



SoCoALERT

Sonoma County Operational Area
Alert and Warning Functional Exercise
After Action Report / Improvement Plan
September 10 and 12, 2018

EXERCISE OVERVIEW

Exercise Name	Sonoma County Alert and Warning Functional Exercise
Exercise Dates	September 10 and 12, 2018
Scope	This functional exercise was conducted September 10 and 12, 2018 at the Sonoma County Emergency Operations Center (EOC). The exercise was conducted for approximately 3 hours on each day.
Mission Area(s)	Mitigation
Core Capabilities	<ol style="list-style-type: none"> 1. Public Information and Warning 2. Operational Communications 3. Planning
Objectives	<ol style="list-style-type: none"> 1. Test warning systems used to communicate to residents, including individuals with access or functional needs and English as a second language, across five different geographic areas. 2. Ensure the capability to communicate with both the emergency response agencies and affected population and establish interoperable voice and data communications between federal, state and local partners. 3. Validate policies, procedures, and guidelines documented in the current county plans to identify possible resource and capability gaps that can be used to enhance operational planning.
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EXERCISE SUMMARY

The Sonoma County Fire and Emergency Services Department, Division of Emergency Management conducted a first of its kind alert and warning test on the West Coast of the United States to evaluate the capabilities of the various alert and warning systems, and to educate and build the confidence of our residents. First responders and citizens need to be familiar with the presentation of various alert and warning system formats. In the event of an emergency, SoCoAlert, wireless emergency alerts (WEA), the emergency alert system (EAS) and other emergency messaging will direct citizens to our emergency information website (socoemergency.org) for more information.

This exercise was conducted to ensure local emergency public safety and emergency management organizations have a clear understanding of how alerts would perform in the varied threat hazards, topography, demographics and urban densities of Sonoma County.

The Federal Communications Commission (FCC) Waiver DA 18-827 outlines specific requirements for Sonoma County to conduct the live code test. These requirements included public outreach per the plan outlined in the request, a WEA message less than 90 characters and identified as only a test, and that any post-test analysis or reports consider customers' privacy.



Figure 1: DOT sign warning people of Cellular Alert Test

"We are persuaded by the FES July 27 Letter that the proposed test of the EAS and WEA will help educate the public, improve the understanding of FES personnel regarding how alerts would perform in their unique topography, and help build confidence in the emergency warning systems in Sonoma County. We are also persuaded that the proposed end-to-end test of WEA has value now, as opposed to after May 2019, because it would help ensure that WEA and the EAS can be effectively deployed in a coordinated manner during an emergency, and provide alert initiators and emergency managers valuable information on how the two systems can be used together to communicate to the public. Accordingly, we conclude that limited waivers of the Commission's EAS and WEA rules are warranted and in the public interest to test in Sonoma County."

FCC Waiver DA 18-827

The scope of this exercise was to test all the public alert and warning tools and mechanisms available to public safety officials. These tools include SoCoAlert (a mass notification system that utilizes Master Street Address Guide [MSAG] data and an online

subscription database), WEA and the EAS. Not included in this scope was Nixle. Some local agencies did issue Nixle messages to support public awareness of the exercise.

Background

It's been almost one year since one of the worst natural disasters in California's history devastated Sonoma County and neighboring communities. In October 2017, the Sonoma County fires were a national tipping point in a new era of catastrophic disasters. Many lessons have been learned over the past year and the County is taking proactive steps to ensure that the community is prepared if and when the next disaster strikes. The public's expectations have grown significantly along with technological advancements in recent years. Residents expect to know within minutes, if not seconds, about threats that could affect them, and they anticipate the government will provide extensive details about how and where the threat is evolving and what immediate



Figure 2: Social media promotional image

actions they should take in response to that threat. Sonoma County has the opportunity to serve in a leadership role by developing an emergency response program that more closely matches public expectations for what information and services the government will provide in times of crisis.

The purpose of conducting the test at this time is to ensure that emergency management officials in Sonoma County have a better understanding of how different alerting systems would perform given the varied geography, topography, infrastructure, density, and audiences.

Methodology

The Sonoma County Operational Area Alert and Warning Exercise was conducted on September 10 and 12, 2018, for the purpose of testing the capabilities of all public alert and warning tools and mechanisms available to public safety officials. This process was conducted in a methodical manner to accurately test all possible variables that might create communication gaps and to increase public awareness.

The variables tested included: human error, limitations of software, limitations of proprietary information and limitations of telecommunications infrastructure.

This testing was conducted through four phases:

- Pre-Exercise Phase
- Phase 1: All Call (SoCoAlert)
- Phase 2: Live Code Test of WEA and EAS
- Post-Exercise Assessment Phase

OBJECTIVES

1. Test warning systems used to communicate to residents (including individuals with access or functional needs and English as a second language), across five different geographic, demographic and urban density areas.
 - a. Validate dispatch ability to launch multilingual WEA within 10 minutes of request.
 - b. Validate the ability to issue a WEA in Spanish.
 - c. Validate the ability to issue a WEA with a URL. Verify that the URL remains intact in the WEA message as an embedded hyperlink for message recipients to click on.
 - d. Validate the new Sonoma County emergency website by analyzing the number and location of site visits.
 - e. Validate understanding and limitations of geo-fencing within the five geographic test areas and by telecommunications providers.
 - f. Validate effectiveness of local radio stations to monitor and rebroadcast EAS messages.
 - g. Establish call throttling levels for SoCoAlert by evaluating analytics of the “All Call” test.
2. Ensure the capability to communicate with emergency response agencies and affected populations as well as establish interoperable voice and data communications between federal, state and local partners.
 - a. Validate the effectiveness of pre-test activities to stakeholders and the public.
 - b. Gather objective statistical and subjective data from multiple sources to evaluate the overall effectiveness of message delivery and to help determine how to increase participation.
3. Validate policies, procedures, and guidelines documented in the current County alert and warning plans in order to identify possible resource and capability gaps that can be used to enhance operational planning.
 - a. Evaluate Just-in-Time training for the Emergency Public Information Hotline call takers.
 - b. Validate new EOC workspace for the Emergency Public Information Hotline.

