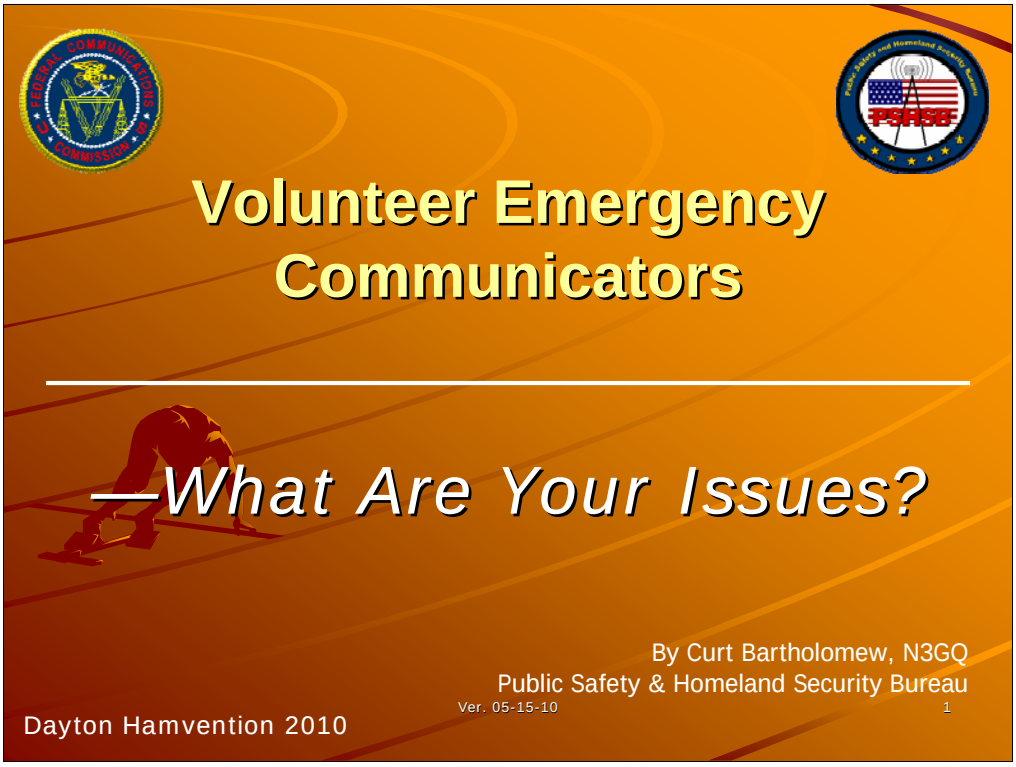


Good morning! My name is Curt Bartholomew and I serve in the FCC's Public Safety and Homeland Security Bureau as its Senior Emergency and Continuity Manager.

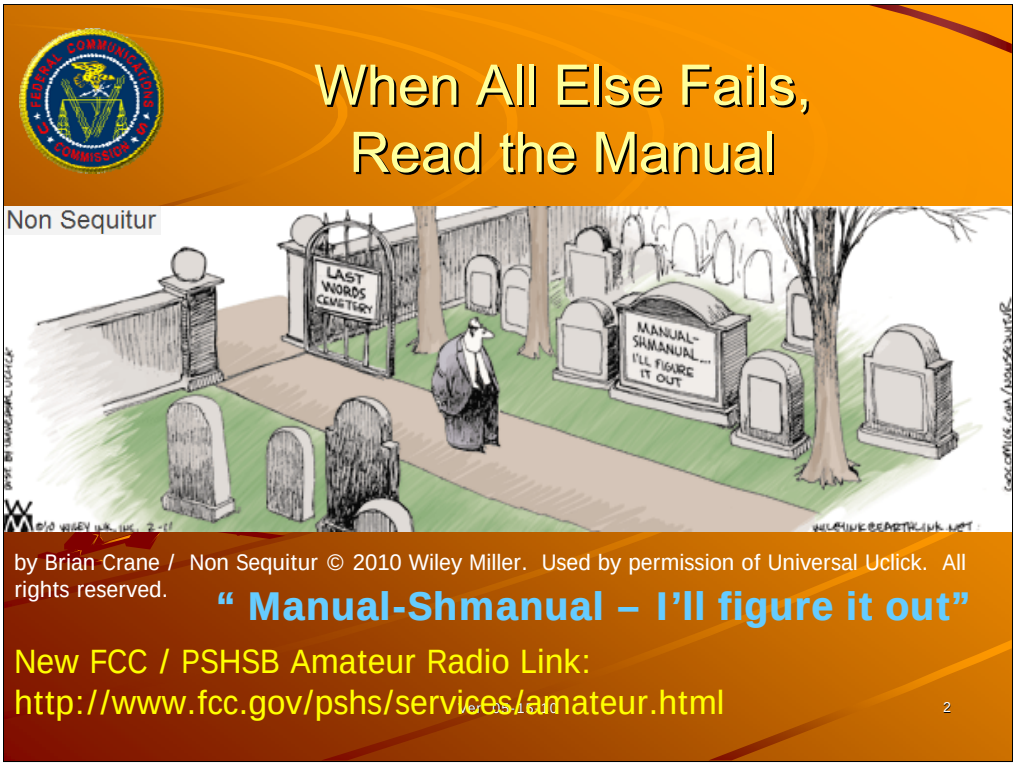
I would like to thank the Dayton Hamvention organizers and volunteers for setting up this forum.

I would also like to thank Bill Cross here from the Wireless Telecommunications Bureau for kindly giving up 20 minutes of his time so that I cold be here today. The Sunday slot that was offered does not allow me to get back to DC in time for our national continuity exercise that kicks off on Monday.

My role at the FCC involves Public Safety, Homeland Security, and Emergency Management. While we do assist the Enforcement Bureau when asked, those activities are not our primary focus.

I am happy to report that 2 months ago, my county Sheriff, Fire Chief, 911 Center Director, and Emergency Manager honored my 62-member volunteer emergency communications team with plaques and certificates for managing the ESF-2 function at the EOC, staffing shelters, and coordinating communications with the Red Cross during 3 severe snow storms in 2009 and 2010.

Also, it is great to note that Mike Corey, W5MPC, has joined the ARRL Staff as its Emergency Preparedness and Response Manager.

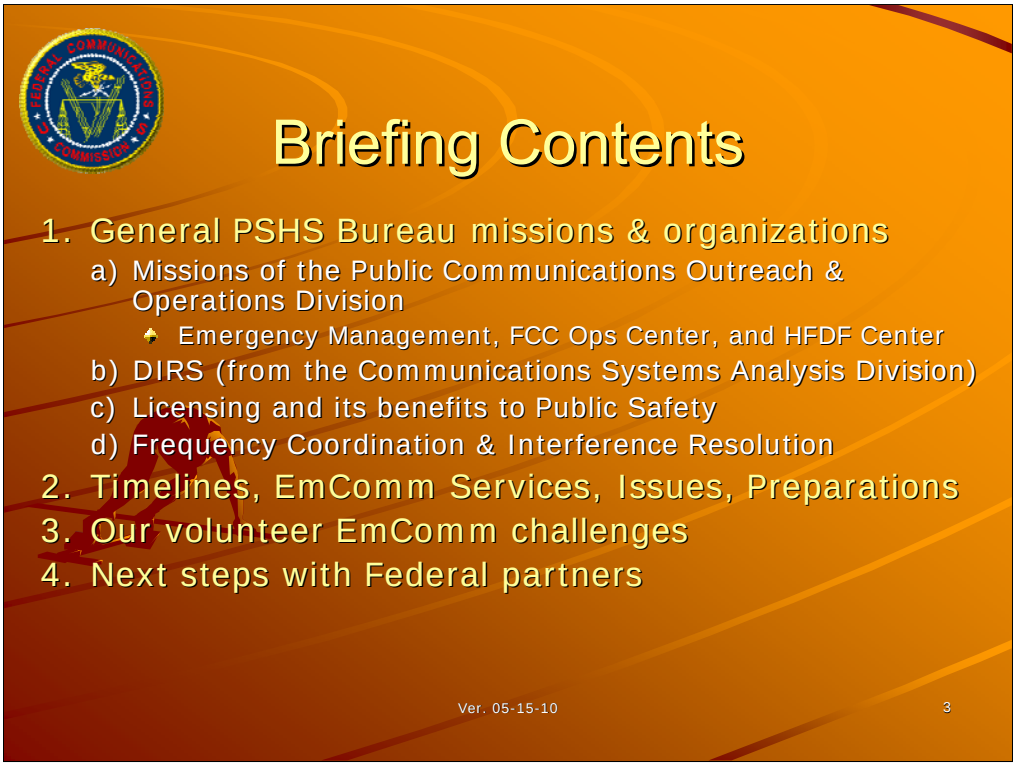


I am very pleased to be here and happy to have this chance to discuss with you the serious side of Amateur Radio – *Emergency Communications* – and our role in it, as Amateur Radio Operators.

As this slide suggests, please do read your equipment manuals – we are in short supply of Elmers these days.

If you did not have an opportunity to attend my presentation here last year, it was posted on our new FCC Bureau web site in April this year. Here's the link: http://www.fcc.gov/pshs/services/amateur.html. That presentation includes 125 slides that described:

- The organizations and missions of our new bureau,
- Current & Evolving Telecommunications Networks & Systems and how they relate to Amateur Radio emergency communications response.
- Response timelines,
- EmComm Services,
- Some EmComm issues,
- EmComm Preparations,
- Our volunteer EmComm challenges & the FCC's role, and
- A proposal to convene an FCC Emergency Communications workshop and Summit for the Amateur Radio Service.



To answer your question as to why you came here, here is what we would like to cover in this hour.

Although I tried to cut it down, there is a lot of information in this presentation

We are going to talk about the following 4 topics in the order as shown on the slide.

First, the obligatory organization chart and where my new Division fits into Emergency Response.

Then we will discuss our missions that are related to disaster and emergency response as they relate to communications outages.

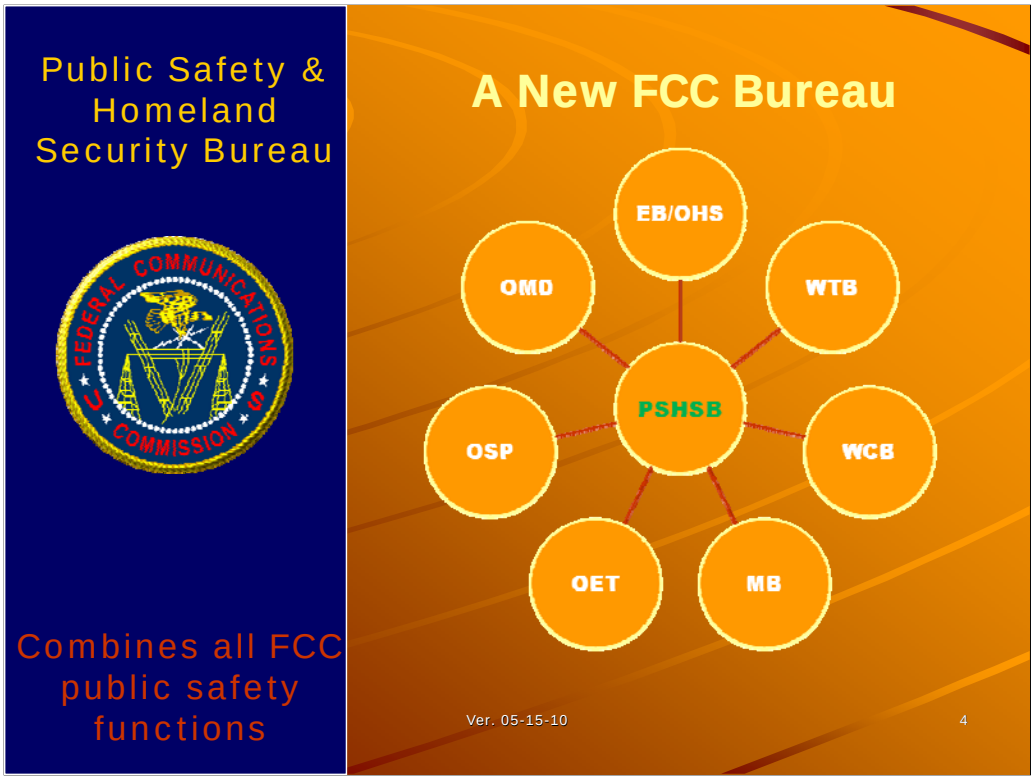
Then, to help us visualize the bigger picture, we will take your thru a quick series of Telecommunications Technology 101 information regarding the various current and future communications networks and systems and where some of their vulnerable points are that become inoperative or are overloaded during emergencies and disasters.

