Emergency Messaging and Communication

Erica Kuligowski, *Leader*
Wildland-Urban Interface Fire Group

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

STRS Project: “Development of Guidance for Community-wide Public Alerts in Emergencies”

- Develop evidence-based guidance on the creation and provision of public alerts – via outdoor siren systems and short message alerting

- Guidance document…
  - Focus on alerting strategies for relevant hazard and threat scenarios in communities in the U.S.
  - Provide technical foundation to develop alerting guidance/strategies for NFPA1600 and NFPA 1616
  - Minimize the confusion and improve response to outdoor siren system and short message alerts

- Success: Development of a guidance document on alerting strategies that NFPA 1600 and NFPA 1616 can use as a basis for annexes for the codes.

Elements of an Community-Wide Emergency Communication System – Alerts and Warnings

- Alerts – capture attention
- Warnings – provide details of the emergency
- Examples of alert/warning technology (or channels):
  - Outdoor (warning) sirens
  - Television
  - Radio
  - NOAA Weather Radio
  - Computer/laptop
  - Cell phone/mobile devices
  - Visual displays (e.g., airport, subway systems)
- Examples of sources (or message providers)
  - Emergency managers/ local government
  - Weather-related federal agencies (e.g., NOAA/NWS)
  - Media
  - Federal/state governments
  - Community leaders
    - Business owners
    - Health care providers
    - Education
    - Transportation agencies

NIST Public Alerts Project Collaboration

- NFPA 1600 Technical Committee – as a member
- NFPA 1616 Technical Committee (working group)
- Fire Protection Research Foundation (FPRF) – Project Panel
  - Department of Homeland Security (S&T)
  - NOAA/National Weather Service
  - U.S. Department of Veterans Affairs
  - Local (and State) emergency management and response community
  - Siren/alarm manufacturers
  - Research community (sociology and communications disciplines)
  - NFPA 1600/1616 Chair

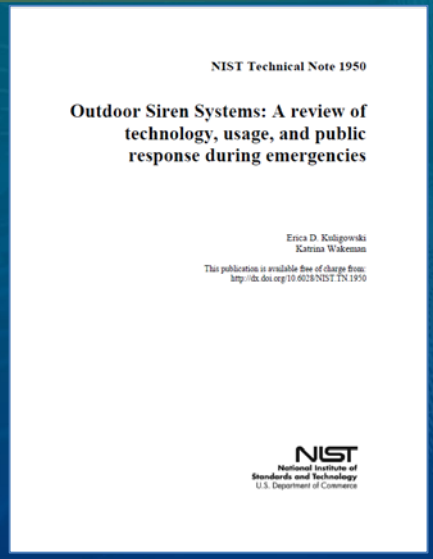
Public Alerts Project: Technical Approach

- Year 1 – Interim guidance document outlining the usage, activation procedures and sounds/sounding patterns for community-wide public siren (warning) systems
  1. What are the current siren technologies and their capabilities/limitations in alerting?
  2. How do people, of all ages, abilities, and other important demographics, respond to alerting sounds and patterns?
  3. What are the current methods that leading communities have adopted to standardize neighboring siren systems?

Public Alerts Project: Progress in Year 1

- Reviewed 53 different outdoor siren (warning) systems available for community use from 4 different siren manufacturers
- Reviewed FEMA Guidance for sirens, including:
  - FEMA CPG 1_17 (1980)
  - FEMA Outdoor Warning Systems, Technical Bulletin 2.0 (2006)
- Purpose – understand the capabilities of current systems and the ways in which they differ
- Collected and reviewed current siren policies, including:
  - North Central Texas
  - Association of Minnesota Emergency Managers
  - Southwest Missouri Emergency Support Organization

Public Alerts Project: Progress in Year 1, cont.