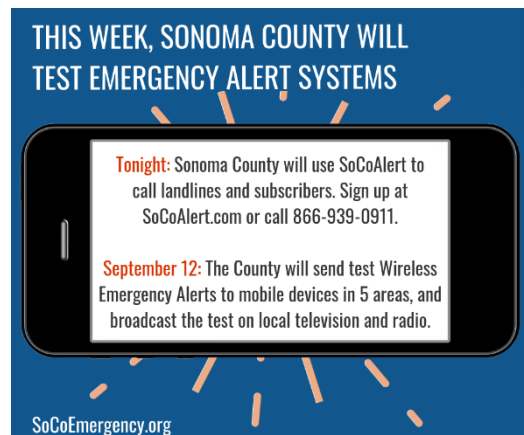


Figure 3: Social media promotional image

PUBLIC INFORMATION

Public Information

One of the primary components to this exercise was public outreach. The Sonoma County Operational Area alert and warning program has seen significant media attention since the October 2017 wildfires. County Public Information Officers (PIO) understood this would be a key activity during all phases of this exercise.

The County PIOs created an exercise outreach plan with two goals: 1) ensure the community was aware of the test and not taken by surprise, and 2) increase the number of residents registered in the SoCoAlert system. The public outreach plan for the exercise was a prescribed requirement in the FCC waiver notifying the public that they may receive multiple test messages during the alert and warning exercise. County staff conducted outreach to local agencies and jurisdictions, schools, adjacent counties, and community business organizations.

Before the alert and warning exercise, 2-1-1 Sonoma County was provided talking points and details on how to assist registering people for SoCoAlert.

PIOs effectively managed increased media attention leading up to the exercise working with approximately eight to ten media outlets, with some media conducting multiple stories. County staff created literature, handouts, scripts, information for parents, and conducted a public outreach campaign that met the goal of fully informing the general public. This campaign also supported a third goal of reducing potential impacts to Public Safety Answering Point (PSAPs) 9-1-1 call centers during the exercise.



Figure 4: Chair of the Board of Supervisors, James Gore, conducting media briefing following exercise

SoCoAlert Sign Ups

Increasing SoCoAlert registrants was one of the primary goals achieved by the Public Outreach Campaign. The table below reflects the increase in registrants post exercise.

Online Registrations	September 3, 2018	September 9, 2018	September 25, 2018	Increase
Phone Numbers	36,314	47,060	50,167	38%
Text Message Numbers	28,251	36,348	38,521	36%
Email Addresses	14,960	18,882	20,260	35%

Table 1: SoCoAlert online registrations

Emergency Public Information Hotline

An After-Action Finding as a result of the October 2017 fires, was the Emergency Public Information Hotline Unit workspace needed to be reconfigured to improve workflow and headsets should be made available for call takers. County Emergency Management staff worked on assessing and implementing the best way to reconfigure the workspace. Temporary tables were replaced with repurposed modular workstations. In addition, a new staff position was added to the hotline to act as a liaison between the PIO staff and the hotline.

Public Feedback

Hotline call takers reported two themes as a result of the 552 calls they received between the two tests. Most residents who called in were confused about the different emergency messaging platforms and what messages they were supposed to get as a result of the test. Additionally, most of the calls into the Emergency Public Information Hotline were from the County's older adult population.

Call Taker Feedback

A majority of the call takers working the Emergency Public Information Hotline during the exercise have staffed the hotline in the past. All hotline call takers reported that the new set up was more user friendly. They appreciated that they had access to a language translation line and mental health services support. All thought that the



Figure 5: Call takers in the Emergency Public Information Hotline

addition of over the ear headsets greatly improved call experience as they could clearly hear the callers.

The hotline liaison worked well. This new position ensured that the hotline had the latest information which provided the ability to answer questions as they came in. Lastly, this new position created a feedback loop for PIO staff to improve public messaging as themes of questions and rumors came into the hotline.

New Emergency Website

As part of the lessons learned from the 2017 Sonoma Complex Fires, a new County website was developed specifically for emergency public information. This website was on Emergency Management's Work Plan for 2018. The timeline to develop the website was significantly accelerated to establish the website in time for the exercise. The County's Information Systems Department (ISD) web team conducted information gathering meetings during which several desired features were identified. The new website needed to be mobile friendly, automated to allow alerts and warnings to feed directly to it without additional steps on the activator's part, provide staff with the

ability to edit the website from a mobile device and provide relevant current content on it in three categories: Preparedness, Emergency and Recovery.

A new website host was researched as the current County platform could not accommodate the newly identified requirements. The web team developed the new site and conducted load testing to ensure the site would remain functional and load quickly in the event of an emergency.

The website was introduced during the public outreach campaign that started on September 4, 2018. During the SoCoAlert All Call test, the website was referenced in the message sent to resident for them to access additional information. Then during the WEA and EAS test, socopsa.org URL was used in the 90 character message to redirect members of the public to the new website which then requested visitors to take a survey. Socopsa.org was utilized due to its shorter character count as compared to the new socoemergency.org URL.

The automated Rich Site Summary (RSS) feed from SoCoAlert worked and provided the messaging on the website without extra steps from activators. Feedback from users included positive comments on website design and usability.

Website Metrics	Date(s)	Volume
Simultaneous Users	9/12/2018	up to 2,400
Peak Load	9/12/2018	30 users per second
Average Page Load Times	9/12/2018	55% less than 3 seconds 85% less than 7 seconds
New Visitors	9/12 to 9/19/2018	over 15,000

Table 2: Socoemergency.org website metrics

The goal for the new website is to continue developing user-friendly content and create a new standard across emergency management for a web presence that engages the public.

Emergency Staff Email

PIO staff identified a need for a special email address to disperse urgent messages to County staff in the event of an emergency that impacts the County complex. It was determined that the normal “announcement” email was not enough nor did it convey the urgency needed. ISD staff created a new email account for PIO and emergency management staff to send urgent messages. This account will be used in the event of an evacuation, shelter in place or other action needed to be taken by all County staff. PIO staff tested this account during the exercise to inform staff of actions needed to be taken during an emergency. Account configurations had not been enacted yet, therefore the ISD help desk had to issue the email. Formal



Figure 6: Media filming new socoemergency.org website

procedures will need to be developed to clarify and identify roles and responsibilities among PIO, emergency management, and ISD staff on issuing emails from the newly created account.