Finally, we will talk a little about timelines, served agencies, the various EmComm services, guidance, issues, preparation for significant events, and, finally what the federal government's role should be regarding volunteer EmComm.

There's quite a bit of acronym soup here, so I have a handout with the acronyms in this briefing in case you need to check them.

>>JOKE<<

Juggler & Highway Patrol traffic stop



The creation of the Public Safety and Homeland Security Bureau advanced Congress's mandate in Section 1 of the Communications Act that the Commission … promote the "safety of life and property" through the use of communications services.

Creation of this new Bureau facilitates an essential Commission role … to ensure a robust and reliable public safety communications system and effective communications during and after emergencies.

In creating the new Bureau, the Commission combined the public safety-related functions of the Enforcement, Wireless, Wireline, and Media Bureaus, and the Offices of Managing Director, Strategic Plans & Policy, and Engineering & Technology, into a single Bureau dedicated to the promotion of reliable communications for public safety and disaster management.

The Bureau consists of three divisions: the Policy Division; the Public Communications Outreach & Operations Division; and the Communications Systems Analysis Division.

Some folks have been wondering – since when has the FCC been calling its licensees during emergencies and disasters?

Local governments do not usually welcome any calls from federal agencies, especially from regulatory agencies; but in this case, we really are trying to help them.

It started 2 years ago after the formation of the Public Communications Outreach & Operations Division or PCOOD.

Because the FCC Bureau and Division I work in are just three years old, many of you may be unaware of their existence or what they do.

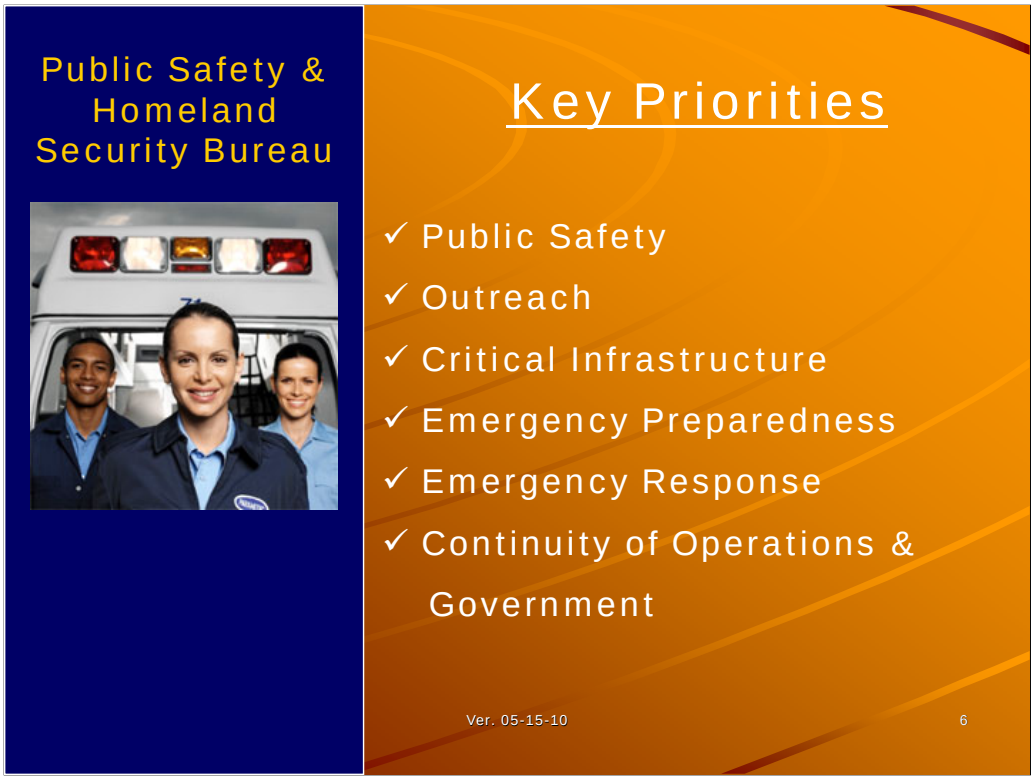
The Public Communications Outreach & Operations Division (PCOOD) manages and leads the FCC's All Hazards emergency preparedness and response activities.

PCOOD operates both the FCC's Geo-Location & Analysis Center and the FCC Operations & Security Center 24x7.

PCOOD staff members are subject matter experts in a variety of technical disciplines and deploy to the field to provide assistance to FEMA, state, local, and tribal governments and the public safety community with disaster response and recovery of communications.

PCOOD provides leadership and support for interagency working groups and intergovernmental coordination, and guides FCC COOP, COG, and Pandemic planning.

Staff members also work with industry and state representatives on the development of state plans for implementation of the Emergency Alert System.



The Bureau's key priorities are as listed on the slide:

(1)Public Safety;

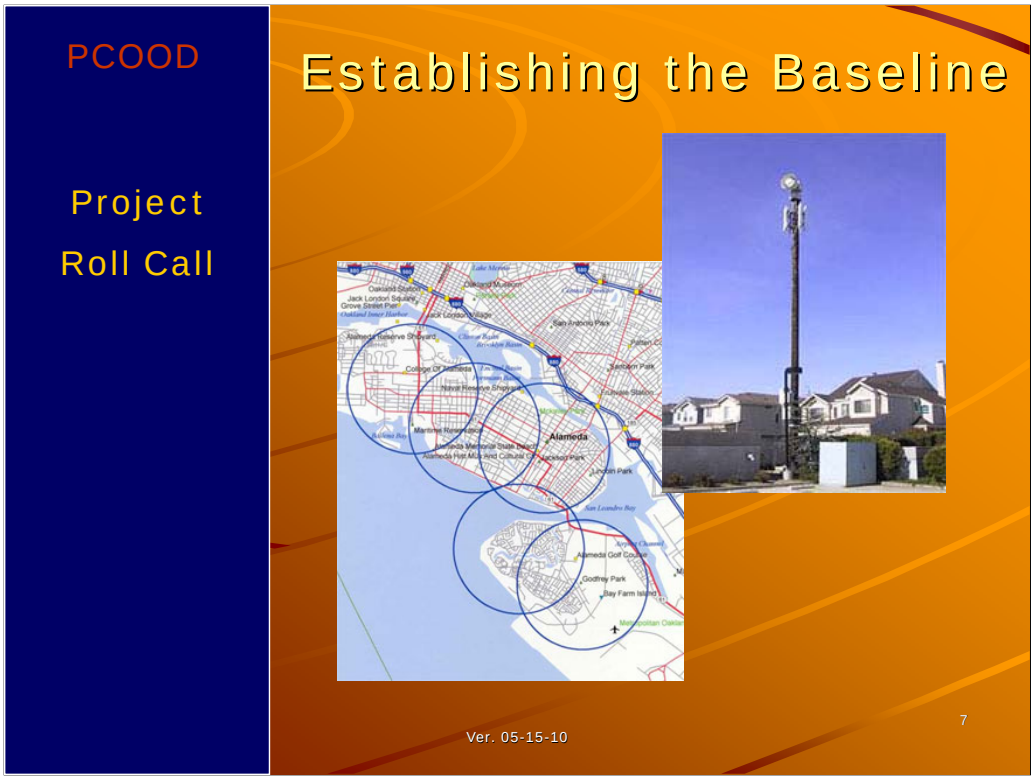
(2)Outreach;

(3)Critical Infrastructure;

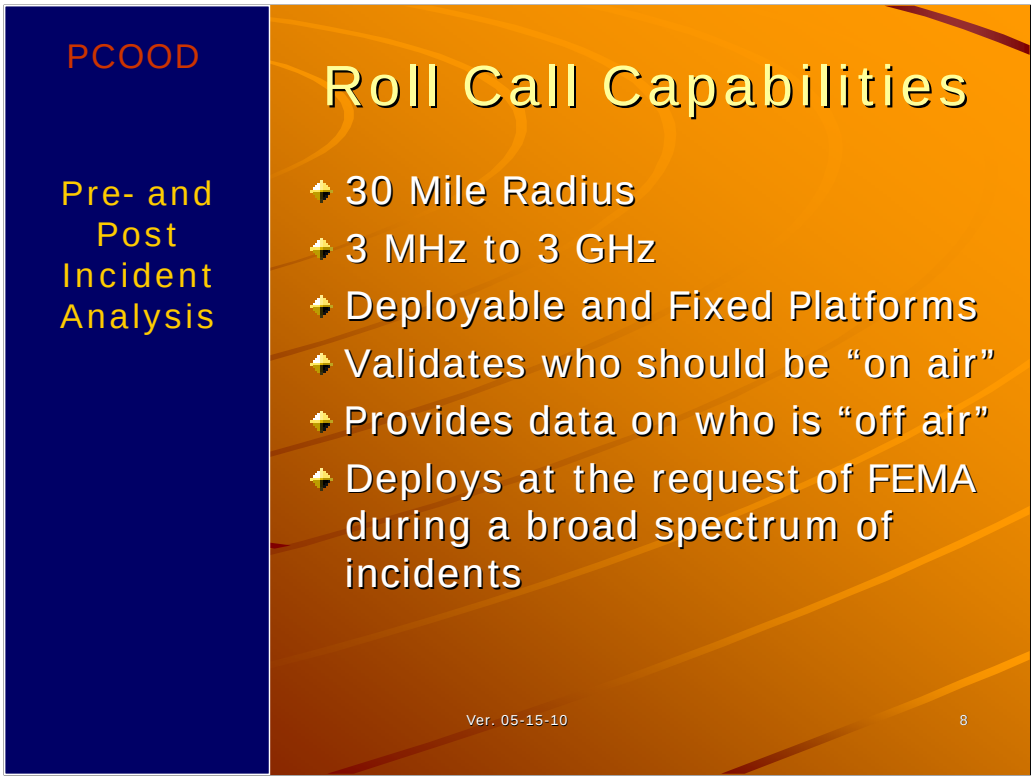
(4)Emergency Preparedness;

(5)Emergency Response; and

(6)Continuity of Operations/Continuity of Government.



First we establish a baseline, using Project Roll Call, which uses a spectrum analyzer, FCC proprietary data, and analysis software to provide a report on operational radio systems in the area.



Here are the general capabilities of our new Roll Call system.

This is a photo of one of the Roll Call teams.

PCOOD

Public Safety, Broadcast, and Health Care Licensees

Outreach

- Cross Bureau Involvement
  - Television
  - Cable
  - Radio
- PSHSB Outreach
  - First Responders
  - Hospitals/Trauma Center
- AM/HF Surveillance
  - Geo-Location & Analysis
- Pre Incident
- Post Incident

