Bay Area Urban Areas Security Initiative (UASI)

Public Information and Warning Workgroup

MASS NOTIFICATION SEMINAR

Summary Report

May 2-3, 2019
Mission Bay Conference Center
Robertson Auditorium
University of California, San Francisco
1675 Owens Street #251
San Francisco, CA 94158

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OVERVIEW

Name	Bay Area Mass Notification Seminar
Date	Thursday and Friday, May 2 & 3, 2019
Scope	The scope of the seminar involved federal, state, and local alert and warning administrators, public information officers, emergency managers, and staff with mass notification responsibilities from the Bay Area Urban Areas Security Initiative (UASI) region, the State of California, and other jurisdictions across the U.S.
Mission Areas	Prevention, Protection, Mitigation, Response, Recovery
Core Capability	Public Information and Warning
Purpose	The purpose of the seminar was to examine resources and challenges and to share lessons learned and best practices to enhance mass notification capabilities before, during, and after emergency incidents.
Objectives	1. Share mass notification lessons learned from disasters in the Bay Area region, State of California, and across the country. 2. Provide participants with a deeper understanding of communications infrastructure and capabilities related to mass notification. 3. Learn about and inform the development and implementation of policies and regulations related to mass notification. 4. Identify best practices for designing and sending effective alert messages that reach broad audiences with diverse communications needs.
Threat or Hazard	All-hazards
Sponsor	Bay Area UASI
Participants	The full list of participants can be found in Appendix A.
Point of Contact	Mikyung Kim-Molina Regional Project Manager Bay Area UASI Email: mikyung.kim-molina@sfgov.org Office: 415-353-5230

EXECUTIVE SUMMARY

The Bay Area Mass Notification Seminar was designed as a two-day event for mass notification system operators, Public Information Officers (PIOs), and emergency managers from across the country to share practices and lessons learned in mass notification and alert and warning, particularly those that emerged from experiences in recent disasters. The seminar is one of the only events in the U.S. to focus exclusively on all aspects of mass notification.

Key topic seminar areas included:
- Mass notification lessons learned from recent disasters
- Updates to alerting technology and infrastructure
- Reaching traditionally hard to reach populations with alerts
- Building a brand and integrating social media
- Techniques for designing effective emergency alert messages

High-level takeaways included:
- There is no "silver bullet" for alerting; alerting agencies should use multiple messaging platforms to deliver life-saving information.
- Educating the public with clear expectations about alerting systems' capabilities builds trust, familiarity, and use.
- Alerting agencies have used both non-emergency events and emergency incidents to emphasize the value of alerting, educate the public about warnings, and promote sign-ups for mass notification platforms.
- Agencies should regularly exercise and train alerting staff on their warning system and platforms, so that staff understand system functionality and are able to send alerts quickly and effectively in an emergency.
- Alert administrators should adopt best practices for message design that are based on social science research, including proper order of information.
- The unique needs and perspectives of individuals with access and functional needs should be considered when planning for and sending alerts.
- Agencies should work with their community-based organizations to develop networks to amplify emergency messages to traditionally hard to reach populations in accessible and culturally appropriate ways.

The development of this seminar was managed by the Bay Area UASI, the Public Information and Warning Work Group, and the Mass Notification Seminar Planning Subcommittee. The work group meets on a quarterly basis to address issues such as those discussed at the seminar.

Seminar materials, including copies of presentations, handouts, and this report, are available via the following Google drive link:

https://drive.google.com/drive/folders/1v2WQOrGyErTbxY-HT9wMXt8AiLcXgw6-?usp=sharing

The seminar materials are part of shared resources and tools maintained by the **Bay Area Joint Information System** (JIS). For access to the JIS virtual coordination platforms, including its shared folder on Google Drive, email bayareajis@gmail.com.

In addition, the **Alert and Warning Administrators' Group** (a listserv) welcomes individuals who administer public alert & warning systems and send alerts using those systems. The group is a place to share best practices and to get support on alert and warning related topics. To join the group, set up a Google account for

a work email address or use a Gmail account. After signing into the Google account, go to
https://groups.google.com/d/forum/alert-and-warning-administrators and click on "Apply for Membership."

Support for this seminar was provided by:

DAY ONE SUMMARY

WELCOME AND OPENING REMARKS

Mary Ellen Carroll, Executive Director of the San Francisco Department of Emergency Management welcomed participants to the seminar. She thanked participants for being present to share ideas. Director Carroll thanked sponsors for their partnership and collaboration. As host and co-sponsor for the seminar, Michelle Heckle, Division Director of Homeland Security Emergency Management at University of California, San Francisco (UCSF), provided an overview of mass notification at UCSF and a safety briefing for participants. Mikyung Kim-Molina, Regional Project Manager at the Bay Area UASI, introduced the seminar planning committee.

DAY 1 – MORNING SESSIONS

Fire, Flood and Cellphones: Sonoma County's Journey in Alert and Warning
Chris Godley, Director of Emergency Management, Sonoma County

Mr. Godley described the dynamic alert and warning landscape during Sonoma County's response to the October 2017 wildfires. He shared how the county is using lessons learned to develop a comprehensive alert and warning program with staffing, partnerships, planning, training, and exercises.