Lessons Learned

Emergency Management staff and PIOs conducted numerous media interviews leading up to and during the exercise. Some of these interviews were from distant media outlets requiring staff to utilize Skype or similar programs. Staff utilized iPads to conduct these interviews. It is recommended that web conferencing interview equipment be purchased for the EOC to provide better audio and video for these types of interviews.

Staff created talking points, up-staffed PIOs for the exercise and activated the Emergency Public Information Hotline. Normal County business phone lines such as Fire and Emergency Services Department front desk staff receive multiple phone calls about the exercise. This was an unanticipated avenue for the public to reach out to for more information. Although all County staff received an email about the test, those answering phones did not have details to provide guidance to the public calling nor did some of them know that the Emergency Public Information Hotline had been activated for the exercise. Protocols need to be developed to inform alternate, non-traditional information sources such as the Fire and Emergency Services Department and 2-1-1 of hotline activation.



Figure 7: Hotline call taker answering call during SoCoAlert All Call

The Emergency Public Information Hotline has traditionally had twelve call takers and one manager. With the new configuration, only ten call takers can work in the new space comfortably. Additionally, iPads or laptops for hotline call takers to document calls (missing persons, etc.) or look up information is needed for each position.

Public education and outreach for SoCoAlert registration will be an ongoing effort. Emergency Management Staff and PIOs will continue to educate the public on the differences in warning systems, how they function and their limitations, and continue to recruit County residents to sign up for SoCoAlert.

PHASE ONE: SoCoALERT ALL CALL

As of September 10, 2018, there were 290,052 total phone numbers in the SoCoAlert database. The All Call achieved a 51% success rate in delivering the message to a person or to an answering machine.

Between 6:04 pm and 8:53 pm, SoCoAlert attempted 426,390 phone calls. Based on the time and number of calls completed, the system was able to initiate approximately 2,500 calls per minute.

Staff were not able to watch the real time statistics of the SoCoAlert All Call. Per the vendor, this was due to the size of the notification. Without real time data, staff were unable to evaluate how the call was progressing. In addition, staff was unable to determine how successful the calls were and if every number in the database had been called at least once prior to ending the test. The vendor periodically provided estimates of system performance. Originally it had been estimated that the notification would take roughly two hours to complete. However, due to reports that residents had not received a call, the calling period was extended from 8:00 pm to 8:53 pm in an attempt to reach as many numbers as possible. The call was interrupted at 8:53 pm due to the concern regarding the lateness of calls still going out.

Public Response

Response from the public was greater than expected. This is due partially to the message format. A number was provided in the message for more information. Many callers did not listen to the entire message and just called the number to ask why the system had been activated and if they needed to do anything. Additionally, 6 people called the Sheriff's 9-1-1 dispatch stating that they had received the call, did not listen to the message and immediately called 9-1-1 to find out if they needed to do anything. At the peak, there were 7 call takers in the Emergency Public Information Hotline room answering calls.

It is recommended that in the future if a message provides a source for additional information, specifically if it involves a phone number, that that number be up-staffed or a prerecorded message be played first to help clarify the intended message to callers.



Figure 8: Media filming hotline call takers

Post Analysis

Post analysis of the SoCoAlert All Call conducted by the vendor established a baseline of 3,000 attempted calls per minute. Due to the high volume of non-connected numbers, staff needs to evaluate how often the County should purchase and upload MSAG phone number data from AT&T and Frontier Communications. Currently, data is

purchased once a year and the addresses are geo-located in relationship to the County's Geographic Information System (GIS) database to accurately target when making notifications.

Lessons Learned

Staff now have a better understanding of how the system currently processes large numbers of calls. SoCoAlert batches phone numbers into groups, and calls the group at the established rate. When the call has been attempted once to all phone



Figure 9: SoCoAlert logo

numbers in that batch, the system will try to reconnect with those calls that failed before moving onto the next batch of phone numbers. This programming adversely impacted the numbers that were being attempted. Staff has made recommendations to the vendor to change this process to prioritize every phone number in the call list to be attempted once before recalls are attempted. Additionally, staff has recommended that the vendor software prioritizes online subscribers over MSAG and other source data as those numbers have a higher success rate of connection.

Staff recommended that for future tests, a survey should be conducted for the SoCoAlert All Call phase. This will provide feedback that can be made actionable by staff and produce additional recommendations to the vendor.

Two of the primary feedback themes staff received were: the online subscription was difficult to navigate and that the Caller ID was not readily understood. Staff has received numerous reports from residents that the enrollment site was hard to navigate and the site was not mobile friendly. In addition, residents recommended that the link to subscribe for the SoCoAlert system be more prominent on the County's website. County staff remedied the link visibility immediately and have been working with the vendor to create a mobile friendly and easy to navigate enrollment page. The public is also directed to a County voicemail for assistance signing up. Dedicated staff is needed to monitor the voicemail to respond timely to requests for assistance.

Unfortunately, the Caller ID issue is harder to resolve. Currently a notification is originated from the number 866-419-5000. This number appears as Code Red on landline Caller IDs. In cell phones, unless the number is saved in the contacts, it appears as just the number. Several recommendations have been made by staff to the vendor to help correct this issue. It would be helpful if the originating number was a 707 number and the Caller ID stated EMERGENCY. If this is not possible, the 866 number needs to be added to a safe list and public education needs to be conducted to ensure the number is saved in contacts. There are a few documented cases that the 866 number was identified as spam so the call was rejected.

Lastly it is recommended that a grid map much like the County's Fire Run Book be considered to assist with evacuations in a quickly developing incident. This will have to be in collaboration with the vendor to have an application that will allow a pre-established grid to be called instead of having to draw polygons on a map, which can take more time. Implementation of this recommendation will assist field requests to an EOC or Dispatch Center to quickly identify the areas needing to be notified.

PHASE TWO: LIVE CODE WIRELESS EMERGENCY ALERT AND EMERGENCY ALERT SYSTEM TEST

On September 12, 2018, five geographical areas were targeted for a WEA test to represent different threat hazards, topography, demographics and urban densities. Immediately following the WEA warnings, an EAS message was delivered via participating local radio stations and television providers.