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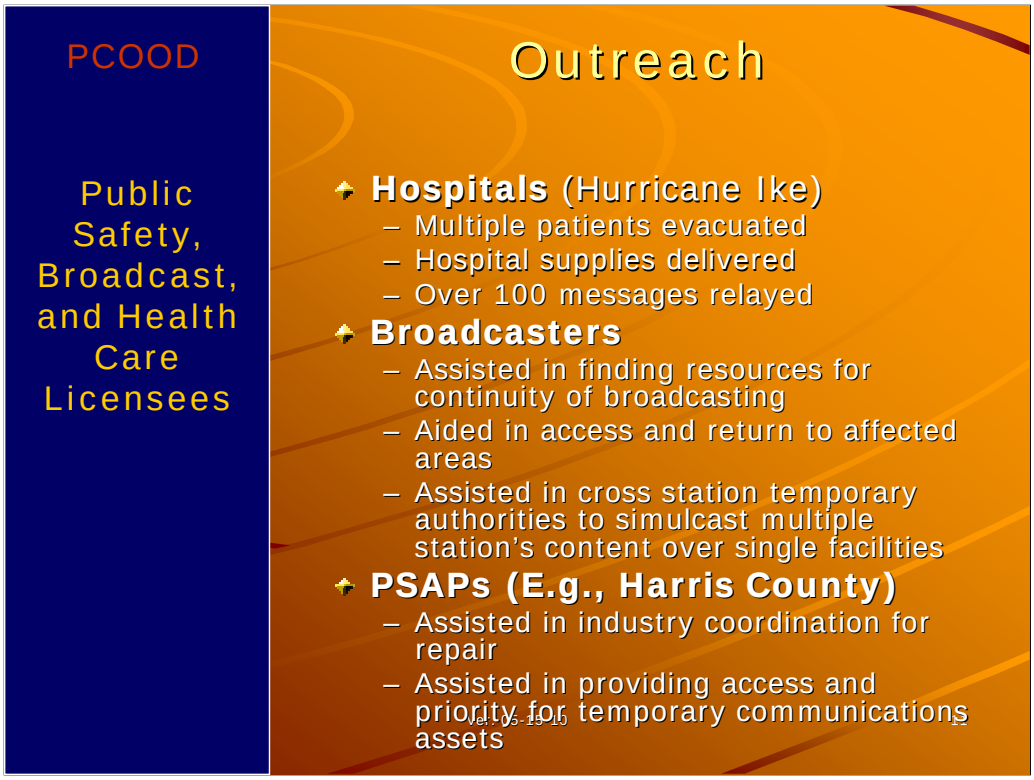
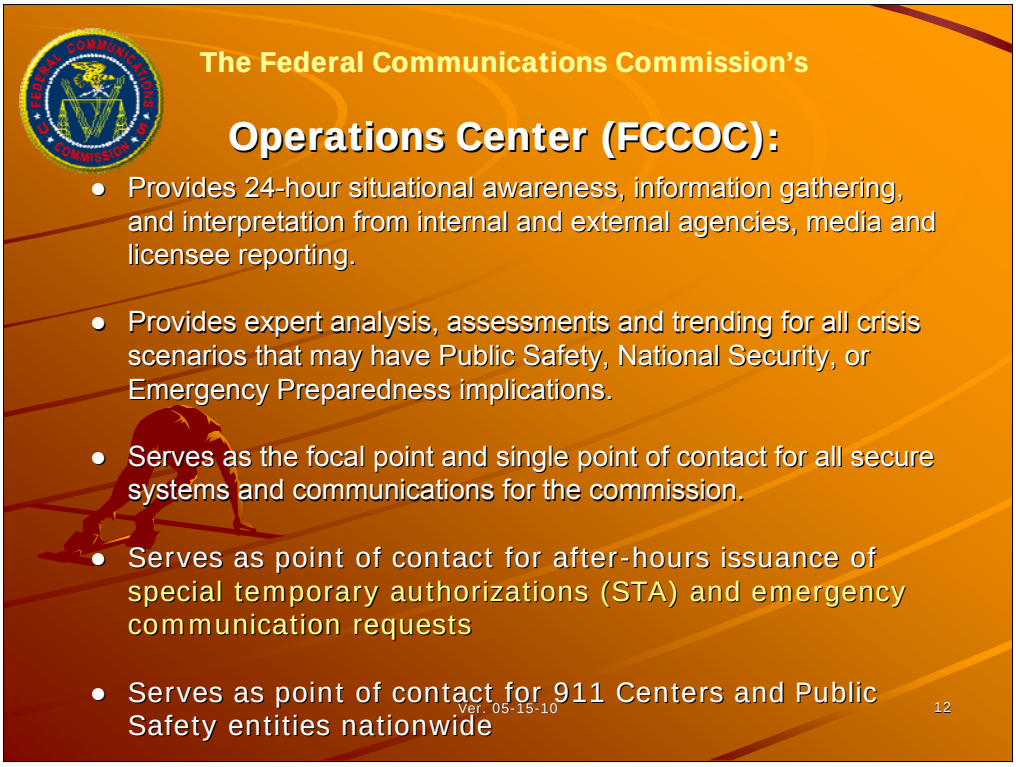


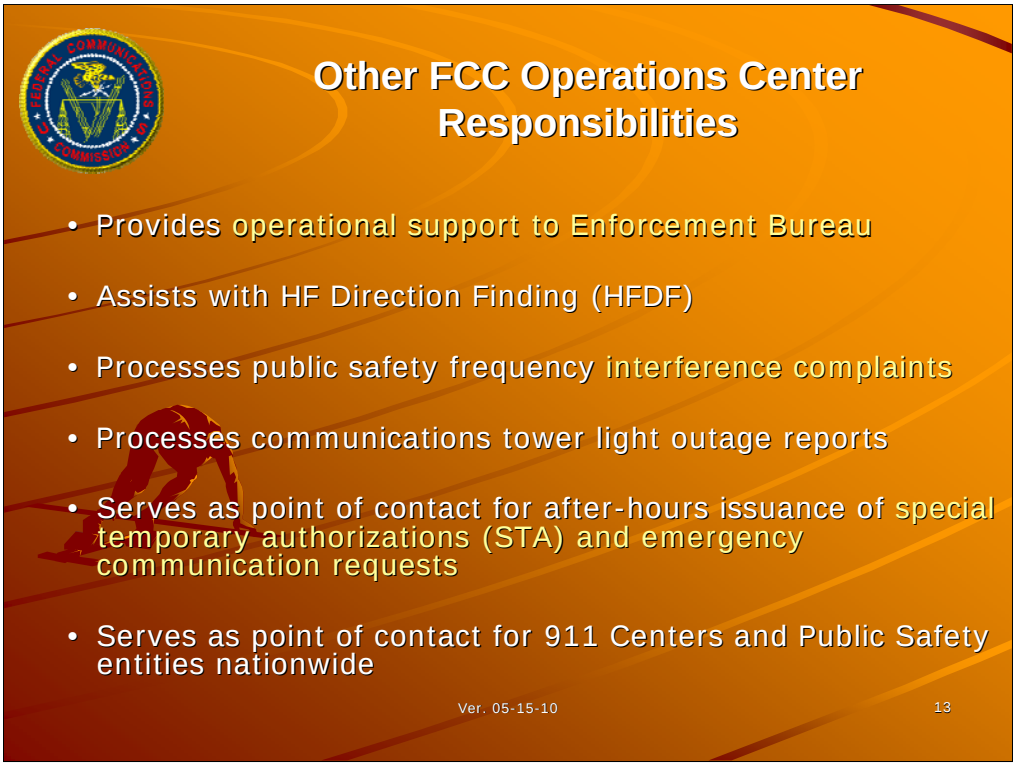
Whether addressing the communications needs of hospitals, ensuring reliability of communications in the event of a pandemic, or encouraging partnerships with state, local, and tribal governments on issues of public safety, the Commission has shown a strong commitment to the promotion of public safety.

That strong commitment is reflected in the depth and breadth of experience and expertise within the new bureau.



When there is a local emergency involving lost communications for a significant population and period of time, we call the state and local emergency management offices (when we can) to determine the extent of the outages, what we can do to help them get the outages fixed, what we can do to establish a dialogue between the local governments and the licensed communications service providers, and anything else we can do to help coordinate some immediate relief and recovery in coordination with the National Communications System and Office of Emergency Communications at the Department of Homeland Security, the National Technical Information Agency, FEMA, and other agencies. The local requests could include the need for more generator sets, generator fuel, site security for repair crews, Cells on Light Trucks (COLTs), Cells on Wheels (COWs), Special Temporary Authorizations (STAs), etc.

We will also ask if the local government is receiving any communications support from the local or adjacent town's **Amateur Radio operators** through the RACES, ARES, or other volunteer EmComm service programs. In the short time I have been with the FCC, I have already heard some interesting local stories that tell us that the local governments usually call Amateur Radio operators almost immediately when they are suddenly without any electrical power or means of communication, such as during the Kentucky ice storms of 2009.



Okay, that was a mouthful. Now what does all this mean to you and where does Amateur Radio EmComm fit in within our Division?

When there is a local emergency involving lost communications for a significant population and period of time, we call the state and local emergency management offices (when we can) to determine the extent of the outages, what we can do to help them get the outages fixed, what we can do to establish a dialogue between the local governments and the licensed communications service providers, and anything else we can do to help coordinate some immediate relief and recovery in coordination with the National Communications System and Office of Emergency Communications at the Department of Homeland Security, the National Technical Information Agency, FEMA, and other agencies. The local requests could include the need for more generator sets, generator fuel, site security for repair crews, Cells on Light Trucks (COLTs), Cells on Wheels (COWs), Special Temporary Authorizations (STAs), etc.

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Disaster Information Reporting System

Courtesy of

Public Safety & Homeland Security Bureau – *Communications Systems Analysis Division*

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14

DIRS Outline

- **Background**
  - Why we developed the Disaster Information Reporting System (DIRS)
  - Roles of National Communications Systems (NCS) and the FCC in Disaster Recovery
  - Process Flows
  - Information in DIRS
- **Sample Data Output**
  - Tables
  - Charts
  - Maps

Hurricane Katrina Process

- Carriers reported some equipment failures in Network Outage Reporting System (NORS)
  - Information incomplete
  - Information inconsistent across carriers
- Needed information daily on the status of equipment
- Numerous phone calls to find out information
- Some Information transmitted via e-mails and manually summarized
- Whole process was labor-intensive
- Carriers contacted by numerous agencies and people in the FCC

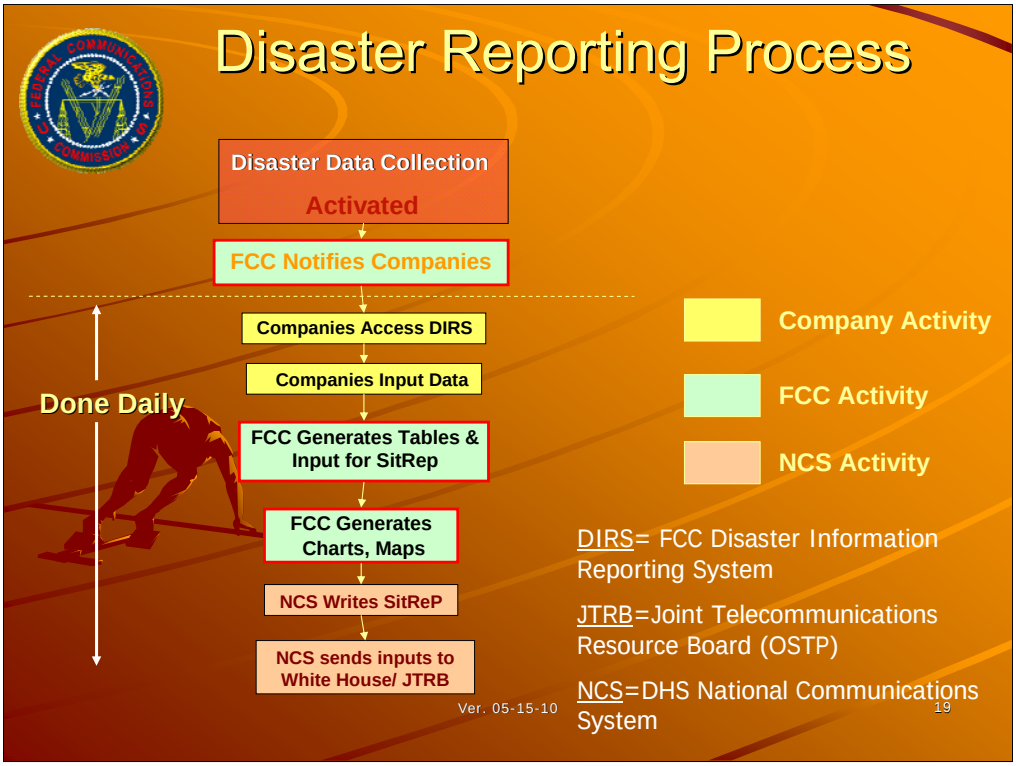
Why the Disaster Information Reporting System (DIRS) Was Developed

We Need:

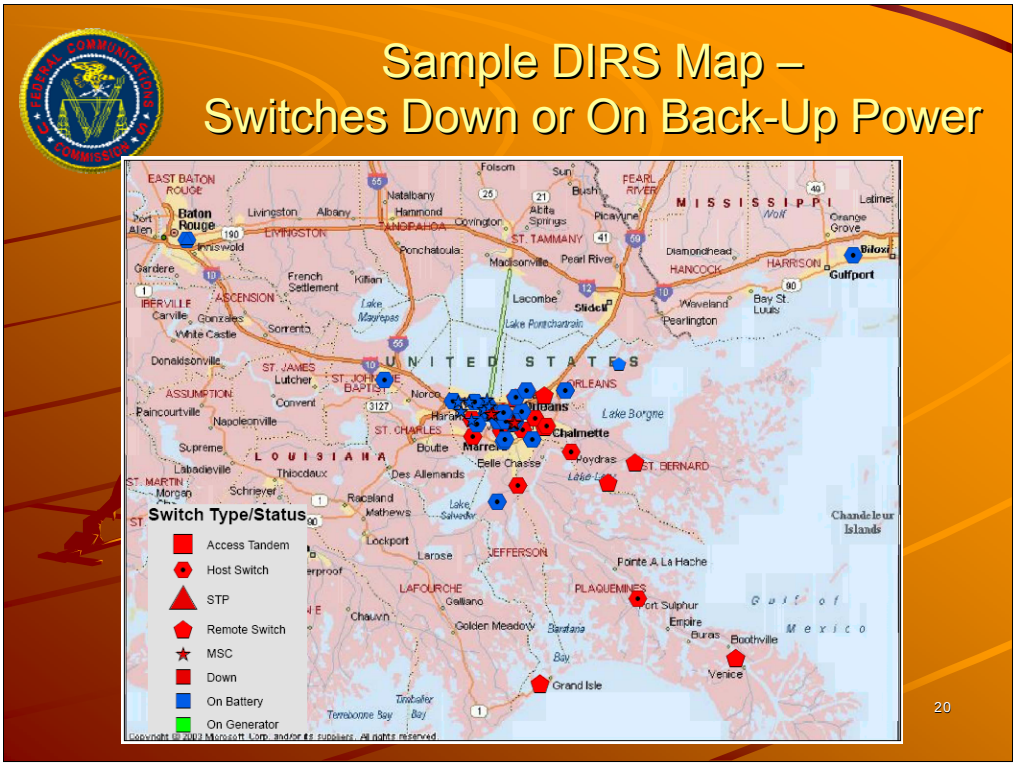
- Information on Network Status
- Daily updates
- An automated process
- Consistent data
- The “right” single points-of-contact

Disaster Recovery & Reporting

- **National Communications System:**
  - Overall Coordination: Coordinates the planning for and provision of national security and emergency preparedness communications for the Federal government during disasters and emergencies.
- **Federal Communications Commission (FCC):**
  - Situation Awareness Data Collection: Collects network status and restoration information from companies through the Disaster Information Reporting System (DIRS).

