

**Second Report of the Video Programming Accessibility Advisory
Committee on the Twenty-First Century Communications and Video
Accessibility Act of 2010**

Access to Emergency Information

April 9, 2012

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1. Introduction/Overview

On October 8, 2010, President Obama signed the Twenty-First Century Communications and Video Accessibility Act of 2010 (“CVAA” or “the Act”), which amended certain sections of the Communications Act of 1934 relating to communications access and video programming.¹ The purpose of this legislation was “to update the communications laws to help ensure that individuals with disabilities are able to fully utilize communications services and equipment and better access video programming.”² Among its provisions was the establishment of an advisory committee known as the Video Programming Accessibility Advisory Committee (later known as “VPAAC”).³ The Chairman of the Federal Communications Commission (“Commission” or “FCC”) was charged with appointing members to the VPAAC. Members included representatives from a wide range of organizations and other entities with an interest in the work of the VPAAC and who have the technical knowledge and engineering expertise to fulfill the VPAAC’s duties.⁴

One of the VPAAC’s charges was to develop and submit to the Commission a report concerning emergency information to help inform it as it implements the emergency information requirements of the CVAA in future rulemaking proceedings, including identifying methods to convey emergency information in a manner accessible to individuals who are blind or visually impaired.⁵ The Act specified that the emergency information report should include identification of:

- A recommended schedule of deadlines for the provision of emergency information;
- An identification of performance objectives for protocols, technical capabilities, and technical procedures needed to permit content providers, content distributors, Internet service providers, software developers, and device manufacturers to reliably encode, transport, receive, and render emergency information delivered using Internet protocol or digital broadcast television;

¹ See generally PL 111-260, as amended by PL-265 (Oct. 8, 2010).

² See S.R. 111-386 (Dec. 22, 2010), at 1. See also H.R. 111-563 (July 26, 2010), at 19.

³ See CVAA § 201. In order to avoid confusion with the Emergency Access Advisory Committee, the Commission changed the name of the advisory committee to the Video Programming Accessibility Advisory Committee, or VPAAC. See Video Programming Accessibility Advisory Committee By-Laws (“VPAAC By-Laws”), at 1.

⁴ The statute specified that the VPAAC should include “(1) Representatives of distributors and providers of video programming or a national organization representing such distributors, (2) Representatives of vendors, developers, and manufacturers of systems, facilities, equipment, and capabilities for the provision of video programming delivered using Internet protocol or a national organization representing such vendors, developers, or manufacturers, (3) Representatives of manufacturers of consumer electronics or information technology equipment or a national organization representing such manufacturers, (4) Representatives of video programming producers or a national organization representing such producers, (5) Representatives of national organizations representing accessibility advocates, including individuals with disabilities and the elderly, (6) Representatives of the broadcast television industry or a national organization representing such industry and (7) Other individuals with technical and engineering expertise, as the Chairman deems appropriate.” See CVAA § 201(b).

⁵ See CVAA § 201(e)(2).

- An identification of additional protocols, technical capabilities, and technical procedures beyond those available as of the date of enactment of the CVAA for the delivery of emergency information delivered using Internet protocol or digital broadcast television that are necessary to meet the above performance objectives identified above;
- A recommendation of technical standards to address the performance objectives; and
- A recommendation for any regulations that may be necessary to ensure compatibility between video programming, except consumer generated media, delivered using Internet protocol or digital broadcast television and devices capable of receiving and displaying such programming, in order to facilitate access to emergency information.⁶

Limitations:

- Devices with screens less than 13 inches must only comply if the above requirements are achievable;
- Does not apply to apparatus that are display only video monitors with no playback capability; and
- The Commission may waive requirements for apparatus (1) primarily designed for activities other than receiving or playing back video programming transmitted simultaneously with sound; or (2) equipment designed for multiple purposes, capable of receiving or playing back video programming transmitted simultaneously with sound but whose essential utility is derived from other purposes.⁷