Overall, the test was successful. The gaps and challenges that were anticipated by emergency management officials were verified by the data captured post-test. County PSAP centers (Sonoma County Sheriff's Office and Santa Rosa Police Department) were able to launch a total of ten WEA messages. Having each respective PSAP launch the WEA notifications increased the activators confidence.

Location	Location Description	Message 1	Message 2
Guerneville	Selected due to a river flood hazard scenario. Is in a mountainous area with a somewhat rural community in the unincorporated area.	English 10:00 AM	Spanish 10:01 AM
Glen Ellen/ Kenwood	Selected due to a Wildland Urban Interface (WUI) hazard scenario. The area is part of the valley floor with rural communities in the unincorporated area.	Spanish 10:16 AM	English 10:20 AM
Healdsburg	Selected to test the entire city boundary. It has multiple hazards with a high tourist population area.	English 10:30 AM	Spanish 10:31 AM
Penngrove	Selected due to a train accident/hazardous materials release threat scenario. The target area is small and linear within the unincorporated area.	Spanish 10:46 AM	English 10:47 AM
Roseland	Selected as a community within a city. It is an urban setting with a high population density. This target area has a significant Spanish speaking population.	Spanish 11:01 AM	English 11:02 AM
County Wide	Emergency Alert System Test	Issued in English and Spanish with the same message at 11:15 AM	

Table 3: WEA and EAS targeted locations and timelines

Each geographical area received two messages, one in English and one in Spanish. As expected there was massive bleed over during the WEA tests. These messages increased public's awareness of the alert and warning methods.

Spanish Message Timing Methodology

In addition to geography, the County also tested the multilingual capabilities of the system. Due to the Pallet Fire near the City of Sonoma on June 5, 2018, two WEA evacuation orders were issued. The English one was received. It is believed that no one received the Spanish one (Appendix I: Analysis of Wireless Emergency Alert System (IPAWS) Effectiveness on June 5, 2018). Due to this finding, the English and Spanish messages for this test were alternated as to which was issued first in order to determine if a second message sent to the same geographic area from the federal Integrated Public Alert And Warning System (IPAWS) in a short amount of time would be rejected.

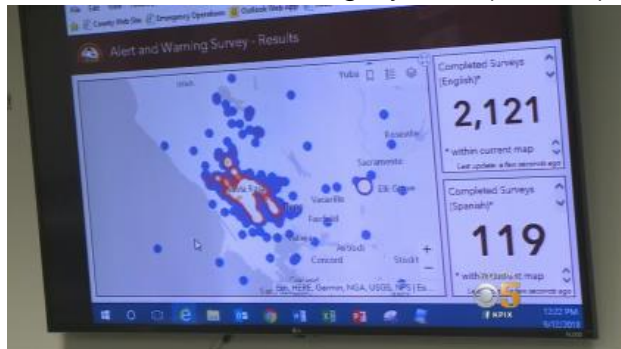


Figure 10: Live feed of survey from KPIX

Resident Survey

As part of the WEA and EAS test, the public was directed to the new County emergency website that provided a copy of the test message and invited them to participate in a message recipient feedback survey. The online survey was available in English and Spanish and asked eight questions (Appendix E):

1. Did you receive an alert on September 12?
2. Did you know about the alert prior to September 12?
3. Where were you when you received the alert?
4. What time did you received the alert?
5. Did you receive the alert on your cell phone?
 - a. Who is your mobile carrier?
 - b. What is your mobile operating system?
6. Did you receive the alert in any other way? (TV, AM or FM Radio)
7. Are you a visitor or resident?
8. Do you have any comments, questions or concerns?

In addition, there were field observers: local first responders and government staff that filled out a separate survey of the same questions. The results of the surveys can be found in Appendix F: Public Survey Response Statistics.

Total Survey Respondents	3,678
English Survey Respondents	3,520
Spanish Survey Respondents	158
Field Observers	72

Table 4: Survey response breakdown

As staff were able to watch the survey respondents in real time, a concern was raised that there was possibly a disproportionate amount of English versus Spanish surveys. Per the 2017 Hispanic Demographics Trends by the Sonoma County Economic Development Board, the survey results for Spanish language participants is in line with the population. The number of Spanish speaking survey respondents is proportional to the percentage of Spanish speakers in Sonoma County.

Survey Themes

The following themes were identified by the public in the surveys:

- Appreciative that the County conducted the test
- Confusion between the SoCoAlert All Call Monday night and the WEA and EAS test
- Most of the respondents that stated they did not receive a WEA message requested that the County conduct a whole county test to ensure their phones work
- Several hundred commented that they received the message in Spanish first and requested that it be issued in English first
- Some people were concerned that they received a WEA and were next to someone with a cell phone that did not receive a WEA or vice versa
- WEA did not override silent feature on cell phones

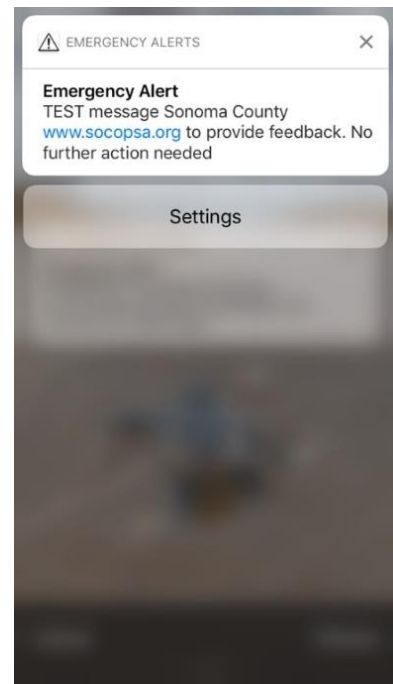


Figure 11: Screenshot of WEA message during exercise

Public Outreach

The public outreach campaign was effective for the WEA and EAS test. Overall, 70% of respondents said they knew about the test prior to September 12, 2018. No calls were received by the Sonoma County Sheriff's Office Dispatch 9-1-1 during the test. This was one of the measurements used to judge how effective the public messaging campaign was.