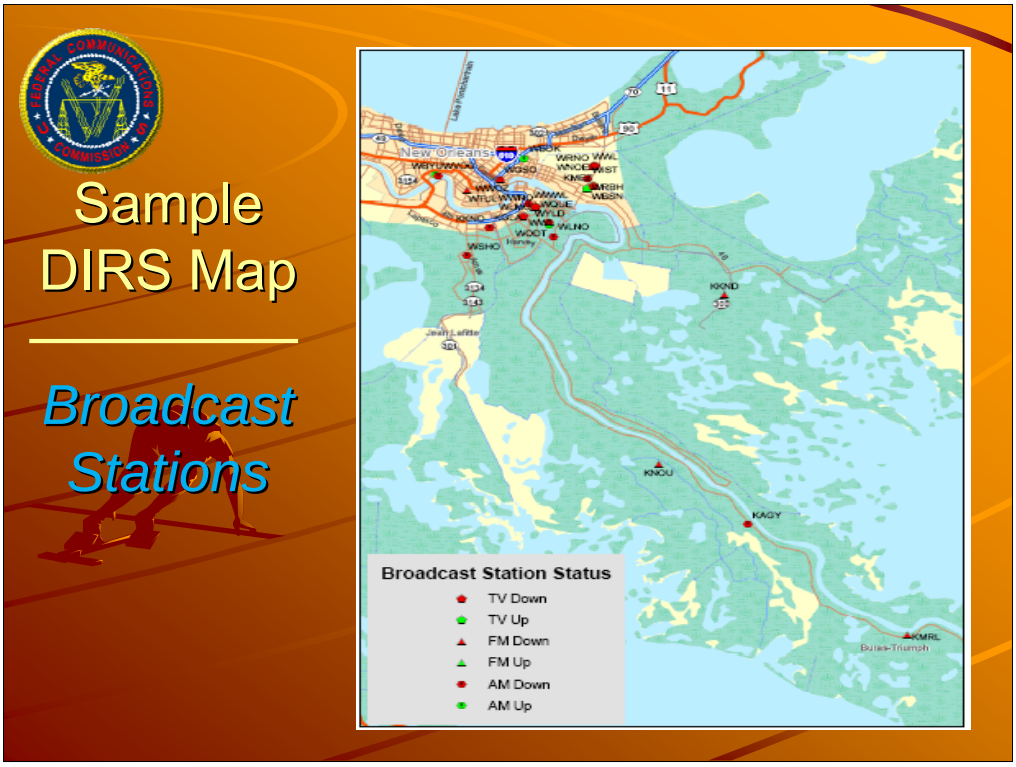


During this process, the FCC notifies companies, generates tables, provides Situation Report input, and generates charts and maps.

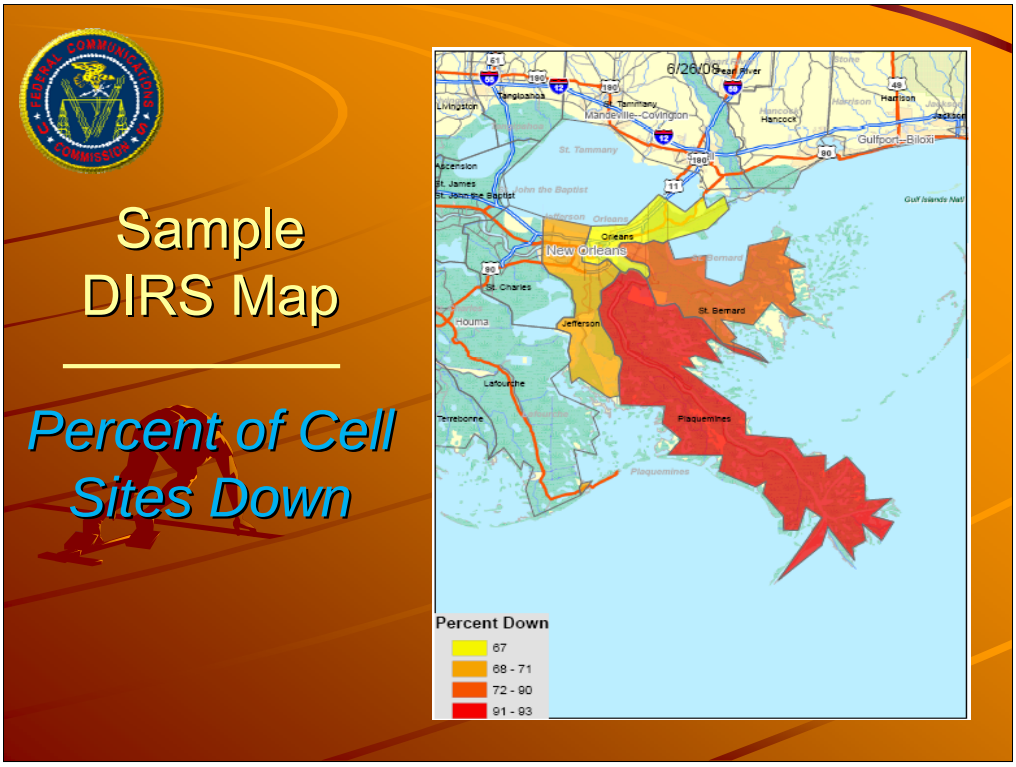


Here's an example of a Disaster Information Reporting System (DIRS) map.

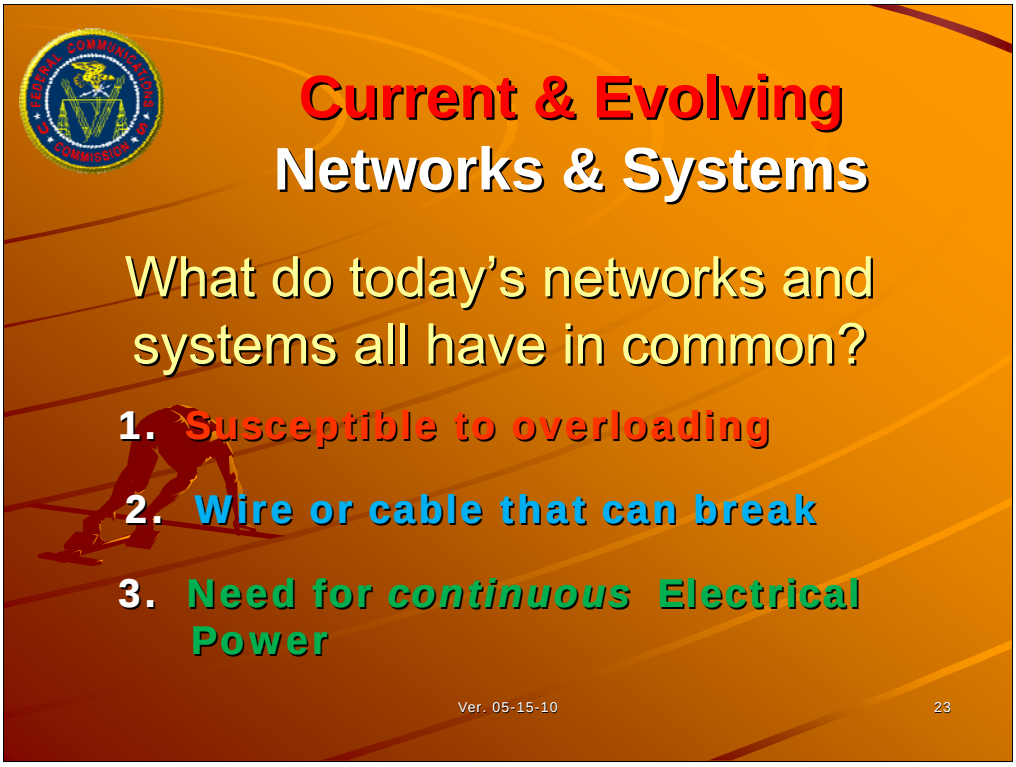
This map shows switches that are down or on back-up power.



Here's another example of a Disaster Information Reporting System (DIRS) map – this one shows all the broadcast stations in a selected area.



This example shows how many cell sites are down in an area.



So what do today's networks and systems all have in common?

1. They are all susceptible to overload
2. Wire or cable that can break
3. Need for continuous Electrical Power

Speaking of decisions, we have a few of our own to make when we respond to help our local governments.

Is your Go-Kit ready?

Do you have a portable HF NVIS antenna?

Will you be using packet radio to support the Red Cross?

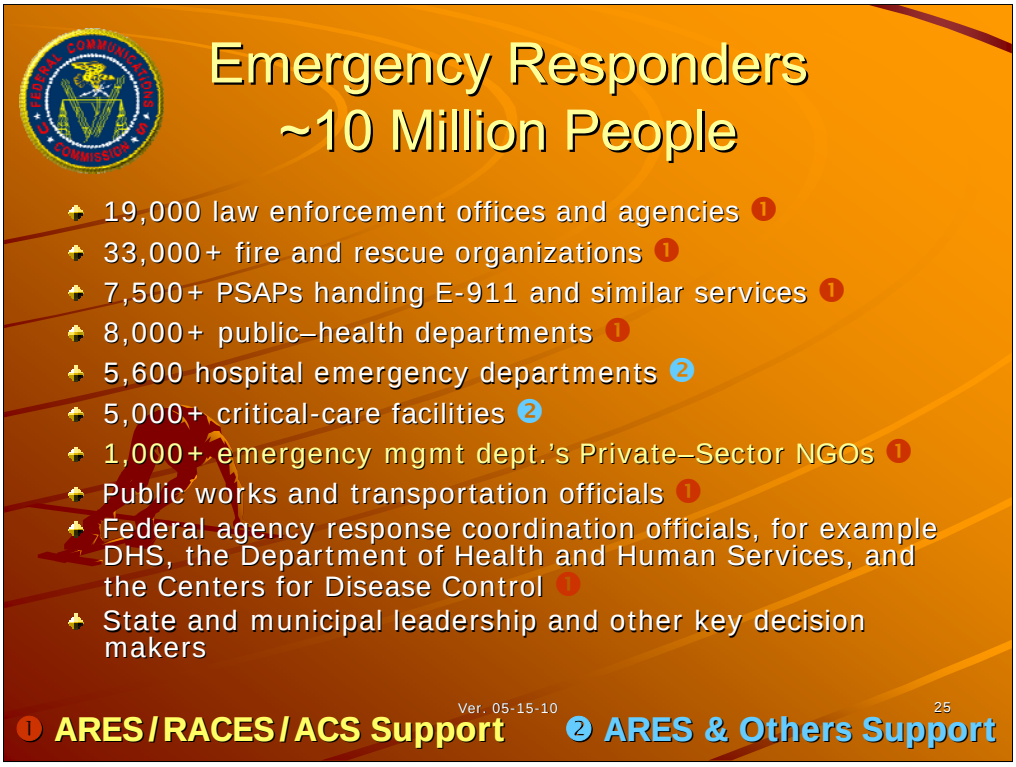
Are you proficient in message and traffic handling?