The statute specified that the VPAAC report on emergency information should be submitted within 18 months of the date of enactment of the CVAA.⁸

1.1. The VPAAC Working Group on Emergency Information

On December 10, 2010, the Chairman appointed the members of the VPAAC.⁹ Subsequently, the FCC announced the appointment of the VPAAC co-chairs and members of the Commission staff to assist the VPAAC. (See Appendix A.) At the first meeting of the VPAAC in Washington, D.C. on January 13, 2011, the FCC co-chairs of the VPAAC divided the members into four advisory working groups to assist the VPAAC.¹⁰ Working Group 3 was created to identify methods to encode, transport, receive, render and convey emergency information provided on video programming in a manner that is accessible to persons who are blind or visually impaired. If technically feasible, devices must have the ability to decode and make available emergency information in a manner accessible to people who are blind or visually impaired. The leadership of Working Group 3 consisted of Eliot Greenwald, FCC Policy Co-Chair; Alan Stillwell, FCC Technical Co-Chair; Kelly Williams, (National Association of

⁶ See CVAA § 201(e)(2)(A)-(E).

⁷ See 47 U.S.C. § 303(u)(2).

⁸ See CVAA § 201(e)(2). The CVAA was signed into law on October 8, 2010, thereby establishing April 8, 2012 as the deadline for submitting the VPAAC report on emergency information.

⁹ *Video Programming and Emergency Access Advisory Committee Announcement of Members*, Public Notice, 25 FCC Rcd. 17094 (released Dec. 7, 2010 and erratum released Jan. 7, 2011).

¹⁰ See VPAAC By-Laws, at 1.

Broadcasters), Industry Co-Chair; and Melanie Brunson, (American Council of the Blind), Public Interest Co-Chair.

For the next 13 months, the members of this working group deliberated primarily through weekly conference calls, which were supplemented by periodic email exchanges among its members. In addition, a face-to-face meeting of the working group members was held in Washington, D.C. on November 2, 2011.

To help facilitate a more focused discussion, two Subgroups were created within Emergency Information working group to separately examine Policy and the Technical aspects pertaining to the reliable delivery of emergency information.

2. Background on Access to Emergency Information

2.1. History

When disseminating emergency information, television stations can interrupt regularly scheduled programming with an emergency alert newscast, or they can crawl or scroll information on the screen while continuing their usual broadcast. Although emergency alert newscasts provided information to the entire television audience, emergency information crawled or scrolled on the screen was generally inaccessible and wholly unknown to blind and visually impaired television watchers until the turn of the 21st Century.

In July 2000, the FCC adopted Section 79.2 of its Rules.¹¹ This Rule requires (1) that information about a current emergency intended to further the protection of life, health, safety and property that is provided in the video portion of a regularly scheduled newscast or newscast that interrupts regular programming must be made accessible to people with visual disabilities;¹² and (2) that television stations broadcast an aural tone whenever emergency information is displayed on screen that is not part of either a regularly scheduled newscast or a newscast that interrupts the regular programming.¹³ Section 79.2 includes the following examples of the types of emergencies that are covered: “tornadoes, hurricanes, floods, tidal waves, earthquakes, icing conditions, heavy snows, widespread fires, discharge of toxic gases, widespread power failures, industrial explosions, civil disorders, school closings and changes in school bus schedules resulting from such conditions, and warnings and watches of impending changes in weather.”¹⁴

Prior to the FCC mandate, several television stations broadcast auditory tones accompanying some visual emergency alerts. However, this process was not documented, and appeared to be sporadic at best. While Section 79.2 simply requires an aural tone, industry eventually coalesced around the use of three high pitched tones to indicate the presence of an on-screen emergency crawl or scroll related to further the protection of life, health safety, and property. It is important to note that “emergency information” is not necessarily the same as an emergency that would trigger activation of the Emergency

¹¹ 47 C.F.R. § 79.2. *See also Implementation of Video Description of Video Programming*, Report and Order, MM Docket No. 99-339, 15 FCC Rcd 15230 (2000) (“2000 Video Description Order”).