Summary:
- Before the 2017 fires, only a small percentage of residents had signed up to receive Sonoma County emergency alerts.
- During the fire, most residents received notifications from social media or fellow neighbors.
- Wildfires caused blackouts and loss of wireless communications.
- Criticism of the county's alert and warning practices during the 2017 wildfires shaped the overall public perception of the emergency response.
- The public is used to instant connectivity with precision. Expectations for public services have risen.
- Large numbers of county residents signed up for Nixle in the aftermath of the fires.
- To avoid over-alerting, the county established interagency guidelines for using Nixle.
- Sonoma County conducted the first large-scale live test of Wireless Emergency Alerts (WEA) on the West Coast (see *Resources* for copies of the Exercise Plan and After-Action Report/Improvement Plan).
- The county learned that service providers' algorithms may influence users that receive alerts and when they receive them.
- Sonoma County is continuing to assess threats and hazards to its alerting systems.
- The county is training and exercising their alert system activators regularly.
- The situational information gathered during emergency response is designed to support tactical response operations. The county is developing processes and tools to gather and coordinate situational awareness for alert and warning.
- The county is considering transferring the primary responsibility for alert and warning from emergency management to its public safety communications/9-1-1 dispatch center.

Recommendations:
- Sonoma's plans for alert and warning must integrate and coordinate with different technology and emergency response systems. Planning for and using multiple methods for alerts is important.
- Across California, more work needs to be done to develop partnerships and processes with broadcasters for EAS alerts.
- Alert and warning must be available 24/7, especially for fast-moving, no-notice events.

- The community must be educated on how they may receive an alert and what to do when they are alerted.

Resources:
- [Cal OES Assessment Report for Sonoma County - February 26, 2018](#)
- [Sonoma County 2017 Wildfire Emergency Operations Center After Action Report - June 2018](#)
- [Sonoma County Community Alert and Warning Assessment Report - June 11, 2018](#)
- [Sonoma County Emergency Management Program Assessment Report - June 11, 2018](#)

The [Seminar folder on Google Drive](#) also contains copies of Sonoma County's Exercise Plan and the county's After-Action Report/Improvement Plan from its 2018 Alert and Warning Functional Exercise.

BlackBerry AtHoc – A Smart City Approach to Crisis Response
Paul Neyman, Director of Sales – BlackBerry AtHoc

Mr. Neyman described a smart city approach to crisis response, inter-agency communication, collaboration, and resiliency. He shared how Contra Costa County has built a connected, public-private smart county by leveraging BlackBerry AtHoc's solution for critical communication. The county notifies residents of critical communication and collaborates between various agencies and the county's complex industrial petroleum and chemical industries.

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How Bad is Bad? Decision Making in Emergency Alerts and Warnings
Francisco Sanchez, Public Information Officer, Harris County Homeland Security and Emergency Management (Texas)

Mr. Sanchez provided an overview of the complexities of mass notification in Harris County, Texas (Houston Metro Area). He described how the Regional Joint Information Center is constantly operating to support and echo mass notification across the region.

Summary:
- Harris County receives alerts from its jurisdictions and reposts the alerts via social media and the county's website.
- Officials once were faced with communicating in the aftermath of a high consequence event with little to no information. The new challenge is sifting through too much information.
- Harris County uses branded graphics in social media posts that are intended to dispel rumors (see an example in Mr. Sanchez's presentation in the [Google Drive folder](#).)
- Rumor control Tweets often garner greater engagement than the posts about protective actions.
- Facebook's algorithms can be an issue: often the information at the top of a user's feed is hours or days old.
- Harris County agencies and county partners share information and data about the incident, such as flooding locations, weather forecasts, or road closures.
- For floods, the county has developed interagency partnerships to gather mapping data and auto-generate social media posts with flooding maps for the county's emergency management social media

accounts. The county is continuing to explore other ways to capture information from trusted partners and auto-populate its notification feeds.

- Harris County is integrating social science into its mass notification practices; for example, exploring how often messages must be repeated.
- Mr. Sanchez discussed the recent chemical facility fires and the challenges with coordinating messages across the metro area when different jurisdictions were recommending different protective actions.
- The Regional JIC created a signal website for the public to obtain information about air quality and monitoring data.
- It was a challenge sharing information about air quality monitoring with the public, as different local, state, and federal agencies use different technology, thresholds, and have monitors in different locations.
- During the recent fires, the Regional JIC hosted a coordination call. The call started with a review of the five priority messages, updated from emergency response disciplines and responding jurisdictions, and at the end of the call, the facilitator updated the priority messages.

Recommendations:
- Emergency responders must accept that agencies do not have the capability of providing the information that the public wants at the rate and accuracy that the public wants it.
- Officials must also acknowledge that they will rarely by the first person with information about the emergency. As long as emergency responders are timely and accurate, they do not need to be the first to push out information.
- It is important to convey government's alerting constraints to the public.
- It is important to craft messages understanding that the situation may change.