Are your spare batteries charged?

Do your repeaters have backup power?

What modes will you be using?

And the list goes on…

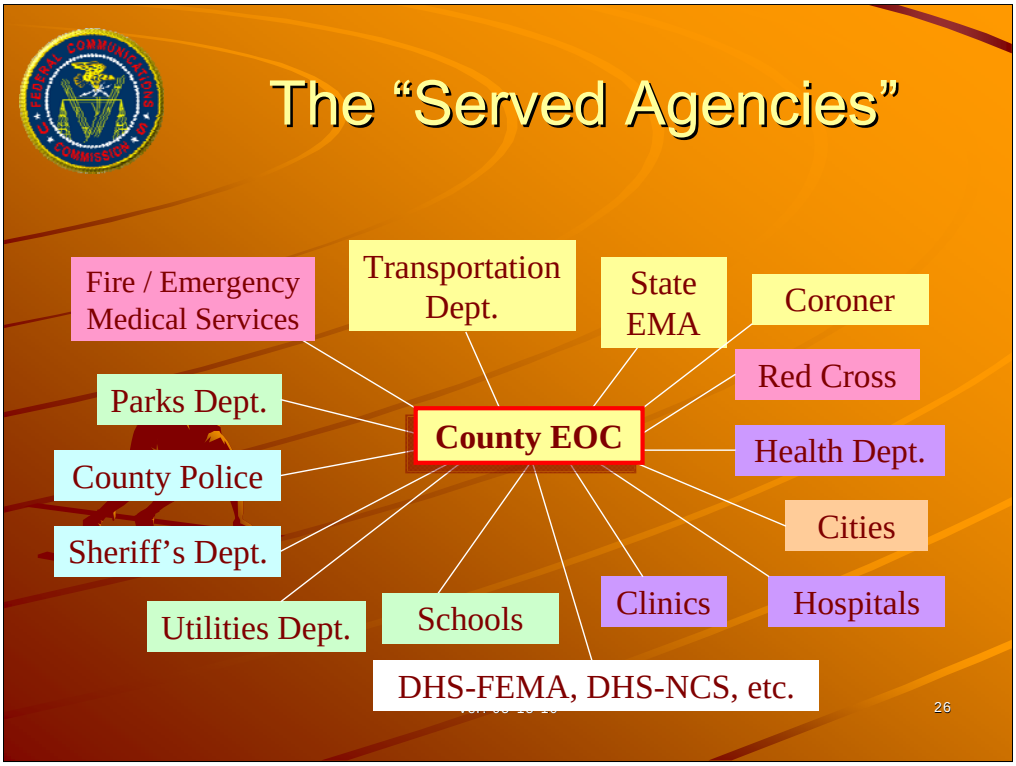


•As you can see here, we have a lot of potential customers.

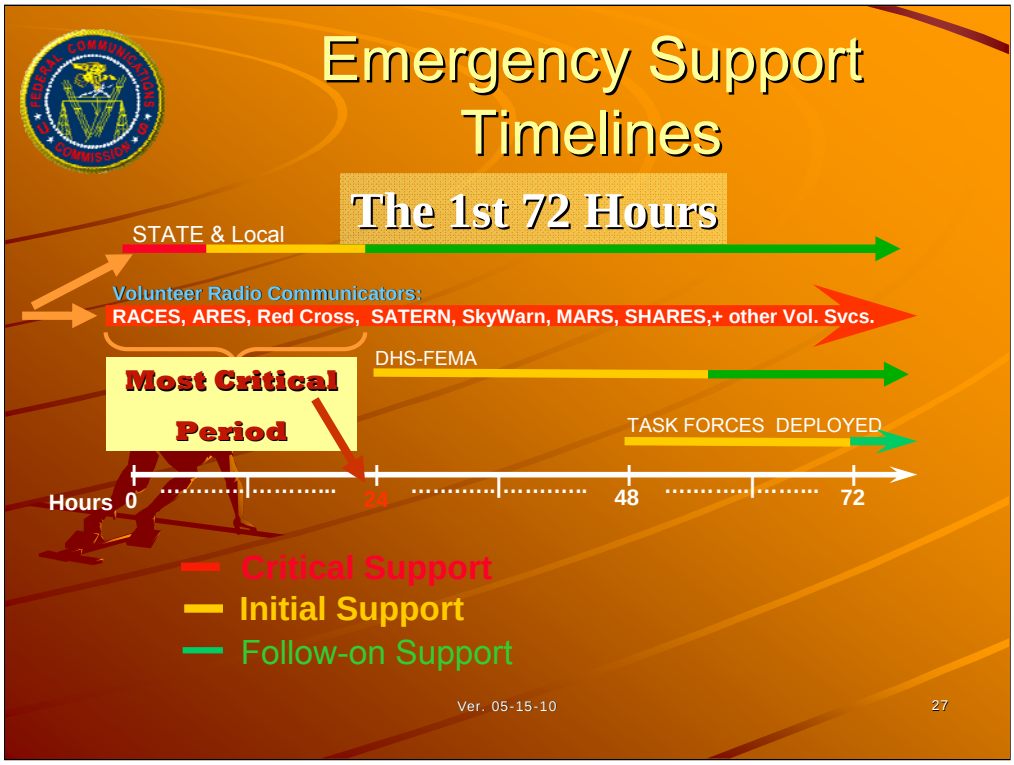
•RACES volunteers are normally associated with Emergency Management departments, EOCs, and other government-to-government communications.

•Emergency medical facilities are usually supported by ARES, ACS, and specialty groups such as hospital EmComm groups. Their function there is to back up the communications that are critical to patient care. A good example is **HDSCS** in Orange County, California. HDSCS stands for **Hospital Disaster Support Communications System**.

•When responding as hams, you could say that we are emergency responders who support other emergency responders.



These are most of our customers at the local level.



We know that all wireless infrastructures are vulnerable to power outages caused by weather events, overloading, criminal activity, and accidents.

But how many of these communications infrastructures have redundant capabilities and backup power that lasts longer than 24 hours?

In my experience, very few.

In some cases, cell networks from several counties are routed through just one Mobile Telephone Switching Office (MTSO), and many cell networks depend on the local Central Offices (which can handle 10,000 or more phone lines) to route their calls.

About 10,000 of the 670,000 licensed Amateur Radio Operators are prepared and ready to immediately support EmComm and traffic exchange operations.

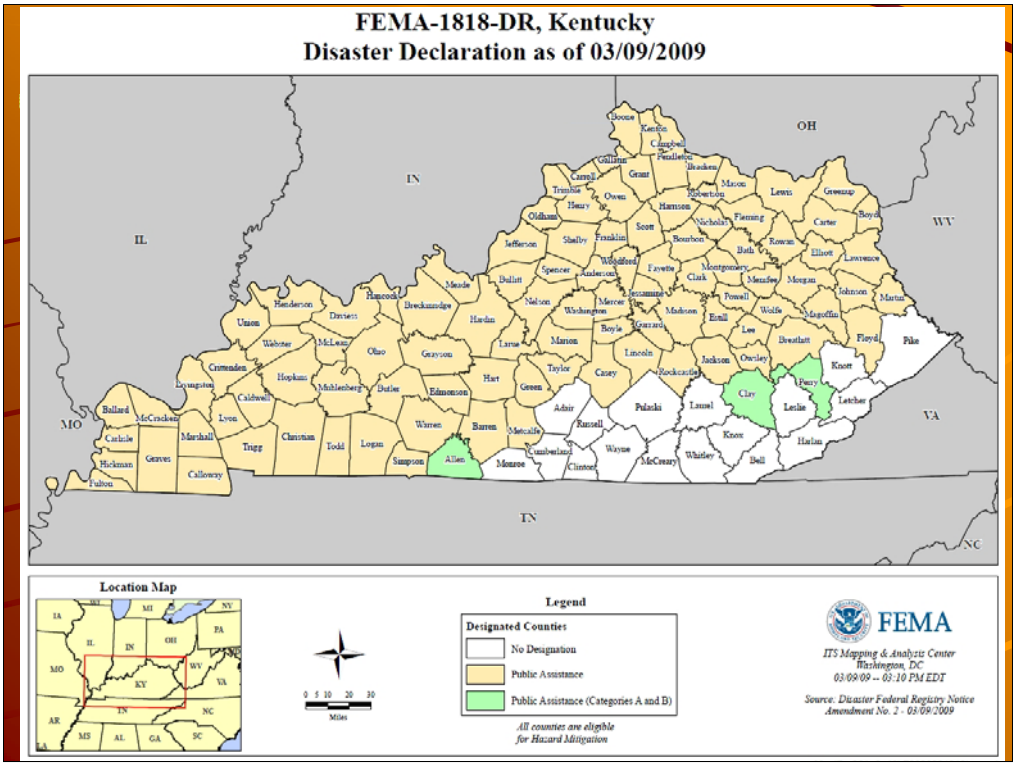
Many others can also help with a minimum amount of preparation.

As shown on this slide, the first few hours of any emergency are usually the most critical in terms of Amateur Radio Service support.

Health & Welfare Messaging

- As you know, one of our key functions throughout our response to an event is our provision of 'Health and Welfare' messaging.

- "In all disasters, our ability to communicate with our social network underlies everything else we may do to survive. My experience providing mental-health services at disaster sites and hospital emergency centers convinced me that I needed to get a ham radio license."
  —*Wayne Rosenfeld, Norwhich, CT*



According to FEMA, most of Kentucky's counties needed public assistance.

My division called every affected county's emergency management office to ask their status and what we could do to help them.

Ice knocked out communications

According to Jack Brammer of the Kentucky Herald-Leader on 3/10/09, “The Kentucky ice storm was the most catastrophic natural disaster to hit Kentucky since the New Madrid earthquake of 1811...”

"In much of the state we lost the means to communicate," Adjutant General Edward W. Tonini said on 9 March to members of a House legislative committee in a presentation about the state's response to the January storm, which knocked out power to more than 770,000 customers and is blamed for at least 36 deaths.

General Tonini said the hardest-hit areas of Western Kentucky lost all means of communications.

He said, "In many cases, the total extent of our emergency eyes and ears were a couple of satellite radios and a few **ham radio operators** operating on batteries."

The poor communication also delayed the notification of some National Guard members, whom Gov. Steve Beshear activated, General Tonini said.

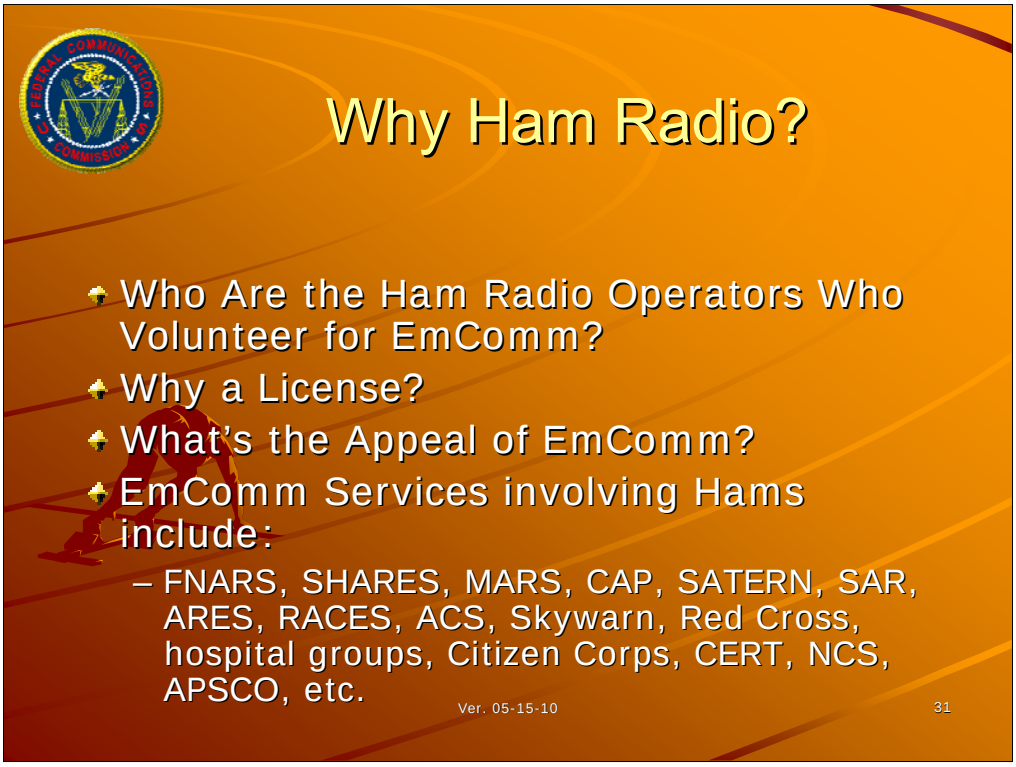
If anyone thinks trained Amateur Radio Operators are no longer needed for communications emergencies, outages, or disasters, he just needs to listen to what county emergency managers tell our FCC operations staff when we call them during their communications outages.

