNG548	400	
Apache	004001	Window Rock	162.550	WWF99	100	NC N
Cochise	004003	Safford	162.550	KXI24	100	NORTHWEST
Cochise	104003	Safford	162.550	KXI24	100	NORTHWEST
Cochise	304003	Safford	162.550	KXI24	100	NORTHEAST
Cochise	704003	Safford	162.550	KXI24	100	
Cochise	904003	Safford	162.550	KXI24	100	
Coconino	004005	Flagstaff	162.400	WXK76	300	NOT NW NC NE
Coconino	004005	Grand Canyon	162.475	WWF52	100	
Coconino	004005	Greer	162.525	KXI23	100	SOUTHEAST
Coconino	004005	Lake Powell, UT	162.550	WXM89	100	N 1/4
Coconino	004005	Payson Gila County N.	162.425	WWG41	100	
Coconino	004005	Prescott	162.525	WWF98	100	NORTHWEST
Gila	004007	Globe Gila County S.	162.500	WWG42	100	Southern
Gila	004007	Greer	162.525	KXI23	100	NORTHCENTRAL NE
Gila	004007	Payson Gila County N.	162.425	WWG41	100	
Gila	004007	Prescott	162.525	WWF98	100	NW
Gila	004007	Show Low	162.400	WNG548	400	
Graham	004009	Safford	162.550	KXI24	100	SOUTHEAST
Greenlee	004011	Safford	162.550	KXI24	100	
La Paz	004012	Kingman	162.425	KX183	100	NORTH CENTRAL

#### Arizona - NOAA Weather Radio

COUNTY/CITY/AREA	SAME #	NWR TRANSMITTER	FREQ.	CALL SIGN	WATTS	REMARKS
La Paz	004012	Lake Havasu	162.400	KXI84	100	NORTHWEST
Maricopa	004013	Payson Gila County N.	162.425	WWG41	100	
Maricopa	004013	Phoenix	162.550	KEC94	300	
Mohave	004015	Bullhead City, NV	162.500	KQC45	200	SOUTHEAST
Mohave	004015	Kingman	162.425	KXI83	100	CENTRAL
Mohave	004015	Lake Havasu	162.400	KXI84	100	SOUTHREN
Mohave	004015	St. George, UT	162.475	WWF51	100	N 1/4
Navajo	004017	Flagstaff	162.400	WXK76	300	SC S
Navajo	004017	Greer	162.525	KXI23	100	NC SC S
Navajo	004017	Lake Powell, UT	162.550	WXM89	100	N 1/4
Navajo	004017	Show Low	162.400	WNG548	400	
Pima	304019	Tucson	162.400	WXL30	100	E
Pima	404019	Tucson	162.400	WXL30	100	С
Pima	904019	Nogales	162.500	WNG703	100	SOUTHEAST
Pima	904019	Tucson	162.400	WXL30	100	SOUTHEAST
Pinal	004021	Payson Gila County N.	162.425	WWG41	100	
Pinal	004021	Phoenix	162.550	KEC94	300	NORTHWEST
Pinal	904021	Tucson	162.400	WXL30	100	SE
Santa Cruz	004023	Nogales	162.500	WNG703	100	SOUTHEAST
Yavapai	004025	Flagstaff	162.400	WXK76	300	NW NC NE C
Yavapai	004025	Payson Gila County N.	162.425	WWG41	100	
Yavapai	004025	Prescott	162.525	WWF98	100	ALL BUT S SW
Yuma	004027	Yuma, CA	162.550	WXL87	100	



#### Reverse 911

#### http://www.maricoparegion911.org/index.htm





#### PUBLIC SAFETY ANSWERING POINTS

Apache Junction Police Arizona State Capitol Police Arizona State University Police Avondale Police Buckeye Police Chandler Police Arizona Department of Public Safety El Mirage Police Fort McDowell Police Gilbert Police Glendale Police Goodyear Police Luke Air Force Base Maricopa County Sheriff's Office Mesa Police and Fire Paradise Valley Police Peoria Police Phoenix Fire Phoenix Police Rural Metro Fire Salt River Police Scottsdale Police Surprise Police Tempe Police Tolleson Police Wickenburg Police