¹² 47 C.F.R. § 79.2(b)(ii). *See also 2000 Video Description Order*, 15 FCC Rcd at 15251, ¶ 50.

¹³ 47 C.F.R. 79.2(b)(iii). *See also 2000 Video Description Order*, 15 FCC Rcd at 15251, ¶ 51.

¹⁴ 47 C.F.R. § 79.2(a)(2).

Alert System (“EAS”). Accessibility under the EAS rules already is addressed pursuant to Part 11 and Section 79.2 of the FCC’s rules,¹⁵ 47 C.F.R. §§ 11.1 – 11.61 and § 79.2, and is not covered by the CVAA’s “emergency information” requirements.

After the three tones are played, a person with visual disabilities must take further action to identify the nature and severity of the potential emergency. The tones do not change based on the severity of the alert, nor does the tone indicate where a person with visual disabilities can obtain the emergency information in an accessible form. Today, a person might have access to a local news station on the television or radio where the information may be verbalized. Alternatively, assuming sighted assistance is available, the relevant information could be read aloud to the individual who could not read it him or herself.

2.2. Emergency Information Delivery: Current Practice

The following subsections provide an overview of the current practice(s) associated with the production and delivery of emergency information in the terrestrial broadcast and Multichannel Video Programming Distributor (MVPD) sectors.

2.2.1. Production and Terrestrial Broadcast

Over the air (OTA) television broadcasters deliver emergency information to local audiences by two methods: (1) interrupting programming with live news coverage of the event or (2) by placing a text crawl over the programming in a manner that complies with 47 C.F.R. § 79.2. The severity of the emergency event generally determines which method local broadcasters would utilize to alert their audiences. In severe emergencies involving serious and imminent threat to life and safety - for example a tornado sighting - television broadcasters will interrupt programming and provide detailed information to their audience. Less imminent events, such as a thunderstorm warning, might be announced using a text crawl over the video. The determination of whether to interrupt programming is an editorial decision made by the station’s management (typically the news director and/or the station’s meteorologist) based on their experience with how events affect their local markets.

A local television station typically acquires emergency information by monitoring two or more sources via the EAS, such as the National Weather Service in the case of weather events. A station might also acquire the information through its news operations or could be notified directly by local law enforcement or civil authority as is standard procedure with AMBER Alerts.¹⁶ The text for the crawl that is to be displayed on the screen is created using the station’s graphics computer (character generator). It can be derived automatically from the data contained in an EAS message or, alternatively, it can be

¹⁵ 47 C.F.R. §§ 11.1 – 11.61 and § 79.2.

¹⁶ For a copy of the AMBER Alert Guidelines, please visit <http://www.amberalert.gov/guidelines.htm>.

manually typed onscreen by station personnel.¹⁷ Stations will typically repeat a crawl multiple times so that audiences have ample time to view the emergency information and act upon the relevant data.

2.2.2. *Cable*

Emergency information is information about a current emergency that is intended to further the protection of life, health, safety and property. Examples of the types of emergencies conveyed in emergency information include tornados, hurricanes, heavy snows, widespread power failures and civil unrest. As mentioned, emergency information is not the same as the EAS system, which separately provides for access for blind and visually-impaired cable customers.¹⁸

Cable operators ingest the digital programs containing emergency information from a local broadcast television affiliate at the headend, or in some cases at a distribution hub. These programs are also often converted into analog. This conversion step assures that both analog and digital versions of the program are available in the customer's home to support various devices. The programs are then locally processed and modulated onto a channel, then combined with other channels into a complete spectrum before distribution to the customer.