As most of you already know, during the first few hours of most communications emergencies throughout the U.S., Amateur Radio Operators are usually the first communicators to respond to the aid of local governments and Volunteer Organizations Active in Disasters (VOADs), like the American Red Cross.

You show up with your own radios, generators, batteries, antennas, tables, chairs, necessities, and food supplies at a time when many of your neighbors are bugging out.

During the Kentucky ice storms of February this year, one county Emergency Manager who I called told me that he was initially unable to talk to his State EOC to inform the State of his county’s situation and needs. The sheriff finally sent a deputy with a 4-wheel drive vehicle and a chain saw to cut through the road debris and blocking tree limbs to pickup his primary Amateur Radio Operator, who promptly made contact with both the State EOC and an adjacent county via HF using an NVIS antenna.

Most counties and cities cannot afford or justify expensive redundant backup communications systems. This fact makes your free service increasingly valuable to your hometown government. The FCC appreciates that many of you are using your FCC licenses to serve in communications emergencies and disasters. It is Amateur Radio’s highest calling.



As I have pointed out thru examples, the Amateur Radio Service, in addition to being a fun hobby, is also a very important local, regional, and national emergency communications system and asset.

When cell phones, regular phones, the internet and other networks and systems are down or overloaded, ham radio can still get the message through.

Ham radio is a key communications service that has saved lives and property when regular communication systems failed.

Many lives are saved when skilled ham radio hobbyists serve as emergency communicators to render aid during emergencies, tornados, and earthquakes both here and abroad. On September 11th, 2001, many ham radio operators, including several hams and a mobile repeater from my county, helped relay key information for the Pentagon and New York City authorities. After hurricanes Katrina, Wilma, and Rita struck communications infrastructures, volunteer ham radio communicators provided vital communications that often involved life-and-death situations.

Who are the Hams who volunteer for EmComm?

There are 10,000 to 40,000 Amateur Radio operators who come from all walks of life, ages, and income levels. Increasingly, we are seeing that the bulk of volunteers, like me, are bordering on being senior citizens. We hope they will continue to maintain their good health so that they will be able to handle the physical part of EmComm, which includes lugging heavy gel cell batteries, generator sets, coolers, and sometimes even boat anchors, to a site where they are needed.

All EmComm operators have in common a basic knowledge of today's wireless technologies, regulations, and operating principles, even if they memorized all the answers to the tests. I'm glad no one laughed, because if you look at what is contained in the license requirements for a Technician license, you will see that this basic knowledge is somewhat demonstrated by passing an examination for a Federal Communications Commission (FCC) license to operate on the Amateur Radio frequencies. But you all know that the real learning occurs AFTER the license exam is passed.

Why a License?

The bulk of licensees eventually translate into a pool of self-trained technicians able to provide backup emergency communications. We at the FCC acknowledge the ability of Amateur Radio licensees to not only advance radio communication and technical skills, but also to enhance international goodwill.

What's the Appeal of EmComm?

Some EmComm operators are attracted by the ability to help their own community communicate at a time when they are struggling to contact the adjacent county or the State EOC.

Others who build and experiment with electronics are able to translate those skills into providing troubleshooting help at their local agencies. Because hams are at the cutting edge of many technologies, many also avail their other skill sets to help their local governments and organizations during times of emergencies.

Many skilled EmComm operators also have a Morse Code key next to their modern transceiver. Many of them can copy the code faster than most folks can type, using a tiny amount of bandwidth, and just enough low power to punch thru QRM and QRN.

==========

APSCO: Associated Public Safety Communications Officers
FNARS: FEMA National Radio System
ARES: Amateur Radio Emergency Service
RACES: Radio Amateur Civil Emergency Service
CAP: Civil Air Patrol
SAR: Search & Rescue
CERT: Community Emergency Response Team / DHS-FEMA Citizen Corps
MARS: Military Affiliate Radio System
SATERN: Salvation Army Team Emergency Radio Network
NCS: National Communications System
SHARES: Shared Resources / NCS

While it is incumbent upon each volunteer emergency communicator to obtain all the necessary specialized training needed to be an effective emergency communicator when called upon, up until now, there has been no single regional or national source where certified ***performance-oriented*** training can be obtained.

Today, licensed volunteer communicators are usually not required to show their ability to setup and skillfully operate communications equipment to a standard for emergency communications.

We don't have a national standard for digital communications – this is needed because agencies such as the American Red Cross need us to use a transmission mode that offers some accuracy and at least a modicum of security for their patient lists and other data known as Personally Identifiable Information, or PII. While we are waiting for consensus on this issue, packet radio still seems to be the most common digital mode used for this purpose. Unfortunately, even packet radio, which is about 2 decades old, has few practitioners available for EmComm.

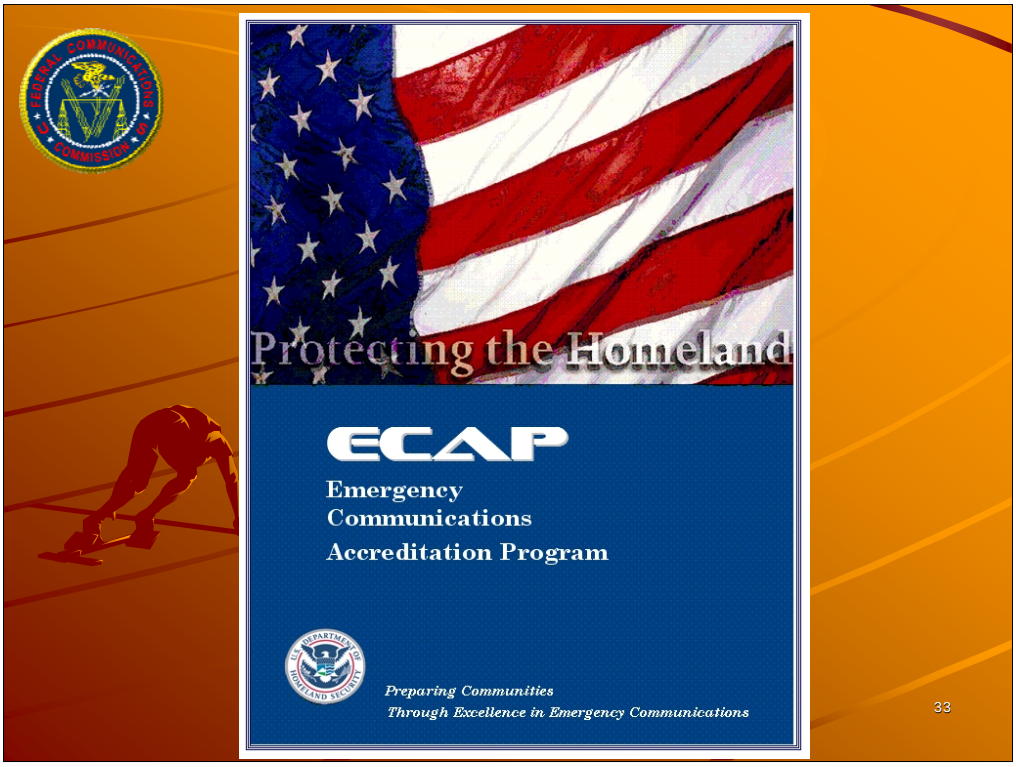
What I am saying here is that as an EmComm service, we do not have enough trained members. Part of this reason is due to the fact that we do not have any national standards for EmComm. No federal agency has stepped forward to help fill this void and we cannot expect the ARRL to do everything for us.

The volunteer EmComm mission demands development of standards for emergency communications skills needed by volunteer responders to:

1. Help every town prepare to respond to emergencies and disasters
2. Minimize effects of disasters and emergencies through better communications preparedness

We need standards that:

1. Comply with the National Incident Management System (NIMS)
2. Establish Response Standards
3. Mesh with the Incident Command System
4. Ease Mutual Aid initiatives
5. Provide a basis for credentialing
6. Provide seamless Communications Interoperability

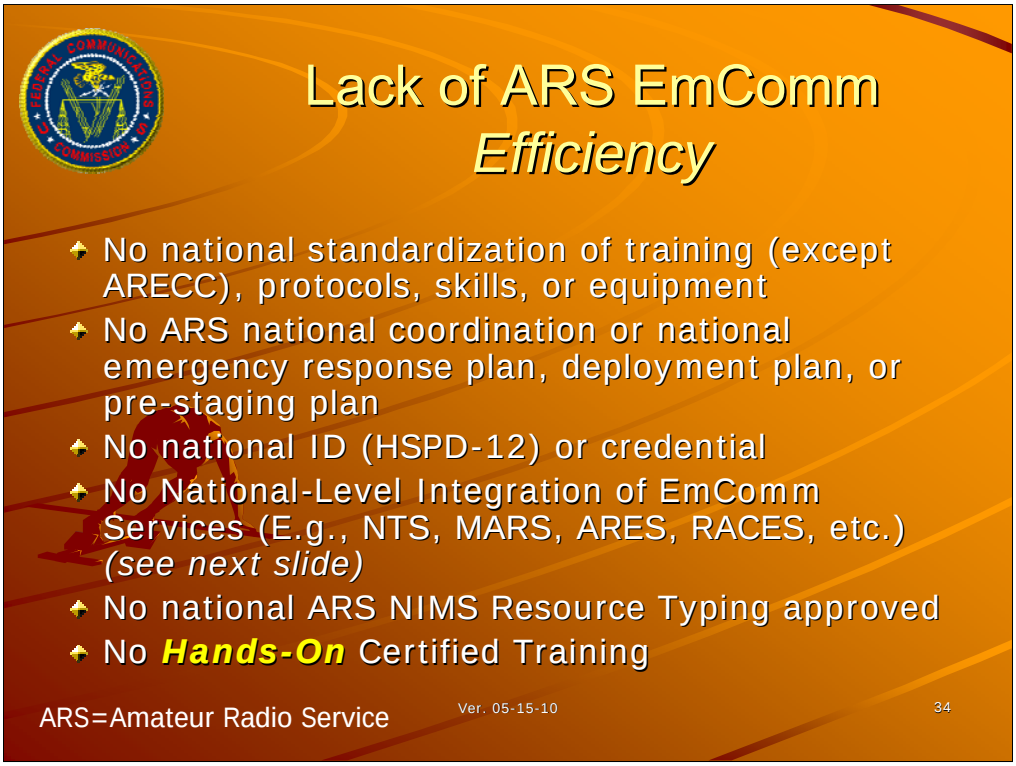


Regarding standards, here's a little bit of history not widely known.

Since 2003, with the retirement of Paul Reid, the FEMA frequency manager, and the departure of Ross Merlin from FEMA, there has been no federal RACES program manager at FEMA or the FCC.

In 2004, when I was a FEMA employee, and after 3 years of coordination, I proposed a FEMA training program primarily for Amateur Radio Operators that was approved and funded initially at $330,000.

Unfortunately, a cost overrun on an unrelated classified software program in the same office, caused the program, dubbed the Emergency Communications Accreditation Program, or ECAP, to be cancelled for lack of funding.