#### Reverse 911

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- Instead of you calling 911 to report an emergency, Emergency Services, knowing there is an emergency in your immediate area, can call you.
- All land lines are already connected as they are tied to a fixed location...your home. (CenturyLink, Cox)
- Cell phones and VoIP phones can also be registered at:

http://www.maricoparegion911.org/index.htm





#### **Emergency Notifications via Email or SMS**



**General Information** 

Access

#### http://www.weather.gov/subscribe



#### **Emergency Notifications via Text Messaging**

LISTING OF ALTERNATIVE SOURCES OF WEATHER ALERTS	
General Information	Access
ACEMWIN-HURR-L Hurricane Bulletins Listgroup Alachua County Skywarn maintains a listserv to provide email alerts of hurricane/tropical storm information for the Atlantic and Gulf of Mexico regions. Information is generated at the National Hurricane Center.	E-mail
AccuWeather AccuWeather.com provides free email forecast and severe weather alerts.	E-mail free
<u>Alachua County EMWIN Project</u> The Alachua County EMWIN Project provides free weather bulletins to your e-mail, pager, or cellphone - as a public service to the local Alachua County and surrounding North Central Florida communities.	E-mail, text free
<u>AlertFM</u> ALERT FM is an aggregator of State and Local emergency information with multiple contact paths for mass notification. Emergency information is delivered via the data subcarrier of existing FM radio stations, SMS (text) and	E-mail and commercial receivers
email. This personal alert and messaging system allows emergency management officials to create and send digital alerts and messages to recipients such as first responders, school officials, businesses, and citizens based on geographic or organizational groupings. Such alerts and messages might include NOAA weather warnings, evacuation instructions, homeland security notices, Amber Alerts, or school closings.	Buy receiver
AudioNow AudioNow™ lets broadcasters reach over 300 million cell phone users at no incremental cost through our proprietary patent pending technology. Users can now listen to your broadcasts on any phone. No expensive phones or data plans necessary!" AudioNow provides mobile streaming to any mobile device.	E-mail and telephone (broadcaster pays for service)
Listeners can access the latest local National Weather Service forecast by calling any of the numbers below. This is a beta service which is only provided in the Washington DC metro area at this time.	
Washington, DC area - <u>202-349-0185;</u> Manassas, VA area - <u>703-652-1210;</u> Baltimore, MD - <u>410-500-4450;</u> Fredericksburg, VA area - <u>540-322-4035</u>	
BoatU.S.	Email
forecast track, wind bands and wind field for each named storm. Choose to receive alerts from one or more of 5 regions in the Atlantic or Gulf of Mexico.	\$
<u>Call Loop</u> Call Loop - makes it easy for schools, organizations, and local government agencies to send emergency alerts via	Mobile device





- In case of an emergency, how would the police or paramedics know who to contact?
- In an emergency, hospital staff or emergency services often waste valuable time searching through wallets and cell phones to determine which numbers to call.

#### Solution:

In Case of Emergency (ICE) Campaign



- Here is how it works: Store the word "ICE" into your cell phone's contact list followed by the phone number of the person you wish to be contacted "In Case of Emergency". For more than one emergency contact, enter them as follows: "ICE1", "ICE2", "ICE3", etc...
- Sometimes emergency services can't find an ID on the patient so when they try to notify next of kin, they have no name to give them nor will they know who they are calling. Consider entering the names as follows:

ICE1 Bob's (Wife) ICE2 Bob's (Father) ICE3 Bob's (Doctor) ICE4 Bob's (Work)



Suggestions:

- 1. For cell phones belonging to children, make sure the ICE contacts include parents or guardians (those able make medical decisions on there behalf).
- 2. Make sure you request permission from those you intend to use as your ICE contacts.
- 3. Use phone numbers for your ICE Contacts that they are most likely to answer (i.e. cell phone, instead of home number).
- 4. Make sure your ICE contacts have a list of other important phone numbers and is familiar with your medical conditions, allergies, and prescriptions.



**Emergency Contacts** 

- Keep a list of important information & phone numbers in an obvious location.
- Make the list understandable from a stranger's perspective.
- What if a paramedic is trying to make sense of it?
- See the following example:





#### Family Emergency Contact Sheet



The First Aid Kit is located:

C 17.0					
General Info-	Emergency Phone #'s				
Home Address:	Emergency Services: 911				
Home Phone #:	Police:				
Father Work #:	Fire:				
Mother Work #:	Ambulance:				
Father Cell #:	Hospital:				
Mother Cell #:	Urgent Care:				
Babysitters:	Poison Control:				
Emergency Contacts:	Gas Company:				
Out-Of-Town Contact:	Other:				
Insurance [Primary]	Insurance [Secondary]				
Medical:	Medical:				
Pharmacy:	Pharmacy:				
Dental:	Dental:				
Vision:	Vision:				
Father Name:	Mother Name:				
DOB: Blood type:	DOB: Blood type:				
Allergies:	Allergies:				
Medical Conditions:	Medical Conditions:				
Medications:	Medications:				
Doctors:	Doctors:				
Dentist:	Dentist:				

Child 1 Name:		Child 2	Name:			
DOB:	Blood type:	DOB:		Blood type:		
Allergies:		Allergies:				
Medical Conditions:		Medical Con	ditions:			
Medications:		Medications:				
Doctors:		Doctors:				
Dentist:		Dentist:				
School/Teacher:		School/Teach	ier:			
Child 3 Name:		Child 4	Name:			
DOB:	Blood type:	DOB:		Blood type:		
Allergies:		Allergies:				
Medical Conditions:		Medical Conditions:				
Medications:		Medications:				
Doctors:		Doctors:				
Dentist:		Dentist:				
School/Teacher:		School/Teacher:				
Church Contacts						
Bishop:		Relief Society President:				
Home Teacher 1:	Visiting Teacher 1:					
Home Teacher 2:	Visiting Teacher 2:					





Father is at work downtown, Mother is at home with youngest child. Two older children are at school. A message is sent over the Emergency Alert System (EAS) that a disaster is eminent and everyone should evacuate the city ASAP. There is no time to rendezvous at home before leaving town.