Cable operators and local broadcast affiliates currently support up to two audio streams for each program they distribute. The first audio stream contains the main or primary audio track for the program, typically in English; the second audio stream contains the video description or a second language (typically French or Spanish) or can contain emergency information. The local broadcast affiliates are relied upon to manage which service – video description, second language or potentially emergency information – would appear in a given second audio stream.¹⁹

To access this second audio stream, a cable customer must select the second language in the set-top box user interface. Access to emergency information would be provided in the same manner. Providing emergency information in this way would continue the

¹⁷ Emergency alerts sent via the EAS are distributed through a relay chain of radio and TV stations. Each member of the chain either is an origination point (*e.g.*, The National Weather Service for weather alerts or a local primary for local civil emergencies) and/or a relay point. National or Presidential EAS Messages are relayed from Primary Entry Points (PEP) stations (typically AM radio stations), to local participants as audio signals using the Specific Area Message (SAME) encoding. The audio signals contain Frequency Shift Keyed (FSK) data, as well as a human voice message. The audio signals are carried on the normal audio channel of each station, temporarily replacing the music or voice of the station. Each EAS participant is required to have an EAS Encoder/Decoder (ENDEC) to be able to receive and transmit the EAS message. State and local Emergency Alert Management plans identify the local primary stations that have to be monitored by each participant's ENDEC. Participants' ENDECs receive the EAS header codes, attention signal, emergency message and end of message (EOM) audio codes from the Local Primary Stations. The EAS Header contains SAME codes that the Encoder/Decoder (ENDEC) uses to determine the time, location and severity of the message. The ENDEC uses this data to relay the information to the participant's audience.] *See generally* 74 C.F.R. §§ 11.1 – 11.61.

¹⁸ *See* note 15, *supra*.

¹⁹ *See VPAAC Report on Video Description* for a full description of how audio streams are currently signaled in cable systems.

longstanding practice in the analog environment of utilizing a single secondary audio channel in addition to the primary audio channel. Given the continued presence of analog versions of digital broadcast channels on cable systems, it also would result in a common approach to emergency information across analog and digital content sources. As noted above, the local broadcast affiliates would determine which audio service – alternative languages, video description or emergency information – would appear in the second audio stream.

2.2.3. Direct Broadcast Satellite (DBS)

As EAS participants, DBS service providers have an obligation to receive and transmit national audio and visual EAS messages. They may comply by providing a means to switch all programmed channels to a pre-designated channel that carries the required audio and video of the national EAS messages, or by any other method that ensures that viewers of all channels receive the national EAS message. Other DBS service provider obligations include the use of specific EAS protocols and participation in regular monthly testing. DBS providers do not have an obligation to provide geographically-targeted EAS messages, including state-level alerts.

DBS service providers currently carry up to two audio streams for each of the SD and HD programming channels they distribute. When a second audio stream for a channel is carried by the DBS service provider, it remains configured in the DBS network full-time. The program network and local broadcast affiliates that deliver two audio streams manage what service appears in each stream, and, if provided and subsequently carried, the second audio stream might contain emergency information. In such a case, DBS customers would access this emergency information by appropriate means, such as by navigating to the alternate audio service through their satellite set-top box menus.²⁰

2.2.4. Internet Protocol Television (IPTV)

IPTV providers (also known as Wireline Video Systems) ingest the digital programs containing emergency information from a local broadcast television affiliate at the regional head ends (*i.e.*, Video Hub Offices, VHO).²¹

IPTV service providers and local broadcast affiliates currently support up to two audio streams for each program they distribute. The first audio stream contains the main or primary audio track for the program, typically in English; the second audio stream contains the video description or a second language (typically French or Spanish) or can contain emergency information. The local broadcast affiliates are relied upon to manage which service – video description, second language or potentially emergency information would appear in a given second audio stream.

IPTV providers can pass through video description as an alternate audio stream. Customers would then use service menu options on the receiving device to select video description, and the audio will include the description if available. Video description

²⁰ A description and diagram of a typical DBS network architecture is included in the *VPAAC Report on Video Description*.