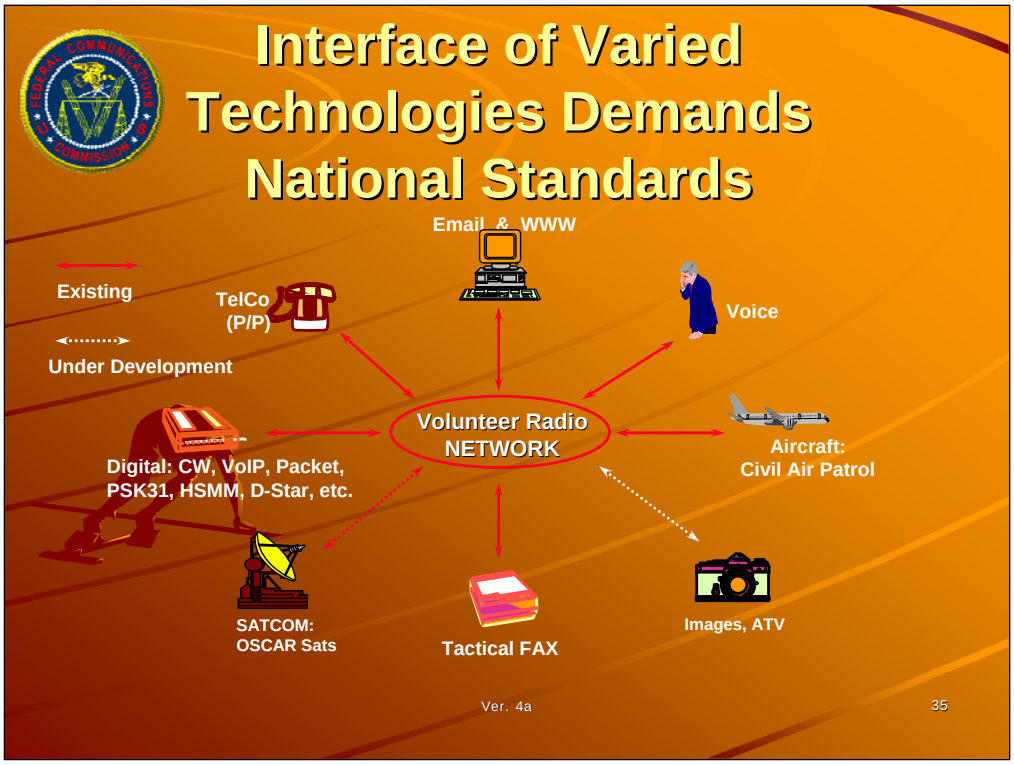


These are areas that could improve our interoperability, efficiency, and usefulness to our served agencies.

If you have ever listened to an emergency net, you will quickly come to the conclusion that we need more training in message handling, net control, and the use of the International Phonetic Alphabet, to name just three items.

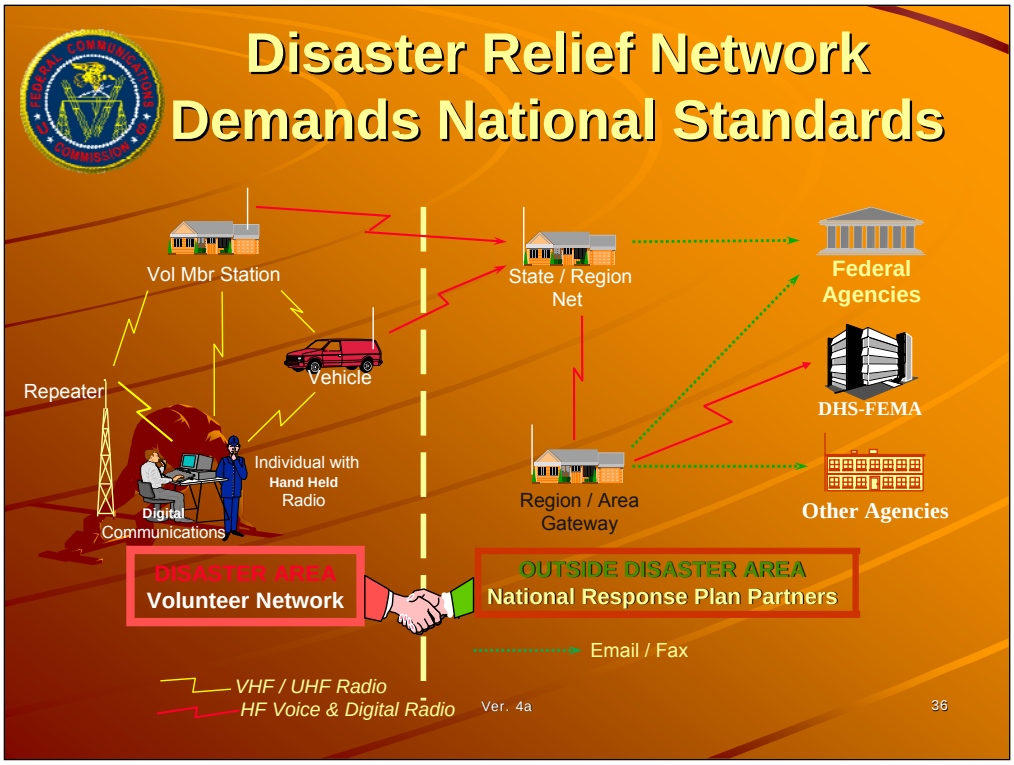
I have brought with me a few copies of a brochure I made up a few years ago that I call “Bart’s Basics.” Please take one, if you like, to use as a reminder.

Can the FCC fix all of these challenges? Maybe not. But ignoring them won’t make them go away, either.



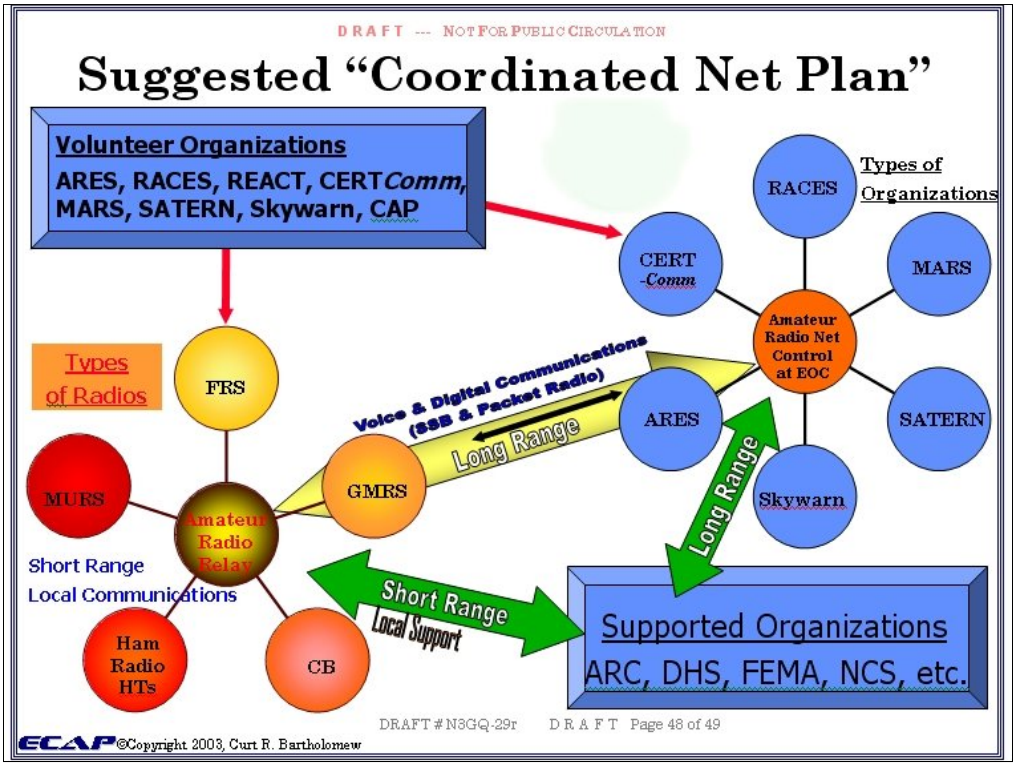
•Today's volunteer radio systems have matured and kept pace with new technologies in the HF, VHF, and UHF radio bands. They continue to enhance their capabilities as new technologies emerge. These radio systems are not those of your parents or grandparents of the 60s, 70, or 80s.

•National standards are needed to ensure a seamless meshing of these varied technologies.

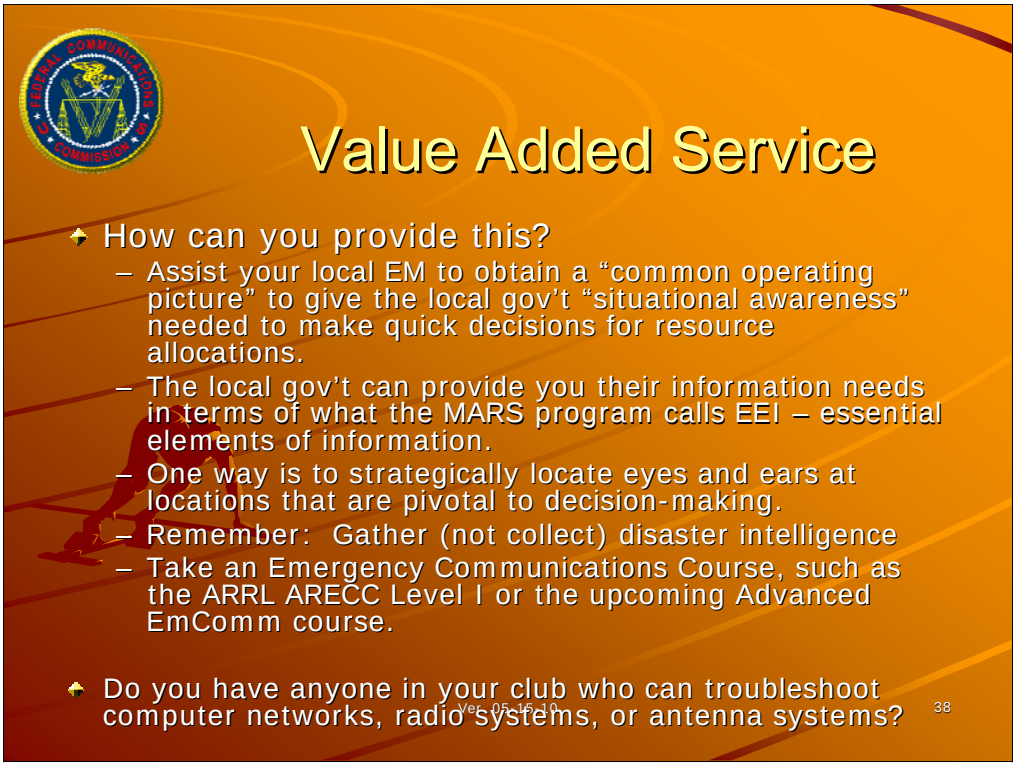


• Volunteer radio communicators provide radio links both within and outside the disaster areas. Radio message traffic outside the disaster area can be injected into normal communications pipelines, such as email and fax.

•National standards would provide a single protocol for the technical handshake required for these systems to talk with each other.



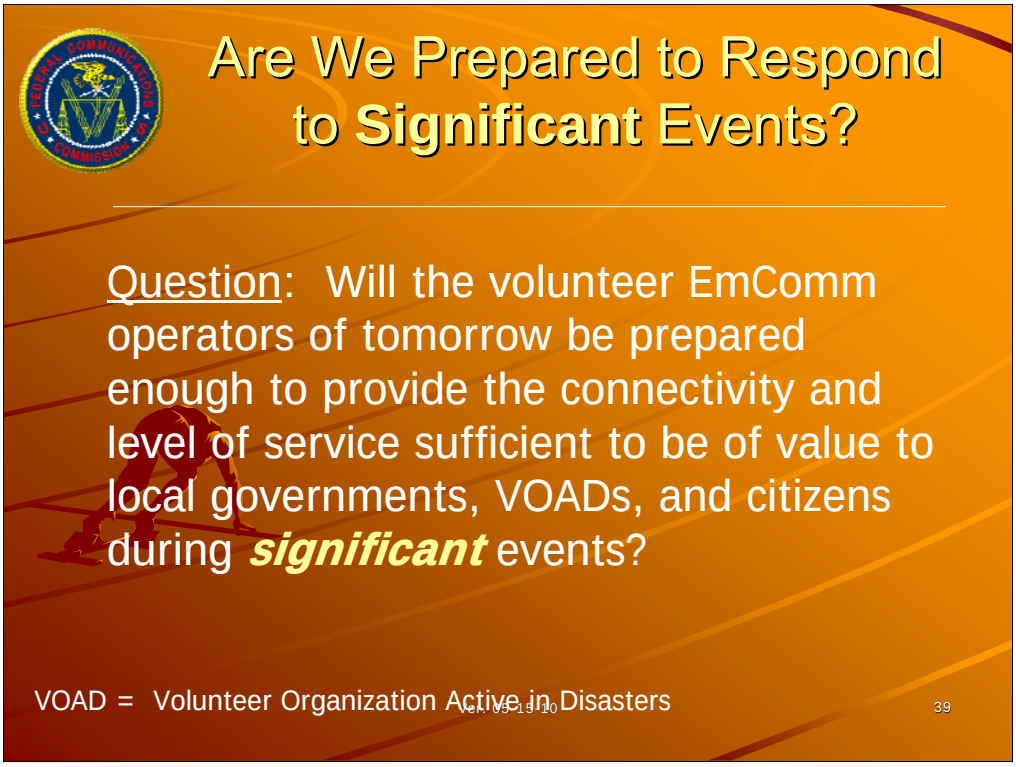
This is just one example of how we could coordinate nets among the EmComm services, from my 2003 ECAP plan.



