



Utilization of Emergency Management Alert Systems: An Analysis of Oktibbeha County and Mississippi State University Systems

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Project Description

- The first objective is to perform a comparative analysis of currently utilized emergency warning (or alerting) systems in Oktibbeha County, Mississippi.
 - This analysis will highlight performance and capabilities of each system and help emergency management decision makers gauge the relative advantages and/or disadvantages of implementing particular emergency warning systems.
- A second objective is aimed at determining the overall effectiveness, usefulness, and cohesion with other emergency alert activities currently utilized by Oktibbeha County and MSU emergency response personnel.
 - This objective will be met by administering a survey targeting the recipients of the “Alert FM” devices (USB, Pager, Wall Unit) distributed throughout the county and across the MSU campus.

Relation to DHS

Critical Infrastructure Protection

- President George W. Bush signed Executive Order 13407 directing the Department of Homeland Security to create a comprehensive public warning system for the US, June 26, 2006
- Increased “situational awareness” at county, local, and community level.
- This order created a list of functional requirements for the Department of Homeland Security to meet in response to these needs.
- The focus of the requirements was to ensure interoperability during times of emergency

Relation to DHS

Critical Infrastructure Protection

- These requirements include:
 - evaluating existing resources;
 - adopting common protocols, standards and other procedures to enable interoperability;
 - delivering alerts on criteria such as location or risk;
 - accommodating disabilities and language needs;
 - ensuring public education about emergency warnings;
 - coordinating and cooperating with the private sector and government at all levels;
 - administering the existing emergency alert system as a component of the broader system;
 - ensuring that the President can alert and warn the American people.



Alerting Systems Background



Impending Emergencies

- **Weather** (tornados, hurricanes, ice storms)
- **Geological** (earthquakes, volcanic eruptions, landslides, tsunamis)
- **Industrial** (toxic gas release, river contaminations)
- **Radiological** (nuclear plants)
- **Medical** (infectious disease outbreak)
- **Warfare** (terrorism)

Alerting Systems Background

- Emergency Alert System
 - Started as the Emergency Broadcast System in 1944
 - Updated in 1994 to expand the transmission means from tone alert to any means of transmission and became known as the Emergency Alert System
 - Jointly Administered by FEMA, FCC, and the National Weather Service
 - Provides Presidential ability to notify the American people within **10 minutes** of a national emergency
- Digital Emergency Alert System (DEAS)
 - Allow transmission of emergency alerts directly to citizens without the need for a special receiver (digital technology)

Alerting Systems Background

- Integrated Public Alert and Warning System (IPAWS)
 - Multiple types of emergency messages may flow simultaneously through multiple devices
 - Cellphones, landlines, desktop pc, pda, road signs, etc
 - Transmission may be audio/video, text, recorded video, or in multiple languages
 - FEMA partnered with FCC and NOAA to develop “real-time” database collection.

IPAWS, Cont

- Consists of six(6) components which will be upgraded or created
 - Emergency Alert System upgrades
 - National Warning System (NAWAS) upgrades
 - Geo-Targeted Alerting System - emergency telephone notification used to send alerts to land lines, cell phones, pagers, etc. to specific areas regarding an impending event.
 - Web Alert Relay Network (WARN) - emergency manager selects impacted area to receive alerts: send alerts directly to cell phones e-mail and pagers.
 - Digital Emergency Alert System (DEAS): uses data-casting technology that provides the president the ability to notify the public of a national emergency and also used by emergency managers at the state and/or local levels
 - NOAA partnerships and joint programs: will provide NOAA weather radios to K-12 public schools in the United States.
- WARN Testing in AL, DE, FL, LA, MS, NJ, NY, NC, SC, TX, WA, WI

The nation's public alert and warning system evolution from the 1960s

1960

1990

2000

1963

EBS Established

1990

PEPAC Established

1997

EAS Enforcement

2006

IPAWS Established

Emergency Broadcast System (EBS) replaced the nation's first alert and warning system, called CONELRAD. The EBS allowed the President or State and local officials to send out alerts while stations continued to operate on their assigned frequencies. EBS required a "person in the loop" to relay the alerts.

Primary Entry Point Advisory Committee (PEPAC) was established by FEMA to help manage the 34 EBS Primary Entry Point (PEP) stations across the USA.

EAS was initiated in 1994, and fully replaced the EBS by 1997. The PEP stations were retained. NOAA Weather Radio also launched its first computer synthesized voice (Paul) system in 1997 to expedite alerts.