²¹ At this time, IPTV is provided utilizing the infrastructure of wireline common carriers.

“pass through” means that MVPDs need only deliver audio with description in a manner consistent with bandwidth and other technological constraints of their distribution system. Audio with video description may be limited to stereo or mono audio program.

2.3. *User Interface Issues Related to Emergency Information*

One method of dissemination of emergency information discussed in this report is to use the video description audio service. The effective use of video description by the blind or visually impaired for any purpose requires convenient, reliable and readily available access to the video description service. If this service is to convey emergency information, the convenience of such access is all the more important. A discussion of issues related to accessibility of video description services may be found in the *VPAAC Report on User Interfaces, and Video Programming Guides and Menus*.

3. Findings and Recommendations

3.1. *Findings – General*

With regard to the current emergency information alerting methods used in broadcasting, several categories of such emergency information have been identified:

- Information about emergencies involving imminent and serious threats to life or property.
- Information about emergencies that does not involve serious threat to life or property.
- Information that is lengthy, but is not of a serious nature, nor involves threats to life or property, for example, weather-related school closures and information concerning schedule changes for public events.

The following findings were reached:

- Current television broadcasting practice does not always accommodate the visually impaired population when presenting emergency information. The result is that the information conveyed to visually impaired individuals is incomplete or in some cases, inadequate as compared with that available to the general population.
- With the current methods of emergency alerting on video media, many individuals with visual disabilities do not find usable the current methods of accessing critical details about a current emergency when emergency information involving imminent and serious threat to life or property is being broadcast.
- Information being broadcast regarding certain non-serious threats may be relevant to some, but not all individuals with visual disabilities; individuals who want such information should have a means of accessing it.
- It cannot be assumed that individuals with visual disabilities who cannot see the emergency information on a television screen will have alternate means of obtaining that information or be aware at any given time that they should seek additional information from the station they are currently accessing or alternate sources.
- To obtain emergency information from television programming, many users with visual disabilities require a greater level of access to controls on receiving devices

than most models of such devices offer today. In the short term, a blind or visually impaired person will need a reliable method of accessing the secondary audio feed if emergency information is to be provided on the video description service.

- Currently, the user interfaces of most receiving devices are not easily controlled by blind or visually impaired consumers. Thus, until accessibility concerns are more fully addressed, emergency information present on the secondary audio channel may not be readily accessible if the audio accompanying visual crawls and scrolls is broadcast on this alternate audio channel.
- Alternatives to broadcasting an aural representation of crawl or scroll, in its entirety, over a second audio service were discussed. For example:
 - a) Include aurally in the main program audio a truncated or abbreviated version of the emergency information from the scroll related to potential risks to life, health, and property. The benefit is that a blind or visually impaired person would not be required to have knowledge of electronics to receive this alert. No settings need to be altered on the receiving device.
 - b) Broadcast a brief (5 to 10 second) audio message that follows the three tones on the main audio channel at the beginning of a crawl. This message would not contain the information of the crawl or scroll, but could inform consumers of accessible sources of emergency information, such as a phone number or radio station that can be used by a blind or visually impaired person to obtain the emergency information on the screen.

These alternatives may not be mutually exclusive but could be used together to achieve an effective result.

However, there are disadvantages with these approaches. It is recognized that such aural emergency messages would briefly replace the main program audio of the current broadcast, and that the interruption could likely be disruptive to viewers. It is also noted that this approach may be impractical because broadcast stations may not have the resources to create and manage these brief audio messages.

- Emergency information provided by a broadcast station that is lengthy, concerns threats that are not serious, or does not involve threats to life or property, should be made accessible in audible format whenever possible. Since there is less time sensitivity involved in accessing such information, individuals may be required to interact more fully with accessible television menus in order to activate a mechanism that would provide access to this information.
- In the event that the three-tone alert is the only sound broadcast on the main channel, and the crawl or scroll is made auditory in the secondary audio channel, several other methods could possibly be used to assist visually impaired consumers in gaining access to this audio service. For example, physical buttons on the remote control may help individuals with visual disabilities enable the second audio channel. A remote control device capable of being programmed with one or more "macros" - that is, one

or more sequential button presses represented in an abbreviated format - could be part of a potential solution. Programmable remote controls are available in the marketplace today. Consumers are likely to need assistance in understanding which programmable remotes are compatible with their receiving devices and technical assistance with setting up the macro commands.