Roughly two thirds of the English survey participants responded that they knew about the test prior to September 12. Conversely, of the Spanish survey participants, only one third responded that they knew about the test prior to September 12. Although all public outreach and test messaging was conducted in both English and Spanish, more work needs to be done in public education outreach to non-English speaking communities in Sonoma County.

Survey Omission

The online survey focused on the positive results. It is recommended that in the future, the survey include more questions if the respondent did not receive an alert. It is important to know the mobile carrier, mobile operation system and the physical location of the person when they didn't receive the alert.

Integrated Public Alert & Warning System

Wireless Emergency Alert

The County is working to align alert and warning systems with the public expectation that the County will provide accurate, targeted, and timely information to those in an impacted area during a disaster. While the County has the ability to adjust local systems such as SoCoAlert, improvements to the federal Wireless Emergency Alert system must be mandated by the Federal Communications Commission, and implemented by telecommunications providers. Telecommunication providers did not effectively communicate, participate, or provide information critical to mission success. County staff and elected officials should work with state and federal legislative representatives, including the California Governor's Office of Emergency Services (Cal OES), to help implement significant changes to current federal warning systems. This includes requiring telecommunications companies to provide critical information such as cell tower locations, how they distribute WEA messages, timing of the message, if other carriers are on their cell towers, backup power and telecommunication links, and feedback on numbers of how many phones possibly got the message (ex: how many cell phones were attached to the cell tower when the alert was initiated). These items will allow public safety officials to be more effective and efficient when targeting messaging and is critical to ensuring overall public safety during times of disaster.



Figure 12: Screenshot of English and Spanish WEA messages during exercise

The alert did not override the silent feature on cell phones. An override feature is different for each phone manufacturer. As the next generation of WEA is required, this feature should be reinforced. Many respondents have voiced concerns about leaving their phone on silent while they sleep expecting that a WEA would override the phone settings when it clearly did not during the test.

Emergency management staff is looking forward to the coming FCC required changes which will take effect in May and November 2019. The FCC is requiring telecommunications providers to deliver enhanced “geo-targeting” capabilities whereby WEA alerts must be delivered to no more than one-tenth of a mile outside of the target area. Additionally, the increased character count from 90 to 360 characters will allow for more specific and targeted messaging. These improvements will greatly enhance local jurisdictions capabilities to provide effective messaging. However, it is important to note, there are concerned that the 2019 timeline will be when implementations begin as opposed to being completed. There are many unanswered questions regarding execution of these changes. Staff will need to know if these changes will be applicable to phones that can now receive the WEA alerts or only new phones going forward. In addition, staff expect to be able to issue a 360-character messages on the implementation date, however, it is not known if some phones are limited to the 90 characters thus to cut the message off at 90 characters.

In addition to required information on data like cell carrier towers, updates are needed on rules, regulations and laws like the ones that allow first responder agencies to purchase MSAG 9-1-1 data. These laws allow first responders to purchase landline data. The technology has moved so quickly that the law is effectively out of date since it does not allow purchase of other contact modes they provide, such as Voice Over Internet Protocol (VOIP) or cell phone data that could be imported into systems such as SoCoAlert.

Emergency Alert System

The EAS is a critical and long-established method of emergency warning. However, the governance and operational procedures have not been effectively maintained at the state level to ensure its availability for local government activators.

In coordination with the radio broadcasting engineers, it was decided that it would be helpful to create a working group of all the radio and TV broadcasters and cable providers in the County to align systems and programming. This would ensure that all of the EAS event codes are programmed in the EAS systems countywide. This would also support testing through a Required Weekly Test (RWT) that would not interrupt broadcasts to ensure that broadcasters and cable providers are integrated and monitoring appropriate EAS feeds.

Additionally, even though this was a coordinated test, it used live event codes. These codes are what would be used in the event of an actual emergency. One specific radio station did not activate the EAS message immediately while it waited for the end of a song to play. Another local station had the wrong programming for the code, this caused the warning to be held and subsequently required a person to broadcast the warning 45 minutes after the original notification.

Mobile Phone Carriers and Bleed Over

Due to public expectation, alert and warning officials need more information now more than ever before to help target and provide accurate information to residents in impacted areas. Due to these expectations, information is needed from mobile phone carriers such as location of cell towers.

Requests were made to the telecommunication providers AT&T and Verizon to provide information and participate in the exercise. Both companies eventually responded but did not provide the data requested or participate in the exercise. Both company representatives said their respective WEA teams would be in contact with County staff but never followed through.