The Integrated Public Alert and Warning (IPAWS) program was initiated in 2004 and established in 2006 according to direction within the Hurricane Katrina Lessons Learned Report and to achieve the end state vision of Executive Order 13407.

The IPAWS mission is ... "to have an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people in situations of war, terrorist attack, natural disaster or other hazards to public safety and well being."



FEMA



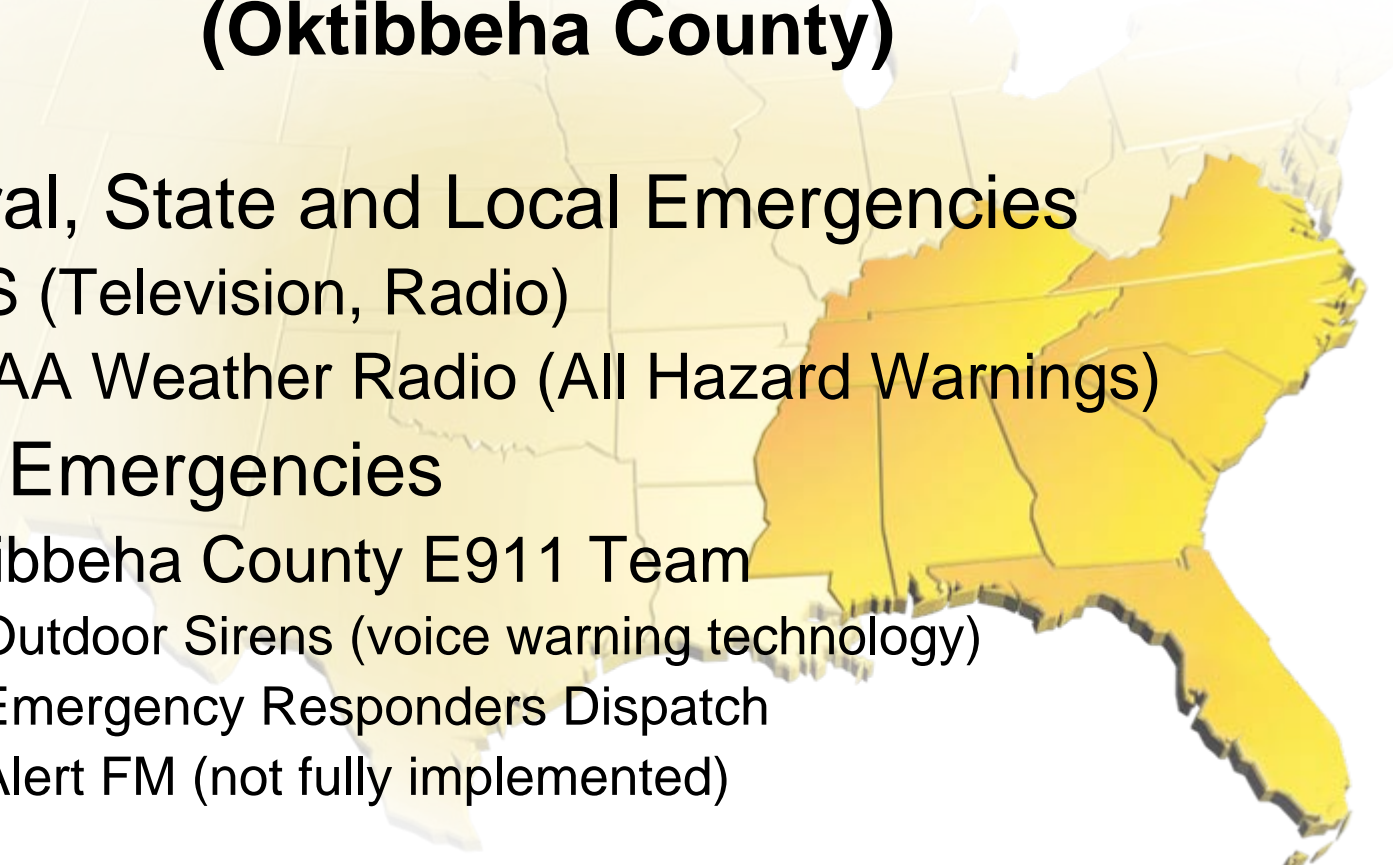
NOAA All-Hazards Warnings

- FEMA and the Department of Commerce and Agriculture headed up a multiagency working group to explore ways to create an “all-hazards” warning system (1999).
- National Weather Service and NOAA able to deliver “All-Hazards” warnings through the use of weather radios (2004).
- DHS is able to send critical all-hazards alerts and warnings through NOAA’s network



