

**Response to**  
**Notice of Proposed Rulemaking**  
**Federal Communications Commission EB Docket No. 04-296**  
**In the Matter of Review of the Emergency Alert System**

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## ***A Mandate For Taking Action Now***

The FCC Commissioners in their comments issuing NPRM **In the Matter of Review of the Emergency Alert System** on August 4, 2004, have all shown a clear understanding of the importance of public warning and the EAS as well as the need to plot a new and more effective course as America moves into the future of all-digital communication:

“The importance of our ability to quickly and effectively inform the public of an emergency cannot be understated. Whether the issue is a terrorist attack or impending weather disaster, our success in this endeavor can mean the difference between life and death.” Commissioner Kevin J. Martin.

“The American public expects broadcasters to deliver timely local and national emergency and public safety information.” Commissioner Jonathan S. Adelstein.

We need to “examine the best means to reach the broadest possible population with emergency and public safety information.” Commissioner Michael J. Copps.

“The Cold-War era EAS system is an imperfect system for our modern society, but for the near term it remains one of the best options we have to deliver emergency messages to as many people as possible as quickly as possible.” Commissioner Jonathan S. Adelstein.

“The EAS ... serves a critical purpose, yet it applies only to analog broadcast and cable television and its use is, in many instances, merely voluntary.” Commissioner Kevin J. Martin.

“As new communications technologies develop and become integrated into our society, it is important that we adapt our rules to ensure that the purposes of the EAS are being fulfilled.” Commissioner Kathleen Q. Abernathy.

“Our task is not easy, but we cannot afford to wait. The public warning capability of communications technologies should be among the highest priorities of this agency.” Commissioner Jonathan S. Adelstein.

“This proceeding will provide one of the many vehicles by which we collectively explore the most effective mechanism for warning the American public of an emergency and the role of the EAS as we move further into our digital future.” Chairman Michael K. Powell.

“We should use our oversight of the broadcast and other communications industries to ensure more consistency at the state and local level.” Commissioner Jonathan S. Adelstein.

“We can design a system to better serve all stakeholders, including the disability community and the nation’s many non-English speakers.” Commissioner Jonathan S. Adelstein.

I strongly concur with each of these statements and believe they form a mandate for taking action now.

## ***The Goal of Public Warning***

**The goal of public warning is to get the attention of as many people as possible, no matter where they are or what they are doing, who are directly at risk from a man-made or natural disaster so that they can take informed action to reduce loss of life and property and to speed recovery.**

Warnings may be alerts of imminent likely events or they may be notifications of what is happening.

A warning is a terse “heads-up” notification. In an ideal world, people should then have a way of getting more detailed information, if desired, without taxing emergency response personnel or 911 call centers.

Warnings of a hurricane, for example, may begin days before landfall, while notifications at moderate distance from a major earthquake may only be received seconds to tens of seconds before the strong shaking begins.

Warnings are typically received by people but they may also be received by computers pre-programmed to take specific instantaneous actions such as opening fire house doors before the onset of destructive shaking in an earthquake.

## ***Current Problems with Public Warning***

Current public warning systems including EAS, NOAA Weather Radio, sirens, and many other methods collectively:

- Can only reach a small percentage of the people directly at risk during the daytime and a few percent at best during the nighttime
- Often warn more people NOT at risk than those at risk
- Interrupt normal programming for everyone whether at risk or not
- Typically cannot be targeted on a specific geographic region other than by county
- Vary widely by region of the country and media market
- Rarely provide follow-up information or a place to go for more information
- Rarely provide for the needs of the disability community and the nation’s many non-English speakers

With respect to EAS:

- The design of the EAS is dominated by the proposed need for the President to address the nation during times of crisis and this capability has never been used.
- There are an impressive number of volunteers especially in the broadcast industry who work hard to keep EAS functioning while government leadership and interest has dwindled

The fundamental problem with current public warning systems is that warning capability has not been a high priority for the Nation and no Federal Agency has the clear legislated mandate or has assumed the mandate to assure effective public warning systems exist. (For more detail see *A National Strategy for Integrated Public Warning Policy and Capability* published by the Partnership for Public Warning on May 16, 2003 [ppw.us/ppw/docs/nationalstrategyfinal.pdf](http://ppw.us/ppw/docs/nationalstrategyfinal.pdf)). We have the technology to improve public warning systems. The fundamental need is for teamwork.