- In its recent review of the EAS, the Commission stated that text-to-speech (TTS) technology may not be used by EAS participants for rendering audio representations of an EAS alert.²² The Fifth Report and Order expresses concern that inconsistencies between different EAS equipment-based TTS implementations could result in differing audio messages being broadcast for the same EAS alert, presumably resulting in consumer confusion. The Fifth Report and Order further acknowledges that TTS may be discussed in a future proceeding regarding the implementation of the CVAA.²³

The VPAAC finds that text-to-speech is an essential enabling technology for creating the accessible emergency information under certain circumstances. We believe that TTS is a valuable technology for creating aural representation of a text crawl in a timely fashion. TTS can generate the needed audio within seconds, making accessible information available quickly for blind or visually impaired individuals. While we acknowledge the concerns expressed in the Fifth Report and Order, we find that the need to generate the audio representation of a crawl in a timely manner outweighs any inconsistencies that might arise from the variations in TTS implementations.

- Internet delivered programming allows for the delivery of movie and TV content, to a wide range of consumer Internet-connected devices including computers, game consoles, disc players, phones, tablets, and other mobile devices. This content can be viewed as “streaming video” or can be downloaded to and “played out” from the consumer’s device. Because of certain copyright limitations, local broadcast stations may simultaneously stream their local news with its live over-the air broadcast, but they generally do not archive full episodes of local news on the station’s Web site for later viewing. While consumers receive emergency information that is generated during the live news cast (e.g., live streaming), generally, consumers do not receive emergency information when accessing Internet delivered programming. Further, while there are subscription services that provide localized emergency information, each service functions differently, thereby making it difficult to recommend a universal means for making these services accessible. Therefore, at this time, the VPAAC finds that there does not appear to be any uniform or consistent methodology for delivering emergency information via the Internet.

²² See *In the Matter of Review of the Emergency Alert System; Independent Spanish Broadcasters Association, the Office of Communication of the United Church of Christ, Inc., and the Minority Media and Telecommunications Council, Petition for Immediate Relief*, Fifth Report and Order, EB Docket 04-296, FCC 12-7, rel. Jan. 10, 2012 at ¶ 38.

²³ *Id.* at n. 122.

3.2. Longer-term Solutions

More reliable and user-friendly solutions may be envisioned, given sufficient time for product designers and systems engineers to deploy accessibility solutions in the marketplace and in the television broadcasting infrastructure. While in the short and medium term, the secondary audio program, when present, will either contain a second language, such as Spanish audio or video description and the user interface on the receiver may not be able to distinguish between the two; in the longer term, metadata is expected to be present in the broadcast or MVPD signal to positively identify the content of any additional audio tracks. Focusing on the use of the secondary audio channel for delivery of emergency information, a number of factors can be brought into play in the longer term.

For example, consumer receiving devices can be built in accordance with the recommendations in CEA-CEB21, *Recommended Practice for Selection and Presentation of DTV Audio*, a bulletin published by the Consumer Electronics Association in June, 2011. Such receivers could offer the user an operating mode in which video description services are decoded whenever they are available. When a program has no video description, the regular main audio is decoded instead.

3.3. Recommendations

If a broadcaster deems emergency information is appropriate to display as a crawl or scroll to television viewers, the goal should be to make such information available to those who utilize their televisions' audio content only, whenever feasible.

