CIEP After Action Report – Pierce County Outdoor Warning System Upgrade Test

November 5, 2020

- By Jim House, Disability Integration Manager for the Coalition on Inclusive Emergency Planning
- Monthly test 11/2/2020 12:00 noon PST
- Test location: Sumner High School, Sumner, Pierce County, WA
- Report Completed 11/5/2020
- Observers:
    - WASILC/CIEP: Jim House
    - Pierce County Emergency Management/AFN Coordinator: Ivan Tudela
- Mission:
    - Monitor for unmet Access and Functional Needs and Effective Communication Barriers
- Photo Description: Siren pole with seven “discs” in a town setting at Sumner High School. Blue lights on top of pole with four additional lights on sixth disc from the top. Behind the pole across the street is a Fred Meyer shopping center. Behind the shopping center is a ridge full of evergreen trees under a blue cloudless sky.

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- Narrative:
  - Recent system upgrades include blue strobe lights and verbal announcements in English and Spanish.
  - At 12:00, testing commenced with a tone similar to a church bell. Then verbal announcements in English saying “This is a test.” Verbal announcement repeated in Spanish. Tone and verbal announcements repeated once. Blue lights were flashing throughout the test which took approximately five minutes to complete.
  - During the test, Ivan was on the phone with Joshua Atkins, coordinator of the county outdoor warning system.
- Strengths:
  1. Pierce County is committed to removing barriers for Access and Functional Needs. This outdoor warning system upgrade is a step in the right direction. More upgrades are needed to enhance accessibility.

2. Community outreach includes education on typical natural disasters that may trigger siren activation.
3. System is integrated with redundant warning systems such as EAS, WEA, NOAA radios, and PC Warn. When an outdoor alert is activated, all of these system are also activated.
4. PC Warn is promoted widely to the disability community offering multiple modes of notification by voice call, text message, or email.
5. Verbal announcements from poles provide guidance to people who are able to hear, especially people with vision disabilities who rely on audible cues to respond to emergency warnings.

- Weaknesses – with recommendations:
    1. Blue sky inhibits the ability for people to see the small blue siren lights against the sky due to non-existent to low color contrast.
    2. People with certain types of color-blindness may not be able to see blue lights.
    3. Strobe light flicker rate may trigger epilepsy seizures.
        a. Add red or RGB LED lights.
    4. Other conditions may hamper our ability to see the lights such as dust storms, ash fall, fog, wildfire smoke, heavy rain, people walking while looking straight ahead, drivers driving and not looking up, lights flashing behind you.
    5. Single pole configuration makes it difficult for people in surrounding areas to see the strobe lights flash. Behind the pole across the street is a shopping center. People in the shopping center may not be able to see the lights.
    6. Deaf or hard of hearing people inside the stores or nearby homes will not be alerted by the siren.
        a. Add a network of additional lights in surrounding business and residential areas at or near eye level.

7. Some hard of hearing people have varying levels of hearing loss at different frequencies. Some can only hear high-pitch tones while others are able to hear low-pitch tones.
    a. Reprogram the sirens to use wide range of frequencies
8. Deaf or hard of hearing people will not be able to understand verbal instructions.
    a. Add LED screen that flashes one word similar to NOAA weather radio alerts – this can be a complementary visual indicator.
    b. Color code the text to denote level of urgency like EAS messages.
        i. green (testing – no action needed)
        ii. orange (20 minutes to evacuate)
        iii. red (2 minutes to evacuate)

- General Recommendations:
    - Construct one or two sites as pilots incorporating above recommendations as feasible
    - To minimize retrofitting expenses, have disability experts involved in planning for new construction and upgrades as early as possible.
    - Add new technologies with the goal of making the system fully accessible visually as well as audibly from the initial alert throughout the warning cycle.
    - Include links in PC Alert for texts in other languages for LEP populations and a video clip for message in ASL.
- Resources for Situational Awareness:
    - Colorblind solutions
        - Here are a few news articles that may give you an idea why the blue and red colors were chosen.
            - https://www.extremetacticaldynamics.com/blog/why-are-police-lights-red-and-blue/

- https://www.autoevolution.com/news/history-of-police-lights-and-sirens-the-terrifying-duo-that-scares-away-criminals-42394-page2.html
- https://www.chartingstocks.net/police-emergency-lights-the-meaning-behind-the-colors/

- Outdoor Siren System Standards
  - NIST
    - https://www.researchgate.net/figure/Hazard-events-for-which-outdoor-siren-systems-are-used-in-US-communities_tbl3_340463796
- Deaf and Hard of Hearing Issues with Emergency Communications
  - NAD / Gallaudet University Emergency Alerts
    - https://tap.gallaudet.edu/Emergency/Nov05Conference/EmergencyReports/NADEmergency.doc
  - NOAA OK Warn Alerting System
    - http://www.nssl.noaa.gov/education/okwarn/
  - DHHCAN Emergency Preparedness and Emergency Communication Access
    - http://dhhcan.org/emergency-report/
  - NOD Special Needs Assessment for Katrina Evacuees (SNAKE Report)
    - https://tap.gallaudet.edu/Emergency/Nov05Conference/EmergencyReports/katrina_snake_report.pdf
  - TDI White Paper on Emergency 9-1-1 Access
    - https://tap.gallaudet.edu/Emergency/E911/TDI-whitepaper2006.pdf
  - Gallaudet University Resources on Emergency Communications Accessibility
    - https://tap.gallaudet.edu/Emergency/