## ***The Digital Future of Public Warning***

The EAS uses land-based radio and television station analog transmitters. Yet satellite broadcast of television now accounts for approximately 20% of the viewers and satellite based digital radio is growing rapidly. Furthermore all broadcasters intend to move from analog to digital signals within the next decade. Meanwhile digital methods have become the basis for cell phones, pagers, email, Internet push technologies, automated highway signs, and such. EAS does not interface well with these digital new technologies although the digital SAME code encoded within an EAS message does make some interface possible. EAS is fast becoming a relict of older analog technology reaching less and less of the market. As long as analog, land-based radio and television broadcast exist, however, EAS may be needed, but digital technologies offer new and more effective possibilities for public warning.

Warning information requires a very small number of bits and bytes of digital bandwidth and thus can be easily multiplexed into any digital communications channel without significantly affecting the main use of that channel.

Digital warnings can be controlled and routed by computers and computer networks and can become instructions to other computers, introducing a wide variety of intelligence into how the warnings are disseminated and how they are received.

Therefore in the future, it will be relatively easy and inexpensive to have warning information available in the airwaves from land-based and satellite-based transmitters as well as on wired and wireless computer networks.

Digital technologies help significantly in focusing warnings only on the people directly at risk and on those who need to know. Not only can intelligent decisions be made by computers in disseminating the information, but warning receivers can have built-in intelligence to decide which warnings received apply to the owner of the receiver based on their current location or region of interest. If the warning applies to the owner, the receiver makes it audible or visible. But if the warning does not apply to the owner, the receiver ignores it. Individuals could then decide what level of warning interests them. Some may only want warnings for events that directly threaten their life. Others might want warnings for any hazardous event in their area. In this way, warnings could also be sent only to people in a certain affinity group such as volunteer firefighters.

Industry is working very effectively and competitively to introduce new digital devices and new capabilities for existing devices that deliver a wide variety of digital information to businesses, homes, vehicles, and individuals whether by computer, entertainment system, On-Star type vehicle systems, navigation systems, wrist watches, and such. The presence of a warning capability built into such devices inexpensively could become a highly desirable feature in the marketplace. These devices could easily turn themselves on and set the volume if an applicable warning is received as is now done with some television sets and radio receivers.

With today's technology, a warning chip can easily be designed that listens to one or many sources of warning information and decides when a warning applies to the specific individual owning or

carrying any digital device and to relay that warning when appropriate in any language or means needed by the person at risk.

Thus a national warning capability some years from now is likely to look very different from the hodge-podge of approaches today and is likely to be much more effective. We need to plan an orderly transition to the digital future.

## ***An Orderly Transition to The Digital Future***

The report *Effective Disaster Warnings* by the Working Group on Natural Disaster Information Systems, Subcommittee on Natural Disaster Reduction, National Science and Technology Council ([www.sdr.gov/NDIS\\_rev\\_Oct27.pdf](http://www.sdr.gov/NDIS_rev_Oct27.pdf)) released in 2000 after review by the Federal agencies involved in public warning summarizes the state of warning systems in the United States and lays the foundation for moving to the future.

A primary conclusion of that study by Federal employees is that “A standard method should be developed to collect and relay instantaneously and automatically all types of hazard warnings and reports locally, regionally, and nationally for input into a wide variety of dissemination systems.”

In other words the primary need to improve warning systems and move into the digital future is to find a way to collect all official warnings into an official digital stream of information that can be passed to all existing technologies for directly warning people and be used as a basis for new digital delivery systems. Such a transition tool is of fundamental importance as most communication and broadcast systems are transitioning to digital means. But this is more than a transition tool, it is the basis for a future digital national warning system.