NIST Technical Note 1950

Outdoor Siren Systems: A review of technology, usage, and public response during emergencies

Erica D. Kuligowski
Katrina Wakeman

This publication is available free of charge from:
http://dx.doi.org/10.6028/NIST.TN.1950

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- NIST Technical Note 1950
  - Review of current outdoor siren system technology
  - Review of siren usage/community policies
  - Literature review of public response to sirens (and other audible alerts)
- NIST- and FPRF-sponsored workshop for emergency managers and NWS representatives from 13 jurisdictions located in tornado-prone areas within the U.S. (feedback)
- Beginning development of guidance on usage of outdoor siren systems for the next edition (2019) of NFPA 1600 (*Standard on Disaster/Emergency Management and Business Continuity/Continuity of Operations)*
- Guidance developed by NIST on 1) public alerts and warnings; 2) application of social media to support emergency communications was successfully proposed for incorporation into the new NFPA 1616 (*Standard on Mass Evacuation, Sheltering, and Re-entry Programs*)

Public Alerts Project: Technical Approach, cont.

- Year 2 – Guidance document outlining alerting strategies
  1. What is the current status of short message alerting in the U.S., focusing specifically on Twitter and Wireless Emergency Alerts (WEA) disseminated via IPAWS?
  2. What research exists related to public response to emergency-based short message alerts, including WEA and Twitter?
  3. Develop guidance on the most effective usage of short messages to alert the public of an emergency

What is Short Message Alerting?

- “Short messages” or “terse messages” as alerts
  - Messages within specific character restrictions – e.g., 90 or 140 c. in length
  - Primarily meant to alert individuals that something is wrong; more information is available (elsewhere) on the emergency
- Here, focused on alert messages sent to people under imminent threat; to prompt them to take safe and effective action
- Short or terse messages can be delivered via multiple channels:
  - SMS or text messaging (limited to 160 characters)
  - Wireless Emergency Alerts (WEAs) (limited to 90 characters)
  - Twitter messages (limited to 140 characters)

Public Response Research Focuses on…

Wireless Emergency Alerts disseminated via IPAWS (Integrated Public Alert & Warning System)

Alerts disseminated via Twitter

Public Alerts Project: Progress in Year 2

- Systematic review of 46 sources surrounding human response to emergency-based short message alerts
- Source summaries → critical review of methods/findings → list of key findings and recommendations from literature → credible, converging findings → NIST preliminary guidance
- Preliminary findings/guidance on 2 goals:
  - Goal 1: Improving emergency-based short message alerts; i.e., the message features that increase the likelihood of safe and effective public response for those under imminent threat
  - Goal 2: Increasing salience of short message alerts; i.e., message features that increase the likelihood that the receiver will pass the message onto others

Public Alerts Project: Progress in Year 2, cont.

- NIST- and FPRF-sponsored workshop (September 7, 2017)
  - —16 participants (emergency management, public information/communications, NWS warning coordination meteorologists) from across the U.S.
  - —NIST presented on the following:
    - Current status of short message alerting in the U.S., including limitations of systems
    - Preliminary findings from NIST Literature Review on Short message Alerting (Goals 1 and 2)
  - —Large group discussions on feasibility of research findings; translation to applications, lessons learned, possibilities of standardized messages (templates), and unanswered questions

Next Steps

- Finalize NIST Technical Note on short message alerting
  - Review of current status of short message alerting (i.e., focus on wireless emergency alerts and Twitter)
  - Discussion on usage from alert originators and the public
  - Literature review of public response to short message alerts
- Finalize NIST Guidance document on public alerts – both outdoor siren systems and short message alerts
- Provide biannual updates to FPRF project panel and NFPA 1600 and 1616
- Begin extended project (Year 3) into the use of social media for disaster response and **recovery**
  - Montgomery College Intern student hired
  - Currently performing literature review on use of social media in recovery, including collecting examples from Hurricane Harvey

FY18 WUI Fire/D&FS Project

- Non-NCST Initial Reconnaissance to Gatlinburg, TN to better understand:
  - IC situational awareness and decision-making surrounding the need to evacuate affected communities
  - Emergency communications between fire incident managers and public
  - Public response (including causes of deaths from this fire)

InciWeb Incident Information System: (https://inciweb.nwcg.gov/incident/photographs/5112/)

Progress on Implementation of the Joplin Tornado Recommendations

September 28, 2017
NCST Advisory
Committee Meeting

Questions?

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