DAY 1 – AFTERNOON SESSIONS

Alert Notification: Keeping Everyone in the Know

Vance Taylor, Chief, Office of Access and Functional Needs, Cal OES
Patty Eaton, Public Risk Communication Officer – Santa Clara County Office of Emergency Management
Joanna Fraguli, Deputy Director for Programmatic Access – San Francisco Mayor's Office on Disability
Kristin Hogan, External Affairs Manager – San Francisco Department of Emergency Management
Victor Lim, External Affairs Officer – San Francisco Department of Emergency Management
Moderator: Veronica Vien, Public Information Officer, San Francisco Department of Health

The speakers in this session took turns discussing the critical importance of reaching the people in our communities who may need specialized information or support. Speakers shared guidance and practices for reaching traditionally hard to reach populations, such as people with disabilities and access and functional needs, seniors, immigrant communities, people with limited English proficiency, and other community members.

Summary:
- Santa Clara County is currently developing a network in its community as part of its Crisis Communications planning process.
- More than 100 partners from community-based organizations attending the recent planning kick-off meeting.
- Some types of hard to reach populations may require specific needs. For example, at the communications planning kick-off meeting, community partners expressed interest in forming a sub-working group for homelessness and mental health.

- Santa Clara County's bad weather program targets individuals experiencing homelessness. They can sign up for AlertSCC to receive weather alerts.
- Santa Clara County created #HowCanWeWarnYou? postcards to encourage community members to sign up for mass notification platforms. The county provides the postcards in multiple languages to service providers to give to their clients. The county has seen an increase so far in more than 20,000 mass notification system opt ins.
- During the 2018 air quality incidents, San Francisco used AlertSF to send up to three alerts to the public each day.
- San Francisco updates its website SF72.org in an emergency with real-time maps and information about hazards, damage, and emergency protective actions. For example, it can map and list Cleaner Air Facilities in an emergency.
- San Francisco Department of Emergency Management (SF DEM) worked with the Office of Civic Engagement and Immigrant Affairs to develop air quality fact sheets in multiple languages. The Office has an in-house translation unit.
- San Francisco has robust partnerships with non-English language media (radio and television, as well as newspapers). Often these media partners have a large subscriber bases that trust them to report accurate information.
- When posting on social media in non-English languages, SF DEM uses a .jpg photo to avoid language corruption in the text.
- Non-English speaking communities do not always use the same social media platforms. For example, WhatsApp, WeChat, etc. may reach broader audiences.
- Many English-speaking radio stations now use automated feeds. Most Chinese and Spanish-speaking radio stations in San Francisco still have live anchors.
- People in the deaf community do not always read English fluently. American Sign Language does not follow English grammar structures.
- We can leverage technology more to support emergency communications, for example, using new technology to disseminate alerts (such as Alexa or Google Assistant). Government and the private sector must partner to better communicate with the whole community.
- SF DEM at times uses Google Translate and vets the translation with a staff member fluent in the translated language.
- The public health community came together after the 2018 air quality incidents and are working together on consistent public information for future air quality events.

Recommendations:
- Establishing a year-round communications network with the whole community is essential to public information and warning.
- Agencies can work with their community-based organizations to "push out" emergency messages in the right way – in the right language, with the right cultural nuance.
- Speaking in acronyms can be confusing to the public.
- Jurisdictions should have a list of critical partners that serve individuals with access and functional needs. These organizations can amplify emergency information, re-translating the information in a culturally competent way.
- Cal OES' Office of Access and Functional Needs can help agencies identify the community-based organizations that provide services to people with access and functional needs.
- Emergency organizations should consider developing pre-printed materials for first responders to provide to people in rapidly moving wildfire emergencies, using as simple language as possible.

Resources:
- A Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action (FEMA)
- SF72.org

- [Public Health Workbook: To Define, Locate, and Reach Special, Vulnerable, and At-risk Populations in an Emergency (CDC)](#)
- [Office of Access and Functional Needs Library (Cal OES)](#)
- [California Access and Functional Needs Web Map (Cal OES)](#)

Major Changes to Public Alerting

Antwane V. Johnson, Director – Federal Emergency Management Agency (FEMA) Integrated Public Alert and Warning System (IPAWS)
Timothy (Tim) Schott, Meteorologist, Analyze, Forecast and Support Office – National Weather Service (NWS), Dissemination Services
Mike Gerber, Program Analyst – Office of Dissemination, NWS
Moderator: *Woody Baker-Cohn, Emergency Services Coordinator – Office of Emergency Services, Marin County*

Speakers recapped the evolution of public alerting in the U.S. They discussed national upgrades to alert and warning capabilities. They also shared information on anticipated IPAWS resources and requirements.