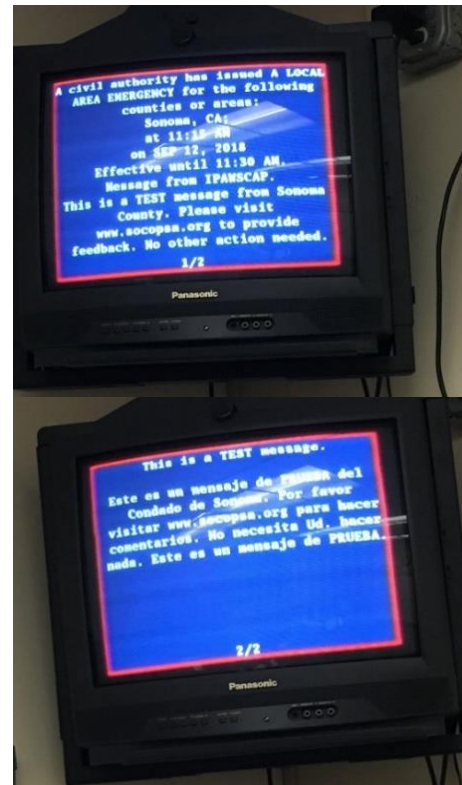
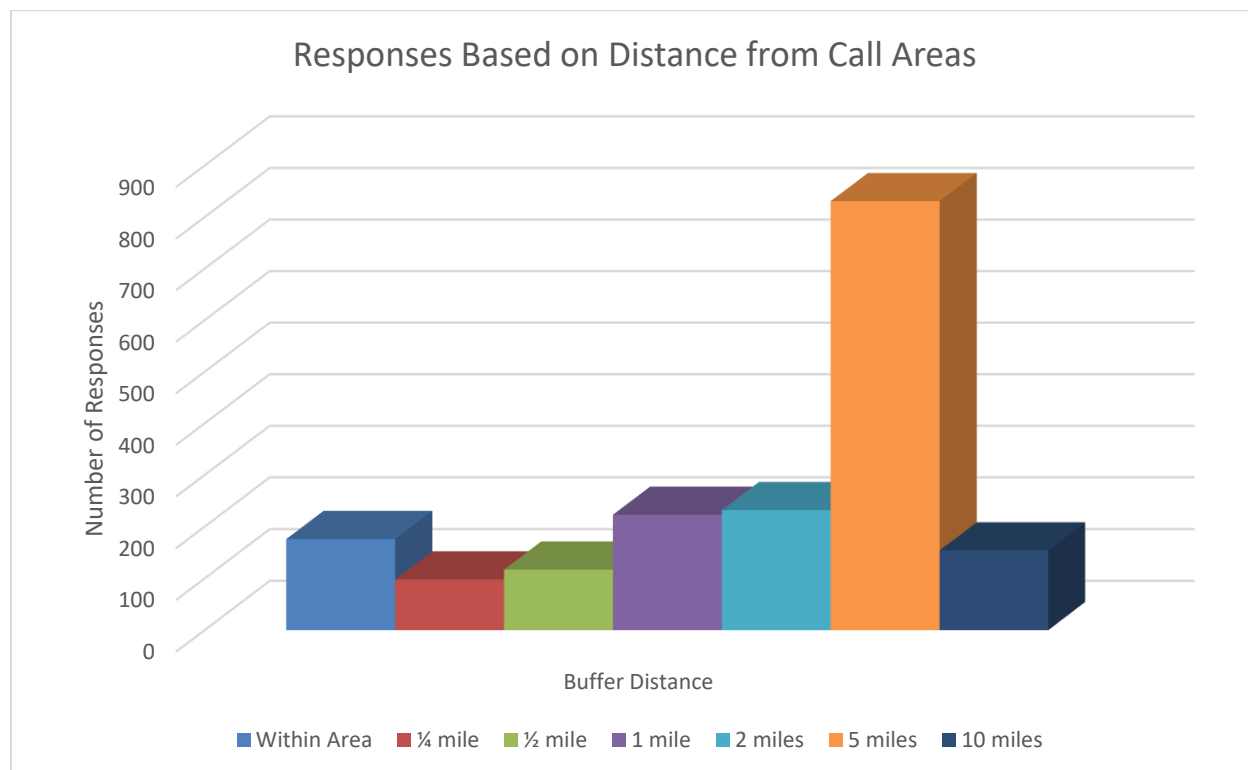


Figure 13: Pictures of Comcast rebroadcasting EAS message during exercise

Inconsistent policies between mobile phone carriers as to how they distribute a WEA causes conflict. In an email, a Senior Field Assurance Engineering Manager from Verizon stated that they require a cell tower to be within the boundaries of the alert area in order to broadcast the alert. It is clear when comparing the two primary carriers in Sonoma County, AT&T and Verizon, that they have different methods, policies, and algorithms for distributing WEAs. AT&T by lack of response, did not answer the questions and have since provided no additional technical information to emergency management staff. Since AT&T had such a large bleed over as compared to Verizon, it is interpreted that their policy is that any cell tower's coverage that is within the boundaries of the alert issues the emergency message.

These differences cause significant issues for alert and warning officials when issuing alerts. With current policies of mobile carriers, it is almost impossible to target any area with any confidence. With Verizon specifically, alert and warning officials need to know where the towers are located to target those in the area. Without this information, it is possible to draw a polygon for a notification and not include a single Verizon tower. The opposite is the case with AT&T as a single cell tower could potentially provide coverage up to 50 miles away. With these results, it does not appear that there is much limitation on geo-fencing or defined geographical boundaries, when the test alert was issued to the Glen Ellen/Kenwood area, Sonoma Valley and Rohnert Park were alerted as well (Appendix D: Maps, page D-4). If geo-fencing were to work as publicized, the Cities of Petaluma, Rohnert Park, (most of) Santa Rosa, Sonoma and Windsor should not have received the alert.



Analyzing the survey respondent results, there were more survey responses outside the area than within. Of the 2,842 positive respondents, only 6% were within the

boundaries created for the alert. Overall, 53% of them were outside the area and within 5 miles.

Distance from Call Areas	Number of Respondents	Percentage of Total Respondent	Total Respondents as Distance Increases	Respondents Not in Call Out Area
■ Within Area	176	6%	6%	Not Applicable
■ Area to ¼ mile	98	4%	10%	4%
■ ¼ to ½ mile	117	4%	14%	8%
■ ½ to 1 mile	223	8%	22%	16%
■ 1 to 2 miles	232	8%	30%	24%
■ 2 to 5 miles	831	29%	59%	53%
■ 5 to 10 miles	154	5%	64%	58%

Table 5: Number of responses based on distance from call out area

Lessons Learned

While coordinating the EAS portion of the test, it was determined that the local San Francisco Bay Area EAS and the State EAS plans are out of date (2004 and 2012 respectively) and out of sync with each other. Radio stations and television companies providing service to Sonoma County are only monitoring the Local Primary EAS Entry Points (LP1): KCBS, KQED and possibly the National Weather Service (NWS). It was determined that the LP2 (KZST) is not being monitored by local broadcasters. In addition, if the internet was down and staff had to activate EAS via telephone, KCBS has not maintained the legacy system of activation code procedures. In the event of a total communications failure, it is recommended that the County have a process in place for a predesignated staff member to physically go to KZST to request and direct activation of the EAS.