You can relieve other agencies, such as law enforcement, fire, and rescue, of some duties that you may be qualified or trained to do for them.

Be careful about using the term "disaster intelligence" that has been floating around. If you use this term, remember that you can only "gather" intelligence, you cannot collect intelligence. Per presidential Executive Order 12333, and other rules of the executive branch, only certain members of the US government's Intelligence Community are allowed to "collect" intelligence. It's splitting hairs, but it has legal issues associated with it. As an example, the CIA can collect intelligence, but the DHS Office of Intelligence & Analysis can only gather and analyze intelligence.

While we are waiting for "the big one," perhaps we could look at offering our local emergency managers some additional skill sets available from our EmComm team and local ham club. These skill sets could include those related skills that are useful in an emergency, such as the ability to troubleshoot their computer networks, radio systems, or antenna systems. You might be surprised to discover the professional talent and sophisticated test equipment that is resident in your ham club. There aren't many emergency managers who would turn down free professional assistance.

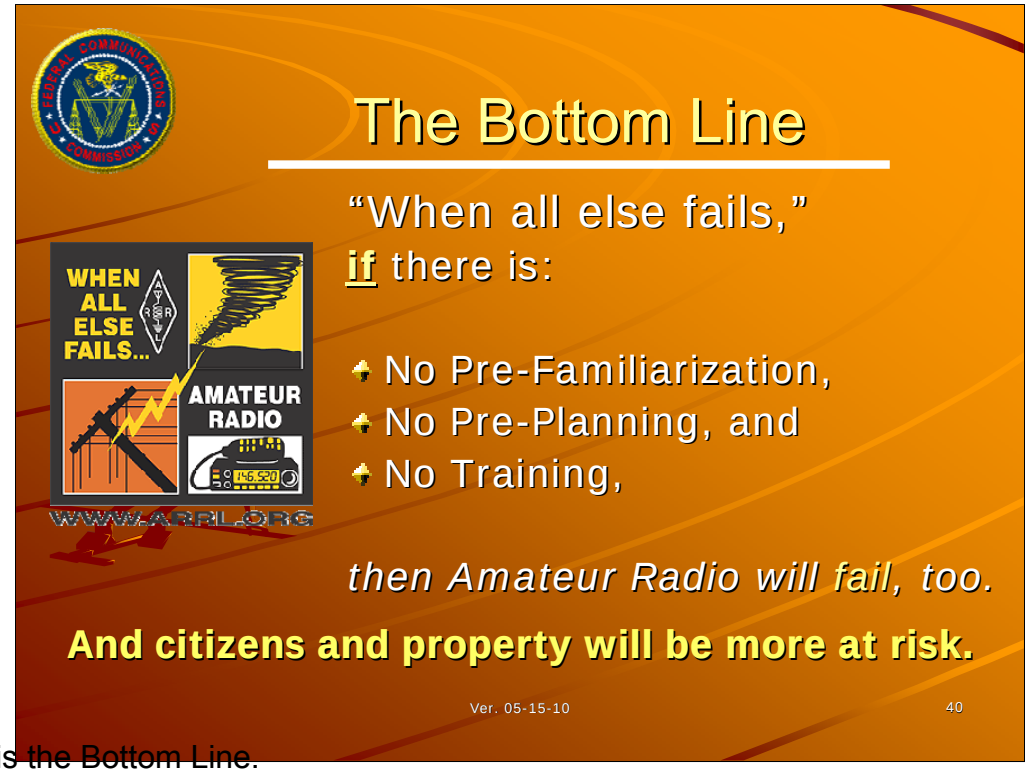


((add logos for ARES, RACES, SATERN, Skywarn, Red Cross, etc.))

So the challenge we face is **not** a question of whether or not Amateur Radio Operators are still needed, but rather ***if Amateur Radio Operators will be prepared enough*** to provide the connectivity and level of service **sufficient** to be of value to local governments, VOADs, and citizens during ***significant*** events. This is a topic that needs to be routinely and thoroughly discussed among ourselves and with our served agencies. We need to place the word "major" in front of any type of emergency and ask ourselves how prepared we are to respond to any of them: a major earthquake; a major tornado; a major hurricane; a major disaster; a major criminal act; or a major terrorist attack. How often has a major weather or other major event hit your area? Once every 5 years, 12 years?

Small emergencies help prepare us for larger ones. The ubiquitous and generally resilient nature of modern wireless communications networks increasingly affords us fewer opportunities to train because the smaller emergencies are repaired relatively quickly – perhaps within hours – and in many cases, circuits are routed around the problem area.

Although there is a ubiquitous deployment of wireless communications devices, Amateur Radio Operators are still needed to assist with emergency and disaster communications. Blackberries and cell phones are normally the first systems to become unusable in most significant emergencies. As you know, although CB, FRS, MURS, and GMRS radios are easily available, they have an extremely short range and there is very little organization or infrastructure to use them as versatile and dependable communications systems. We must acknowledge, however, that the increased cell phone infrastructure, and its generally good resilience, has lessened the need for Amateur Radio Operators for small emergencies in modern times. Some of you will recall when Amateur Radio Operators were the only folks who could get a phone line while mobile or away from a landline phone. Our repeater "auto-patch" capability was a lifesaver in those days – and it still is in parts of every community without ubiquitous cell phone coverage. We had a car accident ham radio rescue in my own county 2 years ago; in an area without cell phone coverage. One ham relayed information to the 911 Center while another ham relayed an EMT's life-saving instructions to the on-scene ham radio operator via the county 2-meter repeater.



This is the Bottom Line.

If we are telling our served agencies that we are ready, ***then we should be.***

As a nation, we tend to forget events and become complacent.

For example, we haven't had another 9/11 for 8 years, so some folks feel it won't happen again.

We haven't had another tornado or hurricane recently, so some folks feel they won't get another one either.

The more time passes without an incident, the more complacent we become.

As a senior intelligence officer for the past few decades, I can assure you that there are many nasty individuals who spend all their time planning and training for our demise. We catch many of them and we monitor most of the rest of them, but it is nearly impossible to catch them all.

Don't worry about what others think – they may not be the self-professed experts they think they are. Every club has at least one.

Do you feel lucky?

Okay,

We've talked about the new PSHS Bureau, how it is organized and what it does.

We've mentioned Current & Evolving Telecommunications Networks & Systems that can lose power, fail, or become overloaded.

We've shown where we generally fit in as Emergency Responders, not first responders.

We talked about other services we can provide our served agencies.

Our next step is to identify our most pressing volunteer EmComm challenges & what role the FCC and other federal agencies may be able to serve to resolve them.

This week we have discussed convening a meeting this year to discuss the concerns of the Amateur Radio emergency response community that all parties concerned feel may need federal attention. The work of the National Broadband Plan has taken away considerable resources from our bureau this past year, but we will find the time to fit this need into our schedules.

So we will convene an initial coordination meeting with other federal areas to discuss where areas volunteer EmComm operators can be used to support emergencies and disasters. After the federal agencies have had a chance to coordinate amongst themselves, I expect national associations and other interested parties will be provided an opportunity to provide their input.

Next step:

identify the most urgent volunteer EmComm challenges

determine if the FCC and other federal agencies can assist in resolving them.

Where we are now:

Internal discussions about where volunteer EmComm operators can be used to support emergencies and disasters.

Discussing having a meeting later this year about volunteer EmComm operators with other federal agencies

Figuring out how amateur radio emcomm assistance can fit into the National Broadband Plan

After the federal agencies have had a chance to coordinate amongst themselves, national associations and other interested parties would be provided an opportunity to provide their input.

We have walked the walk and talked some of the talk.

Let's move forward with some more talk followed by action so that we can compose the song that we need to sing.

We're playing a new ballgame in a new era.

We have the support of many agencies and groups.

The road ahead is not yet clear, but we are coming out of the fog.

Let's move forward together in a shared vision.

Working as a team, we can combine our skills and resources to handle the job before us to take care of our families, our neighbors, and our great nation.

It isn't enough to be prepared.

We have to be <u>ready</u>!

Everyone knows that assembling a Go Kit for an emergency communications deployment is not cheap. Extra batteries, food, connectors, cables, antennas, a mobile rig, a packet TNC, and the list goes on. Our hobby is not cheap and deploying with a full radio station takes time, effort, money, and dedication.

Unemployment has doubled in many areas of the country. You could have put any extra money you had in the bank, under a mattress, or to pay down bills. Instead, you put your own needs aside and spent the money to prepare to help your neighbors for the next emergency and disaster.

You work hard to serve your community and you ask for nothing in return. You rarely receive any recognition.

When the lights go out, the cell phones die, and the Internet connection is gone, you fire up your rigs and rush in to help your local governments link up with their State operations centers. Then you help your neighbors let their loved ones know they need help or that they are OK.

The FCC heartily applauds all the patriotic ham radio operators who, in spite of our poor economy and their personal circumstances, have reached deep into their pockets to buy the items needed to stock their Go Kits to be ready at a moment's notice.

You are the silent EmComm patriots of America.

The FCC salutes you!

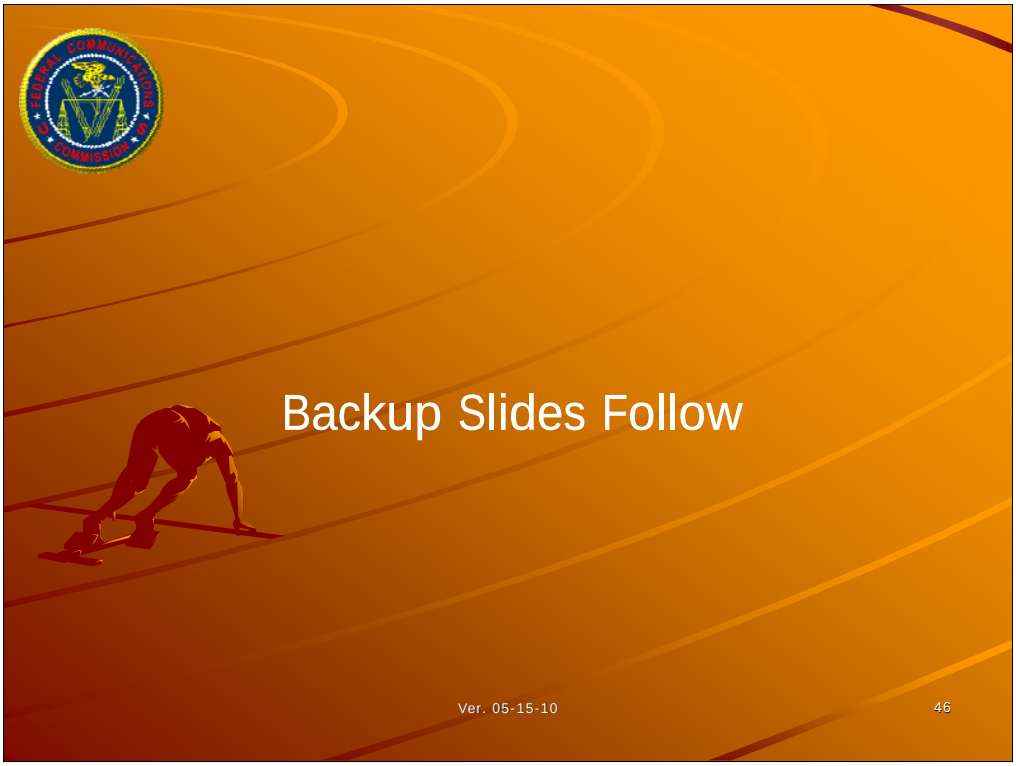
Thank You!

- **Thank you for listening!**
- Without you, I would be talking to myself

Questions?

Please drop by to pickup a giveaway.

Prepared: "properly organized or equipped"
Ready: "completely prepared or in fit condition for immediate action or use"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Systems Checks

- Here are some of the Systems Status that we check for during an emergency or disaster:

- **PSAP**
  - Status of transmission links – bearer channel and ANI/ALI.
  - Projected restoration time (if applicable)
- **Wireline**
  - Status of infrastructure to remote electronics level.
  - Customers affected
  - Hicap facilities affected, including number of TSP circuits carried.
  - Blocked calls
- **Wireless**
  - Status of infrastructure to county level.
  - Coverage maps.
- **Broadcast**
  - Status of broadcasting facilities.
- **CATV**
  - Status of system at head-end level, including powering.
  - Customers affected
- **Satellite**
  - Status of earth stations