Given these findings, the following is recommended:

- Information about emergencies that pose imminent and serious threats to life or property should be conveyed audibly as well as visually for the benefit of people with visual disabilities.
- For an emergency event that a broadcaster feels rises to the level for which three attention tones are used to signal the presence of a crawl and to capture the attention of those with visual disabilities, broadcasters should make those crawls accessible to persons who are blind or visually impaired by rendering and transmitting an audio representation of the information contained in the crawl. That audio representation should be transmitted on an additional audio service in the TV station's broadcast signal and will typically travel along the same program distribution path as video description. It is understood that the emergency information audio might interrupt program audio when descriptions or second language are present on the additional audio service.²⁴ The aural information does not need to be identical to the visual information that appears as a crawl or scroll across the TV screen, but should provide understandable and comprehensive audible content corresponding to the crawl or scroll.
- Section 79.2(b)(3)(ii) of the FCC's rules currently prohibits emergency information from blocking any video description and video description from blocking any

²⁴ See *VPAAC Report on Video Description* for discussion of additional audio services.

emergency information provided by means other than video description.²⁵ Because the VPAAC is recommending that emergency information conveyed visually by crawl or scroll also be conveyed aurally utilizing the same audio stream as the video description audio stream, and implementation of this recommendation may conflict with the section 79.2(b)(3)(ii) proscription against emergency information blocking any video description, we also recommend that section 79.2(b)(3)(ii) be amended to read as follows: "(ii) Any video description provided should not block any emergency information provided by video description or by means other than video description."

- Audible emergency information should be provided in a manner that ensures individuals with visual disabilities will have access to the information, taking into account the short-term, as well as longer-term technology capabilities of receiving devices available for consumer use.
- Text-to-speech should be permissible technology for the creation, in EAS participants' network facilities, of the aural representation of emergency information.

3.4. Solutions Considered and Not Recommended

It was agreed that the primary methodology necessary to provide visually impaired or blind consumers with access to the information contained in emergency crawls, now and in the future, would most likely involve delivering the audible equivalent of the crawl either as audio accompanying the broadcast or as data which can be converted into audio at the receiving device. During our discussions, the group considered a number of alternatives, including auxiliary devices and other methods and pathways to deliver accessible emergency information to visually impaired and blind consumers. The group determined that these possible solutions either did not fully satisfy the requirements of the Act, relied upon technology or services which do not currently widely exist in the marketplace, or presented additional problems or factors which made them unadvisable at this time. The group also considered that new technologies and pathways for delivery are likely to be developed, and that the FCC rulemakings should take into account the need for full flexibility in the development of the architecture through which providers may choose to deliver audio.

Lowering Main Program Audio

The group considered "dipping" or lowering the level of main program audio, and playing an audible message over the lowered audio. The group determined that if the emergency was important enough to interrupt main program audio, it would most likely have risen to the level of complete program interruption. In regard to emergency information that does not warrant complete program interruption, playing a message over main audio may be disruptive to viewers who were interested in the program audio, but not interested in or affected by the specific alert message contained in the crawl. The option of allowing the consumer to switch between main program audio and emergency message audio was preferred, as those viewers who did not need the audible alert could choose not to switch. The latter option is not currently available.

²⁵ 47 C.F.R. § 79.2(b)(3)(ii).

Screen Readers

The group considered the use of screen reader software or devices provided to users upon request. Currently, live digital broadcast programming may be routed from an antenna or cable feed to a computer equipped with screen reading software, although this may require the purchase of additional hardware or software. However, screen readers view video and the text within it as an image rather than text, and therefore readers do not voice embedded text. Due to cost and complexity, this pathway would most likely be available only to a small segment of the affected population.

Live streaming programs from a Web-based platform may include additional windows containing text, such as a chat room, an instant message window, or a PowerPoint display, which could be read by screen reader software. However, the video itself is still viewed as an object and not as text. Even if text within the video could be viewed, the blind or visually impaired user would not necessarily know which text to select on screen or how to select it. For example, an emergency crawl might appear on the screen at the same time as non-emergency program graphics are displayed.