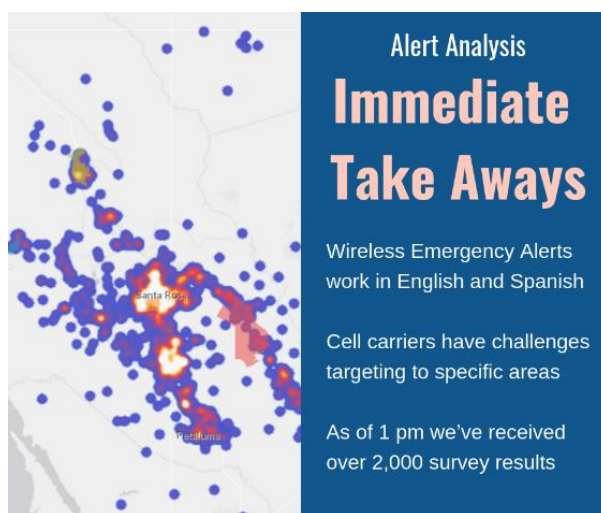


Figure 14: Social media post immediately following the exercise

Integrated Public Alert & Warning System

- Currently, through the IPAWS portal provided by the SoCoAlert vendor, staff have access to the Required Monthly Test (RMT) event code. Per the EAS plan, the County should not have the ability to conduct a RMT. Instead, staff should have the ability to conduct a Required Weekly Test (RWT) as a RWT does not interrupt broadcasting but does record at the end terminal to ensure the stations are receiving EAS messages. Having

the ability to activate the RWT will allow staff to test and coordinate with local broadcast stations to ensure proper programming.

- IPAWS access is not currently available through the Code Red mobile launching app. This adds an additional level of complexity and difficulty when trying to activate a notification from the field as a computer is required.
- While conducting a notification, if a map has been drawn to initiate a call within SoCoAlert and an IPAWS message has been selected, when loading a saved scenario in IPAWS, the IPAWS portal does not keep the previously drawn map.
- The IPAWS map should have the ability to be saved for future call notifications outside of the IPAWS portal in SoCoAlert.
- As more individuals get rid of traditional cable television service, protocols should be developed for live streaming service or other services such as Netflix or HBO to provide EAS coverage.
- It is unclear if NWS radios alert when local IPAWS messages are issued.

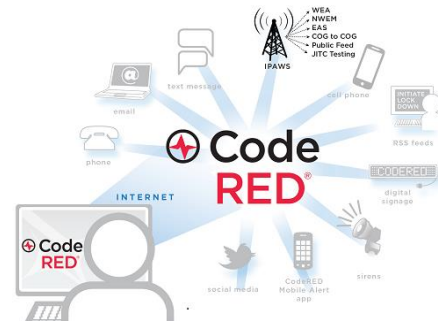


Figure 15: Code Red flow

CONCLUSION

This exercise proved successful as it met all of the objectives outlined and identified actionable gaps and deficiencies within local and federal alert and warning systems. The exercise underscored the critical importance of educating the public about alert and warning systems capabilities and deficiencies prior to and during a disaster. Communities in Sonoma County need to understand where to get information and what they should do with that information once they receive it - either from local authorities or neighbors.

The experiences in developing and conducting this exercise demonstrated the need to continue to train alert and warning officials and response partners on policies, procedures, plans, and social aspects of issuing alert and warning notifications. The need for further development of policies, plans, and procedures for countywide alerts and warnings was reinforced throughout this exercise process. Additionally, the exercise demonstrated the continued need for local jurisdictions to work together to integrate and coordinate messages in emergencies, and to continue to pursue use of a single alerting platform to maximize efficiencies.



Figure 16: Chair of the Board of Supervisors, James Gore, conducting media briefing immediately following exercise

The SoCoAlert system saw a significant increase in subscriptions and the vendor was able to establish a baseline for how quickly notifications

can be initiated. This along with feedback from the public will help emergency management officials create messages that are more effective and develop protocols to more efficiently target and send messages.

This exercise verified the need for improvement of the federal WEA system capabilities as it relates to conditions on the ground in Sonoma County. The exercise findings indicate that significant challenges remain regarding the effective use of the federal warning systems, including WEA and EAS. These challenges include incomplete and inconsistent alerting across telecommunication providers, significant bleed over when targeting specific geographic locations, and the performance of the technology across various wireless devices. These shortcomings significantly conflict with the public's expectations for service. Local government emergency managers will have to continue to take into account these shortcomings in developing and conducting alert and warning efforts. It is critical that local governments, Cal OES, FEMA, and the FCC engage telecommunication providers to continue to improve the reliability and effectiveness of these systems.

To ensure that the lessons learned from this exercise improve both our local and national federal alert and warning capabilities and increase the effectiveness of emergency messaging to the public, Sonoma County developed a comprehensive improvement plan (Appendix B: Improvement Plan) that incorporates all of our response partners. It will be critical for each of these partners to participate in developing and addressing the improvements identified.

There remains no perfect solution to the complicated challenge of alert and warning. This exercise demonstrated that each of the tools available have specific strengths and weaknesses. Alert and warning officials cannot afford to rely on only one system to communicate in a time of disaster. Everyone, local government and the public, needs to understand how the various emergency warning systems work and how they connect to them.

“This is a shared responsibility. We cannot alert you with every single piece of equipment if you do not participate,” Gossner said in remarks to reporters. “You have to be prepared for an emergency at your home and at your place of business.”

- Fire Chief Tony Gossner, Santa Rosa Fire Department

Sonoma County, Santa Rosa Tests New Cellphone Emergency Alert System -
Press Democrat, J.D. Morris, September 12, 2018

The County of Sonoma is committed to improving internal warning systems and maximizing the capabilities of federal systems in coordination with state and federal partners.

Appendix A: ANALYSIS OF CORE CAPABILITIES

Aligning exercise objectives and core capabilities provides a consistent method for evaluation, reporting and trend analysis. Table 1 includes the exercise objectives, aligned core capabilities, and performance ratings for each core capability as observed during the exercise and determined by the evaluation team.

Objective	Core Capability	Performed without Challenges (P)	Performed with Some Challenges (S)	Performed with Major Challenges (M)	Unable to be Performed (U)
Objective 1: Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard and, as appropriate, the action being asked and any assistance available.	Public Information and Warning		(S)		
Objective 2: Ensure the capacity for timely communications in support of security, situational awareness, and operations by any and all means available, among and between affected communities in the impact area and all response forces.	Operational Communications		(S)		
Objective 3: Conduct a systematic process engaging the whole community as appropriate in the development of executable strategic, operations, and/or tactical-level approaches to meet defined objectives.	Planning	(P)			

Ratings Definitions:

Performed without Challenges (P): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws.