Summary:
- IPAWS is intended to support the U.S. President's ability to communicate with all members of the public under emergency conditions.
- Until WEA, alert and warning was predicated on a broadcast media sending the message.
- Enhancements to WEA 2.0 include expanding the character limit from 90 to 360 characters and supporting Spanish-translated alerts.
- The federal government anticipates that it will support upgrades by June 10, 2019.
- FEMA will require all alert administrators to conduct monthly IPAWS testing starting in the Fall of 2019. FEMA is currently pilot testing the mandatory testing program. After three months of missed tests, FEMA will disable a jurisdiction's access to the Collaborating Operating Group or COG.
- IPAWS will add a test alert category and allow users to opt-in. Although for iOS operating systems, this capability is not yet streamlined. Users must enter a numeric string and hit "dial" to enable test mode.
- IPAWS will primarily be cloud-based by Fall of 2020.
- FEMA unofficially estimates that 255 million devices received the recent Presidential Alert. There is no current, precise method for measuring message delivery, so this number is based on anecdotal data.
- Although the WEA test performed to expectations, there were anomalies. Not all handsets responded in a consistent manner. IPAWS is still researching why some devices did not receive a message when they were on the same network and using the same operating system as devices that received an alert.
- FEMA has met with companies with devices or platforms (such as streaming music provider, gaming communities, or wireless-connected home assistants) that may support non-traditional methods of conveying alerts. Companies are at times reticent to support alerts because they are concerned about liability issues.
- Emergency management agencies have traditionally worked with the NWS to send weather messages to NOAA Weather Radios via WEA.
- There are two new efforts to use weather radios to broadcast non-weather emergency messages, including a leveraging and redesigning the HazCollect software. HazCollect is the NWS's All-Hazards Emergency Collection System.
- NWS is using social science to determine what information to include in an alert and in what order to provide the information. See the Mike Gerber's presentation for an example.
- NWS has surveyed its agency partners on whether to use WEA for different types of weather alerts. The majority of partners supported its use.

- NWS also surveyed the public on NWS' use of WEA for alerts and found strong support for NWS activation. Partners requested more location/timing information and links to maps of affected areas.
- Enhanced geotargeting will be available November 20, 2019, requiring carriers to target within 1/10 mile of alert polygon.
- The NWS is collaborating with Pacific Coast states on development of tsunami polygons.
- The NWS has developed a partnership with Clark County, Nevada to draft a partitioning plan for alerting the county. Clark County is a large area and agencies were concerned about over-alerting by sending alerts to areas in the county which would not be relevant to other areas of the county.
- In the future, the NWS Weather Forecast Offices will work with local, state, and federal partners to identify other counties that may be candidates for partitioning.

Resources:
- IPAWS Modernization Act
- FEMA IPAWS (website)
- NWS HazCollect Emergency (website)

Social Media and Mass Notifications: Continuous Learning and Adaption

Brian Garcia, Warning Coordination Meteorologist – NWS
Mary Jo Flynn, Emergency Operations Coordinator – Sacramento County, Office of Emergency Services
Paul Hess, Emergency Services Supervisor – Alameda County
Moderator: *Pat Moore, Emergency Services Planner – Monterey County Office of Emergency Services*

Speakers addressed the integration between social media and mass notification. Speakers shared a range of suggestions from successfully using social media to amplify alerts to using social media to encourage opt-ins to mass notification platforms.

Summary:
- Social media enhances the ability to get emergency information to the public rapidly.
- Sacramento County uploads audio files from WEA alerts to Soundcloud. Soundcloud produces a URL with an audio of the alert, which the county posts with an image on social media for people to hear audio of the message for additional detail, to hear the message if they are driving, and for those with vision impairments or who may have limited English proficiency.
- Sacramento County often uses livestreaming to reach the public. Livestreaming is the best way to get urgent, detailed information to your audience when power and cellular signals are not significantly impacted since this method is favored in each of the platform algorithms and has a higher chance of being see than a text message or photo.
- Alameda County has used social media to increase public opt-ins to its mass notification platforms.
- Opt-ins especially increase when another nearby area is affected by an emergency or during preparedness events, like The Great ShakeOut.
- Instagram is a hard platform for pushing out emergency information, but it is a great place to build brand.
- Media regularly looks to Twitter for news, instead of press releases. A recommendation is to "Thread" tweets to provide detail beyond 280 characters.
- Alameda County uses Hootsuite and Social Mention in its Joint Information Center. Hootsuite is a fee-based social media management tool. Users can also access Tweetdeck as a no cost alternative.

Recommendations:
- Access to platforms varies and some have specific demographic considerations, it is important to understand audiences for each platform. For example, Instagram and Snapchat reach younger audience demographics, typically those under 25 years of age.
- Agencies should monitor social media and treat responses to an individual post or question as an opportunity for public questions and answers about the emergency. An agency responding to a question is serving the author of the question, but also all who are watching and may have the same question.
- Agencies can use each other as a force multiplier to encourage opt-ins. For example, if the Alameda County Sheriff's Office posts on social media about AC Alert, then all of their subscribers will consider signing up for the system.
- Maintaining multiple social media platforms can be time consuming. When choosing platforms, ask: What kind of audience do you want to reach? What do you want them to do with the information?
- To better engage the public on social media, Stay Active! If you have one person who does social media and that person goes on vacation, identify a backup to keep the conversations going.
- Social media is social. It is important to engage your audience early, often, and establish a presence.
- Agencies should measure engagement (interactions with posts), not vanity metrics (e.g., followers). 30% engagement is a really good engagement target and means that followers are commenting, interacting, and sharing. Engagement boosts algorithm scores, which automatically means that more users will see the information.
- In Facebook, record video in portrait mode. Facebook pushes portrait videos higher on user feeds. Also, pay attention to the background and audio quality.
- Agencies should use closed captioning on their videos and include sign language interpretation. Users can now upload .srt files (subtitle files) to Twitter video if they have Twitter Media Studio.
- Be careful about deleting social media posts – they are often considered public records. Engage your legal counsel in your social media archiving policies and techniques.