Enlarged Text

The group considered developing systems for users to select and enlarge emergency crawl text, much like large print books for low vision users. In the current broadcast environment, the crawl is a part of video raster and cannot be manipulated as a separate element. A solution based on enlarged text would serve low-vision/low-hearing users, but would not serve those who were blind. If crawls were separate from the video, sent as part of a caption text service, for example, then they could be manipulated independent of the video. There are devices currently available for TV sets that will enlarge the entire picture, but only a small section of the picture is visible onscreen at one time, and therefore only a small piece of a crawl would be visible to the viewer.

Consumer Guidance

The group considered providing guidance for consumers. While guidance will most likely be a part of any successful change, guidance as a standalone under current conditions would not be sufficient to provide access. Directions on how to switch to a secondary audio channel, absent audible cues in receiving device menus, means that visually impaired users cannot reliably navigate through the menus to turn features such as auxiliary audio on and off.

Internet Filtering by Location

The group considered the use of an Internet-based standardized application to filter alerts by location. The identification of specific MVPD set-top boxes by user address allows some service providers to direct messages to specific set-tops boxes; however, there is currently no universal system for equating a particular “affected area” with a group of set-top boxes.

3.5. Issues for Further Analysis

The VPAAC considered a number of potential solutions or related factors for further consideration in providing access to emergency information.

Alert Filtering by level

The group considered encouraging the development of technology which would allow the consumer to select a filter for alerts. The use of “priority tags” incorporated into the emergency information signal could in theory enable users to preselect which types of emergencies they wish to hear about, and which types they do not wish to hear about. For example, if the consumer wishes to hear emergency weather alerts, but not school snow closings, the filter might allow them to set their preferences in their receiving devices, and have them applied to future alerts received from any video broadcaster or distributor. The incorporation of metadata signaling changes and receiving devices which recognize these types of priority tags would need to be created in order to make this a viable solution.

Alternative Methods

The Group considered the use of alternative methods to provide an interim accommodation for users with visual disabilities until a permanent solution can be implemented. Rather than directing a user to actively switch to another channel or device for emergency information when an alert crawl occurs, users could be offered the opportunity to sign up for notification services such as automated phone calls and text messages. Many local civil authorities already provide subscription alert services that deliver information by email, telephone and text messages. Users would then be able to select what type of emergency they wished to have notifications for by selecting the service and mode of notification. Services should not impose a financial burden upon the users.

Text-to-Speech Conversion at the Receiving Device

The group considered the delivery of emergency information to the receiving device as text, which can then be converted into audio, rather than using an audio channel to carry the data to the receiving device. Although the ability to deliver text to the receiving device through a variety of pathways, such as caption text channels, currently exists, the ability to convert that data to speech is not yet incorporated in receiving devices. This deserves more investigation as a possible long-term solution.

4. Deadlines and Schedules for Implementation

The VPAAC is uncertain as to how technology will change in the future and has not come to consensus as to recommended deadlines. Among the variables that may affect implementation deadlines are the following:

- When there is no video description or second language audio program present, the main audio program would be carried on the secondary audio stream. Placing an audio representation of emergency crawls or scrolls on the second audio stream would make those emergency crawls accessible to individuals who were listening to other programming on this stream. This is not an option for stations that do not provide an active secondary audio stream.

- As discussed in Section 3.2 above, in the short and medium term, the user interface on the receiver may not be able to distinguish between video description and second language, and in the longer term, metadata is expected to be present in the broadcast or MVPD signal to positively identify the content of any additional audio streams.
- The *VPAAC Report on User Interface* has addressed the accessibility of user interfaces on apparatus designed to receive or display video programming, of on-screen text menus, and of programming guides and menus pursuant to section 201(e)(2)(F)-(H) of the CVAA.

Considering the above mentioned variables, we recommend that the Commission explore issues surrounding implementation deadlines for the accessibility of emergency information as part of the rulemaking process.