To move into the digital future of warning, the primary needs are:

- 1) A national standard data format for warning information
- 2) A national source of official warnings that can be relayed by industry with no liability for message content
- 3) A robust, secure, multi-stranded network that can relay official inputs to all types of systems that can rebroadcast or address the warning information to those directly at risk
- 4) Standards and procedures that assure all types of warnings are input with appropriate detail by a wide variety of officials but that assure terrorists or malicious hackers cannot misuse the system

We have already made considerable progress:

- 1) The Common Alerting Protocol (CAP) has been developed as an open, non-proprietary standard data interchange format that can be used to collect all types of hazard warnings and reports locally, regionally and nationally, for input into a wide range of information-management and warning dissemination systems. CAP version 1.0 was accepted as OASIS Standard 200402 on March 2004. ([www.incident.com/cap/docs/CAP\\_1.0/oasis-200402-cap-core-1.0.pdf](http://www.incident.com/cap/docs/CAP_1.0/oasis-200402-cap-core-1.0.pdf))
- 2) Official warnings are readily available from the National Weather Service, the US Geological Survey, most State Police communication centers, many emergency management centers, some chemical or nuclear critical facilities, and such. The problem is that these are not integrated into one single stream of information.

- 3) Internet meets the needs for distributing the vast majority of warnings to individuals and especially to a wide variety of systems that can relay the warnings to individuals at risk. However during major disasters Internet can become overloaded and even inoperative and there is no method currently to give priority to emergency messages. Thus Internet must be supplemented with other digital networks such as state emergency communications networks, satellite data channels, and such.
- 4) Most States have EAS Plans and AMBER Plans specifying standards and procedures for public warnings but in many cases these are not up to date and they do not include all types of warnings.

A pilot project in Washington State in the Spring of 2003 has integrated all four of these needs for AMBER Alerts and has blossomed into the AMBER Alert Web Portal Consortium (AAWPC) now fully operational in Arizona and Washington State, soon to be operational in 12 other States, with an additional 20 States looking to join in. AAWPC, led by and unanimously supported by the National Alliance of State Broadcaster Associations, the organization that represents all 50 state Broadcasters associations, has a highly secure input method for the patrolman on duty to enter all known information about a child abduction into a web form and to have that information placed instantly on a master website and automatically ported to other stakeholder sites including law enforcement, government sites, and all broadcasters. The details are also delivered directly to media news desks. Email and fax messages are dispatched instantly to all subscribers in the appropriate region. Voice messages and Short Message Service messages are sent by dialup telephone. The message is displayed on highway signs and any other digital displays registered with the system both government and privately operated. Once a warning is available on digital networks, it can be received and acted upon by any computer attached to the network.

The AAWPC is a consortium of State and local officials and industry. Companies including ESRI, Hewlett Packard, Intel, Limelight Networks, Protus, and Symantec have supported the development and ongoing sustainability to-date.

On October 1, 2003, AAWPC gave a live demonstration of such a digital warning directly triggering an EAS Encoder at the national meeting of the National Association of State Broadcast Associations in Philadelphia. Such control of EAS Encoders is easily implemented through the sound card on any type of networked computer located nearby. Thus there is a clear migration path to move the 24,000 EAS Encoders owned by broadcasters and cable operators across the country into the digital age.

## ***Plotting a Strategy to Move into the Digital Future***

What should the FCC do?

You have already shown inspired leadership by:

- 1) Issuing this NPRM and starting a formal process to involve a wide variety of stakeholders in find ways to improve public warning
- 2) Establishing the Media Security and Reliability Committee and its working groups to examine some of these issues
- 3) Working with the Department of Homeland Security/FEMA, National Weather Service, and other Federal government agencies on warning issues

While the Commissioners have individually made some of the following points, it might be appropriate for the Commission to lay out several principles and statements of intent such as:

- 1) An effective system to warn people at risk in America from man-made or natural disasters is needed and is a high priority.
- 2) This system should make maximum use of all types of digital broadcast and digital communication systems.
- 3) There needs to be an orderly path to the future of public warning building upon the 24,000 EAS encoders purchased and operated by broadcasters and cable operators.
- 4) The FCC would prefer to find market-based incentives for future warning systems but will be prepared to use its regulatory authority if required to assure appropriate coverage throughout America.
- 5) The most effective public warning devices will be able to turn themselves on when a relevant warning is received and should be able to know their location and select only warnings relevant for that location.
- 6) Public warning systems should strive to meet the needs of the disability community and our nation's many non-English speakers.

A National All-Hazard Alert Consortium (NAHAC) is being formed under the aegis of the National Association of States Chief Information Officers (NASCIO). NAHAC plans a pilot project in two States between November, 2004, and May, 2005, to move the success of the AMBER Alert Web Portal Consortium forward into the all-hazard domain. I strongly urge the FCC and MSRC to become involved in this Consortium focused on developing and testing solutions to the primary needs outlined above for moving public warning into the digital future.