# What do you do?






#### Call Each Other! (For this example on a land line)







#### The land lines are down.

#### Now what do you?





#### Call on a Cell Phone!



The Local Telephone Network is Jammed due to everyone else making calls.

Now what do you do?





Call your Long Distance Contact! Have your Long-Distance Contact call your spouse to relay your message. Long-distance & local networks are different. One may work while the other is strained or down.





#### The Long Distance Network is Down.

#### Now what do you do?







Send a Text Message. Text messages require less bandwidth to transmit than a voice call. It may get through even when the network is full. If not, it will go through as soon as enough bandwidth is available.





# You don't have text messaging enabled on your phone.

#### Now what do you do?





 $\checkmark$ 

Have important decisions already made!

- Who will pickup the kids and in what circumstances.
- Where will you meet based on certain factors?
- Where will you leave messages for each other?
- Where will you meet if sent to a shelter?





• If we have to leave home but not the neighborhood meet

• If we have to leave the neighborhood but not the town meet

• If we have to leave town but not the State meet

• If we have to leave the state but not the country meet

If we have to leave the country meet \_\_\_\_\_\_



# • Have previously determined rendezvous locations marked on a map or in a GPS system.









- One of the Citizens Band Radio Services.
- Used by family & friends to communicate within a neighborhood & while on group outings.
- Communications range of less than one mile.
- FRS radios have a maximum power of ½ watt (500 milliwatt).
- Frequency: Band(s) 462.5625-467.7125 MHz.
- No Licensing Required.

http://wireless.fcc.gov/services/index.htm?job=service\_home&id=family



- One of the Citizens Band Radio Services.
- Used by family & friends to communicate within a neighborhood & while on group outings.
- Communications range of 3-10 Miles. External Antenna can be attached.
- FRS radios have a maximum power of 2 watts
- Frequency: Band(s) 151.820-154.600 MHz.
- No Licensing Required.
- Radios cost about \$70-\$80 each

http://www.fcc.gov/encyclopedia/multi-use-radio-service-murs-0

## General Mobile Radio Service (GMRS)

- A land-mobile radio service available for short-distance two-way communications to facilitate the activities of an adult individual and his or her immediate family members
- Communications range of 1-3 miles.
- GMRS radios generally transmit at higher power levels (1 to 5 watts)
- Frequency Band(s): 462-467 MHz.
- Licensing Required: \$85 for a 5 year license.
- License Application : <u>http://www.fcc.gov/Forms/Form605/605main.pdf</u>

http://wireless.fcc.gov/services/index.htm?job=service\_home&id=general\_mobile



# Signaling



## Upside-Down Flag = Distress





## 3 = Distress







## Flares (Road or Aerial)































## Also Consider.....



## **Corded Phone**

• Have at least one corded phone in your home.

• This way you can make calls when the power is out but phone lines are working.



### Phone Card





Al&I PrePaid Phone Card Pus Rechargeable Minutes of U.S. state-to-state calling In-state rates may be higher, International rates are higher.

TAAA



## Coins





## **Information Cards**

• Cards with current pictures can help communicating with police on lost family members.



## International Ground-to-Air Signal Codes



#### The Two Most Reliable Forms of Emergency Communication





## Ham Radio and Satellite Phones

- No or little network infrastructure that can be destroyed.
- Portable and can quickly be setup in emergencies.
- Satellite phones are expensive.
- Ham Radio operators require a license.



## Satellite Telephones

Satellite Phone Plan	Annual	Monthly	Per Minute Rate
Satellite Phone Rental Rates	\$365.00	\$52.50	\$6.00/\$1.49





Ham Radio

- While Hams my use a repeater or the internet, they don't have to.
- Hams can talk straight through to each other because each station is 100% independent. (Simplex)
- Hams can communicate with each other with no other infrastructure.
- Using the right frequencies, power, and antennas, Hams can talk to people across town or around the world.





BEWARE OF THE HAM RADIO OPERATOR





### Ham Radio

#### • Ham Radios come in all shapes and sizes.











## Ham Radio

• Point-to-point communications vs. Point-to-many communications.



#### Do point-to-many exercise:





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