Resources:
- 2018 Golden Post Awards honoring outstanding use of social media in government
- What is an SRT File & Why Is It So Important for Video? (HubSpot)
- Disaster Survivor Online Conversation: Social Journey Map
- JIC Checklist: Social Media Techniques for Posts During Crisis
- NDPTC Social Media Training [courses: PER 304, PER 343, PER 344); classes may be requested through the California Specialized Training Institute (CSTI)]
- Social for Safety Conference (a conference on social media and emergency management, October 1-3, 2019 in Reno, NV)

DAY TWO SUMMARY

WELCOME AND OPENING REMARKS

Craig Dziedzic, General Manager of the Bay Area UASI, gave the opening remarks on the second day of the seminar. He emphasized how important the seminar topics are to the Bay Area jurisdictions. Mr. Dziedzic provided an overview of the day's sessions. He thanked the participants for attending the seminar and sharing their experience. Ms. Heckle, Division Director at UCSF, again welcomed participants and provided a safety briefing. Mikyung Kim-Molina, Regional Project Manager at the Bay Area UASI, introduced the seminar planning committee.

DAY 2 – MORNING SESSIONS

An Update on Creating Actionable Alert Messages
Michele Wood, PhD – California State University, Fullerton

Social scientists have conducted extensive research on the characteristics of effective, actionable crisis messages. In this session, Dr. Michele Wood, a leading researcher, will update participants on the latest recommendations. Dr. Wood will also highlight findings from recent earthquake early warning research on protective actions and message content.

Summary & Recommendations:
- There are two fundamental questions that frame the discussion on messages: 1) how do we get people to stop, listen, and protect themselves when a disaster is unfolding; and 2) how do we get people to stop, listen, and get ready for disasters that they do not think will happen, or will happen to someone else? There are differences between these two kinds of messages, and it is important to evaluate them separately.
- Research shows that using fear in preparedness messaging does not work. When we make people feel afraid, they do not take any action at all. Instead, jurisdictions can:
    1. Educate people on what to do (e.g., SIDS awareness)
    2. Develop a policy for messages that are difficult to sell (e.g., wearing helmets, building codes)
    3. Invest in social marketing when there is a chance of convincing people (e.g., when information is not enough, and policy is too much).
- The density of information and observation of the actions that neighbors are taking influence whether people will take action on a message. What people see and hear and observe around them is motivating.
- Sending the information multiple sources and saying the same message in multiple ways through multiple channels also motivates people to follow the message.
- Perceived risk and demographics not motivate people to take action.
- People will take action when they:
    1. Know what to do
    2. Think it will work
    3. Know someone who did it
- When communicating risk, the research says to communicate what to do and focus on the action.
- The following characteristics make an outstanding warning message: source, the hazard, location personalization, consequences, protective action, protective action time, how actions reduce consequences, and expiration time.
- Fear has a different role in the warning context. Fear is not motivating for preparedness messaging; for warnings – fear IS motivating.

- In the middle of receiving a message and acting on it, people go through a confirmation process. During this "milling" process, people ask "What is the right response? Am I doing it? Is everyone else doing it?"
- People need to believe the information, understand what is happening, and then personalize it (e.g., acknowledge that "this really is about me").
- If we can write messages in a way that accelerates that milling process, we can help people through that process more quickly
- Research has shown that found that length of a message had a significant impact on how people responded to the message.
- Longer messages were superior. Message understanding, deciding, and milling were all affected by length.
- Research has also shown that a sequenced version of a message may also be as effective as a longer message.
- If there are constraints on message lengths, adding a link can help people to confirm information quickly.
- However, alerting agencies must be careful about links that draw people to use valuable time searching the internet. Links should provide a direct site where people can understand the alert and quickly take action.
- Maps can be helpful, but they must have specific information. Maps help people visual risk.
- Do not underestimate the degree to which alerting agencies need to explain themselves clearly.
- Do not assume people are familiar with alerting systems, like WEA.
- Define terms or acronyms, or not use them.
- Use CAPS sparingly.
- Remove jargon and abbreviations and spell out all words, including message course and time zones.
- Assume low reading levels. Use clear language that leaves little room for interpretation.
- Recent research synthesizes the literature on warning messages and recommended the following to increase message believability:
  - Use bold/color
  - Use urgent language
  - Provide complete info about hazard, impacts, protective actions
  - Identify location of impact
  - Accompany message with tone or vibration
  - Include hashtags and images when possible
- Cal OES sponsored research on a tone for ShakeAlert, the U.S. Earthquake Early Warning system.
- Jason Ballmann developed a series of tones. Researchers studied three of the tones.
- There were no statistically significant differences for the tones. People thought they were equally odd.
- Research has shown that including a guidance image with an alert is preferable than an alert without an image.
- Research supports that too many images can be problematic and overwhelm people.
- Research also supports recorded messages with calm female voice are most effective.