Some issues involved in the pilot or in the future application of the pilot to the nation that FCC staff and procedures could assist in include:

- 1) Evaluation of responses to this NPRM in terms of needs and concerns of the wide variety of stakeholders in public warning systems.
- 2) Examination of what communication frequencies and techniques would provide the most widespread coverage throughout America and the greatest building penetration.
- 3) Study of what public policies might be needed to assure homogeneous operation of warning systems throughout the country including:
  - a. Which specific types of warnings are so important that they must be transmitted immediately to all people at direct risk without decision or delay of the disseminator or the person receiving the warning?
  - b. Which industries must disseminate such warnings?
  - c. What market incentives could enhance warning capability?
  - d. Should broadcast of State and local warnings be made mandatory for the current EAS system?
  - e. While current EAS messages are limited to 2 minutes in duration, can they be made shorter to minimize interruption of programming?
  - f. How much regulation is necessary to assure an effective public warning system?
  - g. What legislation is needed to improve EAS and public warning capability?

I applaud your leadership in the area of public warning and look forward to working with you in providing the high-quality public warning system that Americans expect and deserve.

## **Appendix: Comments on Specific Questions Raised in the NPRM by Paragraph Number**

Paragraph 52 of the NPRM states “We strongly encourage that parties track the organization set forth in this NPRM in order to facilitate our internal review process.” Therefore this Appendix lists the answers to specific questions or issues raised in the NPRM by paragraph number. These answers simply reiterate and enlarge upon issues summarized above.

- 1) The EAS is the best public warning system we currently have in the US but it is inadequate and needs to be improved as described in detail in *The Emergency Alert System (EAS): An Assessment* published by the Partnership For Public Warning in February 2004 ([www.ppw.us/ppw/docs/easassessment.pdf](http://www.ppw.us/ppw/docs/easassessment.pdf)).
- 2) Since the capability for a Presidential EAS message has never been used, it is appropriate to question whether it should continue to drive EAS policy and whether modern communications systems might provide better alternatives.
- 3) The permissive state and local EAS participation is one of the primary weaknesses of EAS. Yet warning in the future should involve many more communication industries than simply land-based radio and television broadcasters and cable operators. Furthermore the unfunded government mandate for EAS to the broadcasters has led to many of the weaknesses of EAS. Ideally the FCC needs to find a way to stimulate all communication industries to participate in the public interest and use regulatory approaches only as a last resort.
- 4) EAS is outdated in the current communications universe. It can be made much more efficient by the methods described above. The new model is described above. Key issues to examine in the pilot would be barriers and legislative needs. Existing EAS and its regulations would need to remain in effect for many years. The new National Warning System should use all technologies available and appropriate.
- 5) You need also to include the U.S. Geological Survey responsible for warnings related to earthquakes, volcanic eruptions, mud slides, and landslides.
- 20) The EAS as currently constituted is the best America has, but it is by no means the most effective and efficient public warning system in today’s world of rapid advances in digital communications. The primary need to enhance public warning is to enable all the different types of warning delivery systems to work effectively together. We need to view EAS as just one of the needed delivery systems and to agree it is only really appropriate for land-based broadcast of analog radio and television and for cable television. Different techniques are appropriate for digital radio and television, for satellite broadcast of radio or television, etc.
- 21) I endorse the MSRC and PPW recommendations. These reports summarize the concerns from groups of people well versed in public warning issues.
- 22) There are many Federal agencies with some involvement in public warning and all need to contribute their expertise. Someone must lead and it should either be DHS or NOAA/NWS. FCC should lead in the regulatory arena. Legislation clarifying roles and clearly assigning responsibility would help.
- 23) Warning is primarily the responsibility of local officials but most modern warning systems must operate with national standards and a national consumer market. Some warnings are a State or National responsibility. Thus there needs to be a partnership or consortium of Federal, State, and local government, public safety officials, first responders, etc. and industry.