Alerting Systems Background (Oktribbeha County)

- Federal, State and Local Emergencies
 - EAS (Television, Radio)
 - NOAA Weather Radio (All Hazard Warnings)
- Local Emergencies
 - Oktibbeha County E911 Team
 - Outdoor Sirens (voice warning technology)
 - Emergency Responders Dispatch
 - Alert FM (not fully implemented)





Alerting Systems Background (Mississippi State University)

- Federal, State and Local Emergencies
 - EAS (Television, Radio)
 - NOAA Weather Radio (All Hazard Warnings)
- Local Emergencies
 - Oktibbeha County E911 Team
 - Outdoor Sirens (voice warning technology)
 - Emergency Responders Dispatch
 - Alert FM (not fully implemented)
- “Maroon Alert”
 - Opt-In: SMS, E-mail, Phone Call (Mobile and Landline)
- Indoor Sirens (voice warning technology)
- Website: <http://maroonalert.msstate.edu/>



“ALERT FM”

“ALERT FM”

- Ability to disseminate warnings to specific geographic locations and/or user groups
- Transmit through local radio FM frequency
- Sole Source technology for the State of Mississippi, (MEMA approved)
- Text and audio warning capabilities
- Improved building penetration
- Specific warnings available for five levels of administration, management, responders, or general public

“ALERT FM” Structure

- **Security Level Five:**

President, Oktibbeha Board of Supervisors, Mayors of the municipalities, President MSU, Chief Administrative Officials, Senior University VP’s and Executive level assistants

- **Security Level Four:**

Agency leaders such as Sheriff, Chief of Police, Fire Chief, University Operational Deans, University Crisis Action Team leaders, Oktibbeha County Hospital Administrator, School Administrators (County and City)

- **Security Level Three:**

Administrative staff necessary for incident operations

- **Security Level Two:**

General staff members that may be needed for prolonged events or incidents that may require their participation

- **Security Level One:**

General public alerts to anyone in Oktibbeha County

Security Level One receivers only receive general public alerts and information, while Security Level Five receive the highest security alerts and all lower security level alerts and information.

Alert FM Receivers



ALERT FM USB Receiver

The ALERT FM USB Receiver is an inexpensive device which receives potentially lifesaving emergency alerts and messages that can be viewed on any device with a USB port, such as a laptop or desktop computer, without the need for an internet or network connection.



ALERT FM Wall Receiver

Mounted device that receives potentially lifesaving emergency alerts and messages. These alerts or messages could include NOAA weather warnings, homeland security notices, evacuation instructions, Amber Alerts, or school closings.



ALERT FM Receiver

The ALERT FM Receiver is an inexpensive device which receives potentially lifesaving emergency alerts and messages. These alerts or messages could include NOAA weather warnings, homeland security notices, evacuation instructions, Amber Alerts, or school closings.



Unexpected Developments

- Mississippi State University (MSU) purchased 60 indoor warning sirens as part of its current emergency management infrastructure
- Oktibbeha County Emergency Manager independent of MSU Emergency Team
- MSU emergency team concerned about potential for “mixed messages” or “different warnings” from implementation of Alert FM
- MSU, Oktibbeha County and GSS, Inc., working to coordinate interoperability of alerting systems

A map of the United States is shown in a light beige color. The Southeastern United States, including Florida, Georgia, South Carolina, North Carolina, and Virginia, is highlighted in a gradient of yellow and orange. The text "Survey Plan" is centered over the highlighted region.

Survey Plan

Survey Plan of Action

- Distribution of devices
- Emergency management workshop
- Finalize survey development
- Impending emergency (most likely a tornado warning)
- E-mail invitation to participate
- Web survey for device users
 - Effectiveness?
 - Usefulness?
 - Reliability?
 - Cohesion with other community warning systems?
- Analyze and report results