Resources:
The Seminar folder on Google Drive contains copies of Dr. Wood's presentation with a list of references.

A Case Study: Mass Notification and Incident Communication in the National Capital Region

Sulayman Brown, Assistant Coordinator – Fairfax County Office of Emergency Management (Virginia/National Capital Region)

Mr. Brown highlighted lessons learned and examples for maximizing the reach and effectiveness of mass notification systems from his experiences in the National Capital Region (the Metro Area that includes Washington, DC).

Summary:
- The National Capital Region (NCR) includes counties in Maryland and Virginia and the District of Columbia. Emergencies often affect and require coordination across all three jurisdictions.
- NCR sent thousands of alerts to the public annually, for a range of incidents from severe weather to terrorism to the earthquake experienced in 2011.
- The NCR uses SMARTWeather (a feature in their alerting platform that automatically pulls location-specific severe weather alerts from the National Weather Service) for incidents, such as the April 2019 tornados.
- In the aftermath of a recent high-rise fire that displaced more than 1,000 residents, NCR set up a keyword program in Nixle for people who lived in the building to allow them to text and receive information.
- The NCR uses non-emergency events to encourage the public to sign up for alerts. The agency assigns a keyword to each event. The public signs up to receive messages about the event and are prompted to sign up to receive emergency alerts.
- The NCR's 9-1-1 dispatch centers support seamless alert and warning coordination. For example, when an active shooter incident occurs, all dispatch centers are notified.
- The ability to share our messages among jurisdictions is a priority in the NCR. When Fairfax County is notified of an alert sent from other jurisdictions, the county will customize and send the alert to its community members, when the information is applicable.
- The NCR conducted a regional WEA test after the Presidential inauguration. The after-action report is pending approval.
- In advance of the WEA test, the NCR conducted an awareness campaign on social media. Media partners were not interested in covering the test until a week before it was conducted.
- When people sign up for Fairfax Alerts, they can self-identify a functional need (see the presentation for a list of needs). Fairfax County does not use this list to provide a priority rescue. Instead, the county uses it as a subscriber base to provide preparedness information to interested populations.
- In Fairfax County, 2,800 people have the ability to send alerts to the public. A smaller group of approximately eight trained staff have the ability and authority to send emergency alerts.

Recommendations:
- Jurisdictions must be specific about affected locations in their WEA messages, as people in neighboring jurisdictions may assume that a protective action recommendation (e.g., boil water) applies to them too.
- When there is public concern, especially about threats to health, sending out alerts can calm concerns (even if the incident is already under control).
- Leadership buy-in on alert and warning systems and processes is essential.

Alerting California

Gabe Kearney, Statewide Alert and Warning Coordinator – Cal OES
Moderator: Paul Hess, Emergency Services Supervisor – Alameda County

Mr. Kearney provided background and an overview of the recent released Cal OES Alert and Warning Guidelines to assist in facilitating the dissemination of alert messages at the local level.

Summary:
- Cal OES began working on the Alert and Warning Guidelines in March 2018.
- Initial discussions included CalFire, State Police, Sheriff's association, and other partners. A Technical Advisory Committee provided input as well.
- The guidelines were submitted to the SEMS Advisory Board, whose members recommended edits and a final version was released on March 22, 2019.
- The guidelines include an alert and warning plan template.
- Planners found that many of California's counties had a longstanding, robust alerting programs, but did not have written plans or procedures for their programs.
- San Bernardino and Riverside counties work collaboratively to support each other's alerting programs. If one of the counties is not able to send an alert, the other is available to step in on their behalf.
- The hope is that local jurisdictions use the ideas in the guidelines and adapt them for their communities.
- Cal OES is developing a statewide training program to support training on the guidelines. We got a tech advisory grant, in the early stages of developing training with that money and their expertise and the training will be available statewide, one of the things coming today to speak is that you people here really know what I do.
- Technology is changing rapidly. The platforms that are used today may not be the same ones with use in six to nine months.
- The document will be reviewed annually to make sure it has most current information. For example, we will update the guidelines with the changes to WEA when they are in effect. Cal OES anticipates revisiting the guidelines in the Fall of this year.
- Cal OES is visiting each of the counties in California to hear from the alert administrators, learn about the plans they have in place, and share lessons learned, among other topics.
- The capabilities and resources across counties vary. For example, some have a small staff and others have 12 trained officers who can send alerts.
- Having a deep bench of people in a county or city who can send out the alert that are trained and well-versed in the systems is important.