The Partnership for Public Warning (PPW) was conceived based on experience with ITS America (The Intelligent Transportation Society of America ([www.itsa.org](http://www.itsa.org)), a very effective public/private partnership bringing industry and government together to move transportation

systems into the intelligent future. ITS America received very strong support from the Department of Transportation and assisted the Department in many important ways for more than a decade. PPW on the other hand received very little support from the Federal government and was basically starved to death.

The AMBER Alert Web Portal Consortium was formed at the State and local level and worked closely with industry with highest priority put on demonstrating results. It has been very successful. The National All-Hazard Alert Consortium (NAHAC) has been formed based on this model.

There may be a need to augment the partnership models or develop new ones or it might be appropriate to have a national Federal Advisory Committee under the aegis of DHS and possibly other agencies. These are topics for careful discussion.

- 24) Voluntary participation is a problem but regular interruption of programming is a serious problem for broadcasters. As a minimum, we need to determine which warnings besides a national presidential alert should be mandatory. As we move to all digital warning, this issue could go away.

There are no mandatory metrics for EAS and thus there are only guesses at how much it has been used and how effectively it operates. There are large parts of the country that do not reliably get EAS or even the Presidential message. While widespread coverage is alleged, it cannot be demonstrated.

- 25) There need to be plans but they could be better standardized based on a model plan, they need to apply to all types of warning, and they need to be reviewed regularly. This is a key part of the pilot effort underway.
- 26) We need uniform national guidelines but we need to respect local rights and the rights of the broadcasters. This is where partnership is key. Answers to the questions you raise need to be worked out carefully in partnership. New technologies for warning will answer some of these issues and bring up others.
- 27) The daisy-chain method of relaying EAS messages can be significantly improved by modern technology. Most broadcast stations receive advertisements via satellite. If an EAS message is treated as an Emergency Public Service Announcement and the system is reprogrammed to pass the Emergency PSA through immediately, most broadcasters could receive the message simultaneously at no additional cost for the message or for infrastructure. NAHAC has a pilot study of this method. Similarly Internet and other digital networks as discussed above could distribute EAS messages. Increasing the number of PEP stations or connecting them by satellite is not necessarily a wise use of the resources available.
- 28) The non-mandatory use of the new EAS codes adds another layer of uncertainty to the effectiveness of EAS. Whether these codes should be made mandatory in the near future is a difficult question to answer if we are going to move expeditiously toward a digital warning system.
- 29-30) Public warning capability should perhaps become mandatory for all communication systems when it can be made non-intrusive for those not at risk. Broadcasting EAS by satellite makes no sense until the receiver can sort out warnings that apply to its location only. Again technology will make some of these age old questions moot. Ideally industry should be able to work with government to find solutions that meet the needs of the public at risk, interrupt programming only for those people, and provide the broadcasters with public-relations benefits without severely impacting their business. The possibilities with digital warning are explained above.
- 31) This level of penetration is not adequate. We should seek reaching at least 90% of those directly at risk. The best method is described above.
- 32) Yes all methods for disseminating warnings need to be integrated as discussed above.

- 33) Yes. CAP is an excellent standard.
- 34) MSRC needs to work with CAP. CAP can provide for brief warnings and content rich warning information. We need one standard that meets all warning needs.
- 35) Automatic turn on and geographic encoding are key to future warning systems.
- 36-37) Modern warning systems can and should meet the needs of persons with hearing and vision disabilities.
- 39) Very inexpensive devices could be connected to appropriately designed warning receivers to meet these needs.
- 40) EAS messages should be broadcast in each language regularly broadcast by the station. Smart receivers of the future could convert CAP codes into any language.
- 41) There are numerous ways to cause problems with current EAS. The digital warning system of the future must be designed to be secure and reliable.
- 43) There needs to be testing to prove the reach of EAS. This could be done very unobtrusively.
- 44) The failure of FCC and FEMA to keep up aggressive training programs is one reason for the low effectiveness of EAS.
- 45-46) Broadcasters need more say in these matters.
- 48) Legislation clearly specifying who is responsible for assuring that a national and local warning capability exists, operates well, and is improved would help significantly. The legislation should specify with whom the leader should work closely and what the properties of the system ought to be. See *A National Strategy for Integrated Public Warning Policy and Capability* published by the Partnership for Public Warning on May 16, 2003 ([ppw.us/ppw/docs/nationalstrategyfinal.pdf](http://ppw.us/ppw/docs/nationalstrategyfinal.pdf))