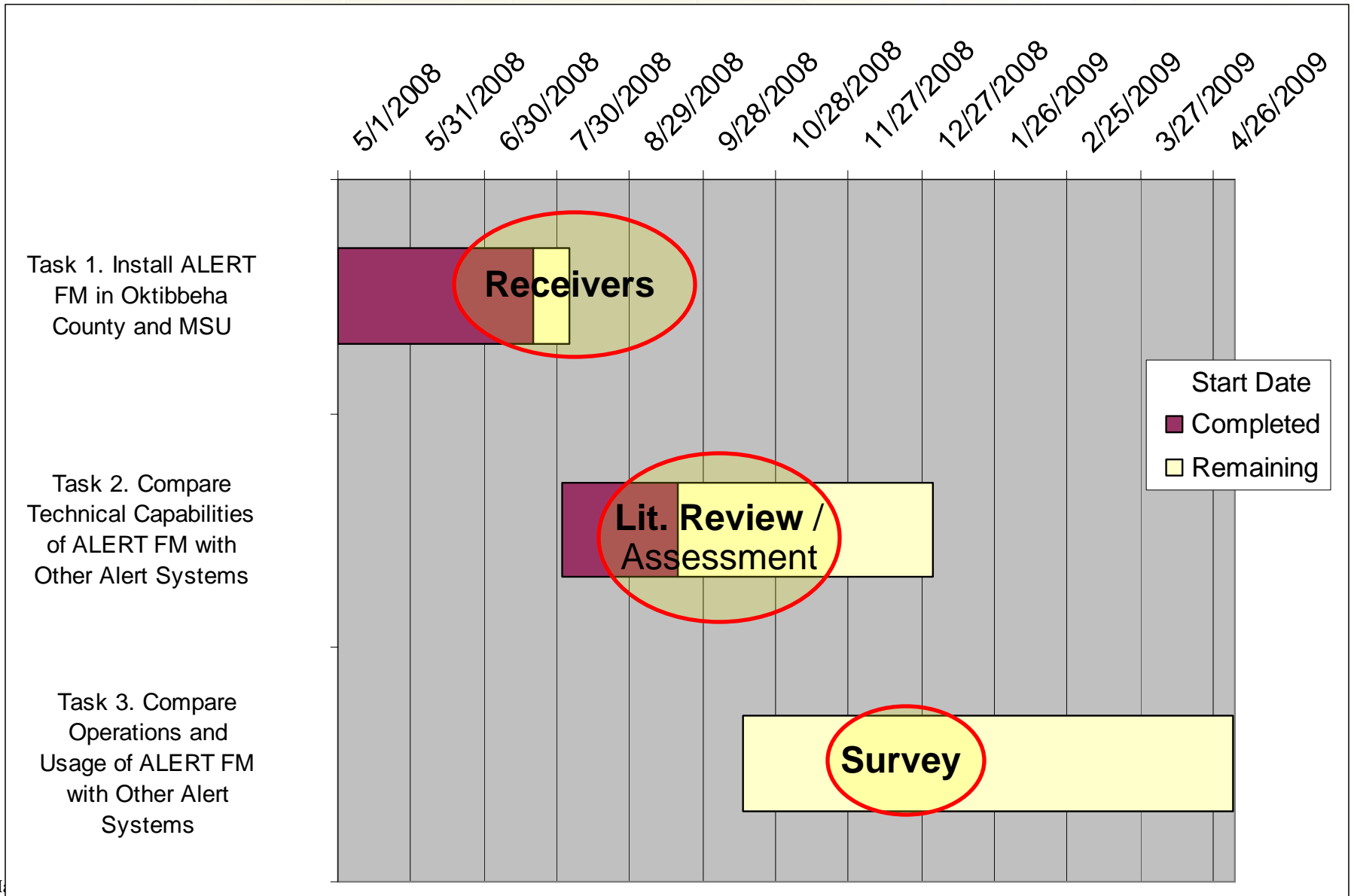
Survey Plan of Action

- Small workshop planned for the end of the calendar year with MSU and Oktibbeha County Emergency Management Personnel and surrounding counties' emergency personnel
- Incorporation of previous “Maroon Alert” survey results to capture new feelings towards previous results.

Project Timeline

- Install and Administer ALERT FM in Oktibbeha County and Mississippi State University – Scheduled Completion: June 15, 2008
- Compare Technical Capabilities of ALERT FM with Other Alert Systems – Scheduled Completion: January 15, 2009
- Compare Operations and Usage of ALERT FM with Other Alert Systems – Scheduled Completion: April 30, 2009

Project Timeline



Key Deliverables

- Task 1. Implement the Alert FM System
- Task 2. Assess and report key findings from key emergency alert management personnel.
Technical Assessment chart(s) and overview of findings
- Task 3. Workshop Report (Workshop planned prior to December 1, 2008) and Survey Results/Final Assessment Report



Summary & Conclusions

- Numerous emergency alerting methods/devices
- No “one-stop” technological solution to warn of impending emergencies
- Geographic targeting of warnings beneficial to rural areas and to a university campus
- Combining technologies creates a greater opportunity to warn a larger amount of people and adds redundancy



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