Resources:
- State of California Alert & Warning Guidelines (Cal OES)

DAY 2 – AFTERNOON SESSIONS

Everbridge/Local Government Case Study Emerging Trends in Mass Notification

Lindsay Rogers, State & Local Government Account Manager – Everbridge
Brian Toolan, Sr. Technical Account Manager – Everbridge

Ms. Rogers and Mr. Toolan shared how agencies are using Everbridge to coordinate consistent messaging, especially when disasters cross city and county lines. This session will explore new ways that emergency management is leveraging technology to keep people safe.

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Integrating GIS Mapping with Alert Dissemination

Dana Carey, Emergency Manager – Yolo County Office of Emergency Services

Social science indicates that most people look for additional information after an alert is sent. Ms. Carey described how Yolo County is relaying directional information with maps. She provided an overview of how agencies can easily integrate mapping techniques into their alerting protocols.

Summary:
- 90% of the information transmitted to the brain is visual.
- Human brains process visuals 60,000 times faster than they do text.
- Maps can help people visualize data in alert messages.
- GIS layers that agencies may consider for their notification systems include hazard areas, common areas, pre-defined zones, and cell tower locations.
- The Tri-County area of Yolo, Sacramento, and Placer counties share one notification portal (see resources below for a link to the website).
- Yolo and Solano counties have a migrant housing program property with residents for only certain months of the year. When the housing property is open, an alert dispatcher can use a pre-defined shape on the GIS map to send alerts in Spanish to the designated area.

Recommendations:
- Creating GIS maps is not difficult, and many agencies already have access to the GIS software.
- Alerting agencies should meet with their GIS specialists to discuss mass notification integration.

Resources:
The Seminar folder on Google Drive contains a link to Ms. Carey's Prezi a step-by-step video of creating a GIS map.

Building a Brand for your Mass Notification System
Kelsey Scanlon, Emergency Services Planner – Monterey County

Ms. Scanlon shared her unique experience building a brand for Monterey County's notification systems from the ground up.

Summary:
- Branding is a visually connected series of communications anchored by a logo, fonts, and color pallet.
- Brand reflects personality.
- Color increases recognition.
- Consistency is important for building trust.
- Branding helps clearly delivers messages, creates consumer loyalty, and motivates the consumer.
- Fyre Festival branding convinced thousands of millennials to mobilize and travel to a remote location for the festival.
- Brand strategy is a plan for engaging consumers.
- As part of the rollout for SoCo Alert, Monterey County built a logo and moto. The county created handouts, a website, pre-scripted social media messages, and three five-minute PSAs. The county used infographics to simplify complex information.
- The initial challenges included a lack of consumer base or history of engagement (e.g., social media presence, website, etc.)
- Consumers do not have the time to understand or capacity to accept new brands as authentic in a disaster.

Recommendations:
- Make consumer outreach relevant.
- Think of branding as a relationship: the worst thing you could do is be in a relationship with someone who sometimes shows up for the hard stuff.
- It is hard to build a brand in the middle of a fire. Education before disasters take time but is important.

Changes in Alert and Warning and Looking Ahead
Woody Baker-Cohn, Emergency Services Coordinator – Marin County Office of Emergency Services

Mr. Baker-Cohn presented on approaches to alerting in multiple languages, and the continuing need to align thresholds for alerting mechanisms, coordinate alerts, and communicate with other jurisdictions.

Summary & Recommendations
- On the topic of translations, Marin County developed translated templates for alerts.
- Some alerting providers have built message templates or auto-translation features.
- The county has identified a cadre of staff who can support on call translations.
- Situational awareness for alerting across the Bay Area region is important. Partner jurisdictions are considering a single portal for alerting.
- Mr. Baker-Cohn shared the tiered warning system diagram, with the more commonly used systems and platforms at the bottom of the pyramid. He also shared a matrix that identifies platforms and alerting thresholds. (See the resources for a link to the handouts.)
- Marin County has developed common threshold for sending alerts, such as Reverse 911 (AlertMarin). Reverse 911 alerts are sent rarely and may contain life-saving information. The county uses Nixle for lower-level alerts.

Resources:
- Mass Notification Pyramid and Matrix

Emergency Notification via the National Weather Service: Another Tool in the Toolbox
Woody Baker-Cohn, Emergency Services Coordinator – Marin County Office of Emergency Services
Brian Garcia, Warning Coordination Meteorologist – NWS

Presenters introduced a new partnership model to use the unique capabilities of NOAA weather radio to supplement their alerting mechanisms, especially during lengthy power outages when cell phone towers will not function.

Summary:
- The NWS and local Bay Area partners are exploring a partnership model for using NOAA Weather Radio for Non-Weather Emergency Messages.
- The goal of the model is to put another tool in the toolbox for Emergency Managers. It is not a "silver bullet," but rather compliments existing tools.
- When the power goes out and cellphone towers are down, WEAs no longer reach people.
- If people have a NOAA radio, NWS transmitters can still send messages.
- There are gaps in coverage throughout the Bay Area, for example, radio waves may not reach a valley or past a mountain.
- One challenge is educating the public about weather radios, how they work, and the need to change the radio batteries.

Recommendations:
- Contact the speakers for more information about the model and for a copy of the Letter of Agreement.

ShakeAlert: Shaking Up Mass Notification
Douglas Given, Earthquake Early Waning Coordinator – USGS
Rachel Sierer Wooden, Executive Officer –Cal OES Earthquake Early Warning Program
Jenn Strauss, Vice Chair, Joint Committee for Communication, Education, and Outreach (JCCEO)

Presenters provided the latest information about ShakeAlert capabilities; system build out and integration; recent tests; and plans to support public communication, education, and outreach.

Summary:
- ShakeAlert is the U.S.'s earthquake early warning (EEW) system.
- Other countries, like Japan, also have EEW system. In Japan, their earthquake hazards are offshore. There is a time difference between when an earthquake occurs, and the shaking reaches their populations.
- EEW is not prediction or forecasting, it is the statement that an earthquake has occurred and shaking will likely reach a location.
- ShakeAlert tries to send information to the public in seconds, before shaking reaches them.
- ShakeAlert has been a collaborative effort across federal, state, and local agencies, university partners, and private sector and non-profit partners.
- ShakeAlert is still not fully funded and the enterprise is not fully built out.
- A few seconds makes a big difference. When someone receives an alert or gets the data, they must respond really quickly to reap the greatest benefit.

- Training humans to react to EEW is a challenge.
- ShakeAlert can trigger automated actions by machines, such as slowing and stopping BART trains.
- USGS and its partners are working with IPAWS and WEA to explore how to minimize alert delivery timing.
- Some companies have push notification platforms and are looking at how those applications can scale to quickly reach hundreds of thousands of users.
- ShakeAlertLA was developed by the City of Los Angeles through a contract with AT&T.
- Partners are also exploring using television or radio broadcasts to send a ShakeAlerts.
- New changes to WEA around geofencing may add tens of seconds to the time it takes to deliver a warning. Cell phone providers are working with the FCC on a workaround that bypasses the geofencing requirement for EEW.
- Cal OES is working on identifying a means of funding the system over a long time, which will be very costly.
- Oakland recently conducted a ShakeAlert test using WEA with 40,000 people in target zone. Agencies sent out survey and encouraged people to respond. They received thousands of responses and the data is still being analyzed. 54% received within first 10 seconds, the first phone went off for us at 4 seconds. Reports from FEMA indicate latency was 3.5 seconds. Differences in message receipt times were based on phone types, and network speed and providers. The test demonstrated that WEA could be a viable alerting mechanism for EEW.
- The JCCEO coordinates all of the implementation of ShakeAlert education and outreach.
- MyShake is a smartphone app that can provide data to the ShakeAlert system (see link in the resources for more information.

Recommendations:
- It is important that local, state, and federal ShakeAlert outreach and education efforts set appropriate, realistic expectations with the public.

Resources:
- ShakeAlert.org (website)
- California Earthquake Early Warning Program (website)
- MyShake (website)

APPENDIX A: PARTICIPANT FEEDBACK

A total of 198 emergency management professionals from local, state, regional, and federal agencies and community partners attended the 2019 Bay Area Mass Notification Seminar. Thirty-two participants submitted Participant Feedback Forms. Participant comments were overall very positive and have been summarized below.

1. **What were your three most valuable takeaways from the Bay Area Mass Notification Seminar?**

Participants noted that one of the most helpful topics was the updates on alerting methods, such as changes to WEA, NWS alerting, and ShakeAlert. Participants valued the sessions that shared lessons learned and suggestions for enhancing their own mass notification programs. They appreciated sessions that integrated social science and research, such as guidance for creating actionable messages. Participants frequently praised sessions that addressed social media, branding, and reaching traditionally hard to reach populations.

2. **What topics would be helpful to include in future Bay Area Mass Notification Seminars?**

Participants requested that future seminars continue to include updates on alerting mechanisms, from FEMA, NWS, and the FCC. Participants were interested in learning more ideas for sending actionable alerts to individuals in their communities with access and functional needs. Participants would also like the agenda to include more hands-on, workshop-style sessions with the opportunity to troubleshoot issues, develop products, or practice alerting.

3. **Please list suggestions for speakers for future Bay Area Mass Notification Seminars**

Overall, participants requested more social scientist speakers who can share best practices for reaching and communicating with the community. Participants requested more sessions with speakers who have recently implemented their alert and warning systems. They were interested in hearing from social media companies on best practices for integrating mass notification into their platforms. Participants would like to continue to hear updates from federal agency partners. Several participants provided the names of specific speakers they thought could provide useful information.

4. **What are the top three mass notification-related challenges that you foresee for your organization in the coming year?**

The most cited challenges were:
- Alerting individuals with access and functional needs, including message translation.
- Keeping up with changing technology
- Training and exercising staff on alert and warning
- Public opt-in (or lack thereof)
- Staffing alert and warning functions

5. **Please share any additional thoughts or recommendations for the Bay Area Mass Notification Seminar planning committee (including comments on the venue).**

Several participants appreciated the venue location, the space, and food. A few mentioned that the location (hotels, parking, etc.) was expensive.

APPENDIX B: SEMINAR PARTICIPANTS

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