Performed with Some Challenges (S): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws. However, opportunities to enhance effectiveness and/or efficiency were identified.

Performed with Major Challenges (M): The targets and critical tasks associated with the core capability were completed in a manner that achieved the objective(s), but some or all of the following were observed: demonstrated performance had a negative impact on the performance of other activities; contributed to additional health and/or safety risks for the public or for emergency workers; and/or was not conducted in accordance with applicable plans, policies, procedures, regulations, and laws.

Unable to be Performed (U): The targets and critical tasks associated with the core capability were not performed in a manner that achieved the objective(s).

The following sections provide an overview of the performance related to each exercise objective and associated core capability, highlighting strengths and areas for improvement.

Appendix B: IMPROVEMENT PLAN

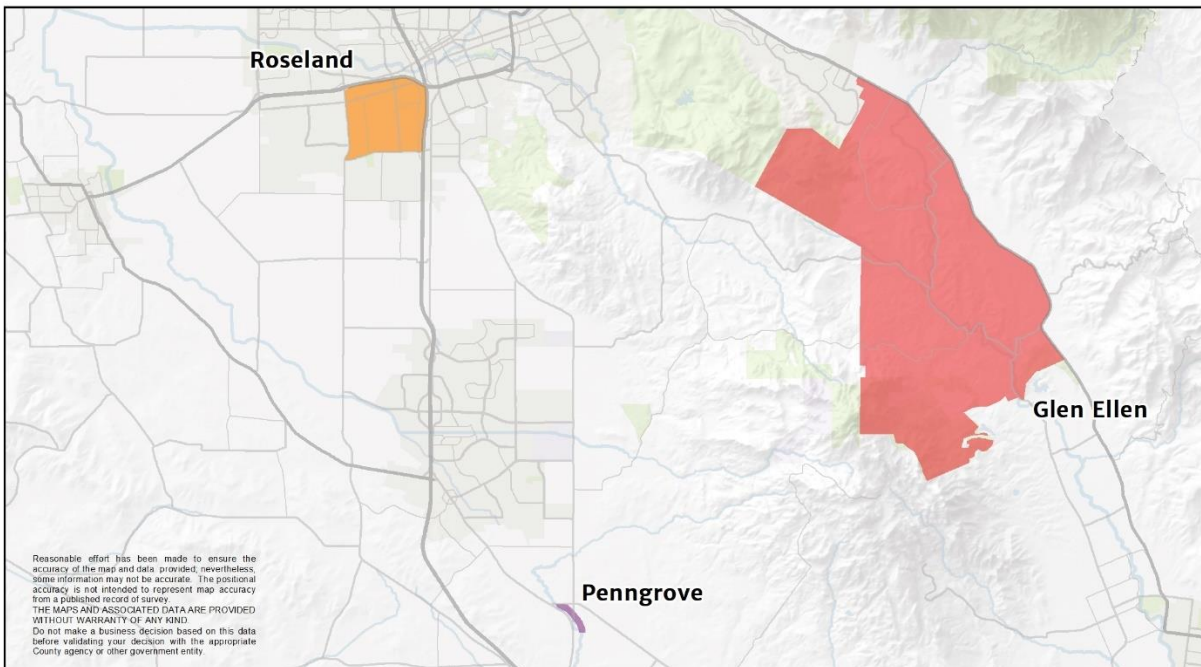
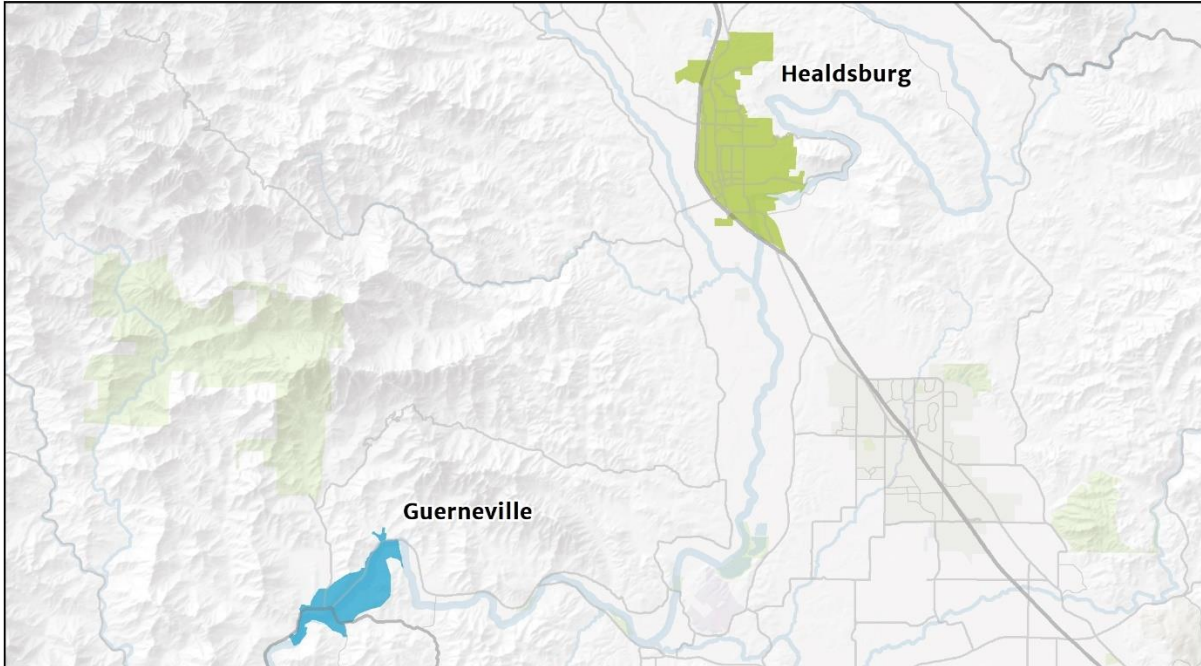
The improvement plan is currently being developed. It is anticipated to be released mid October 2018.

Appendix C: EXERCISE PARTICIPANTS

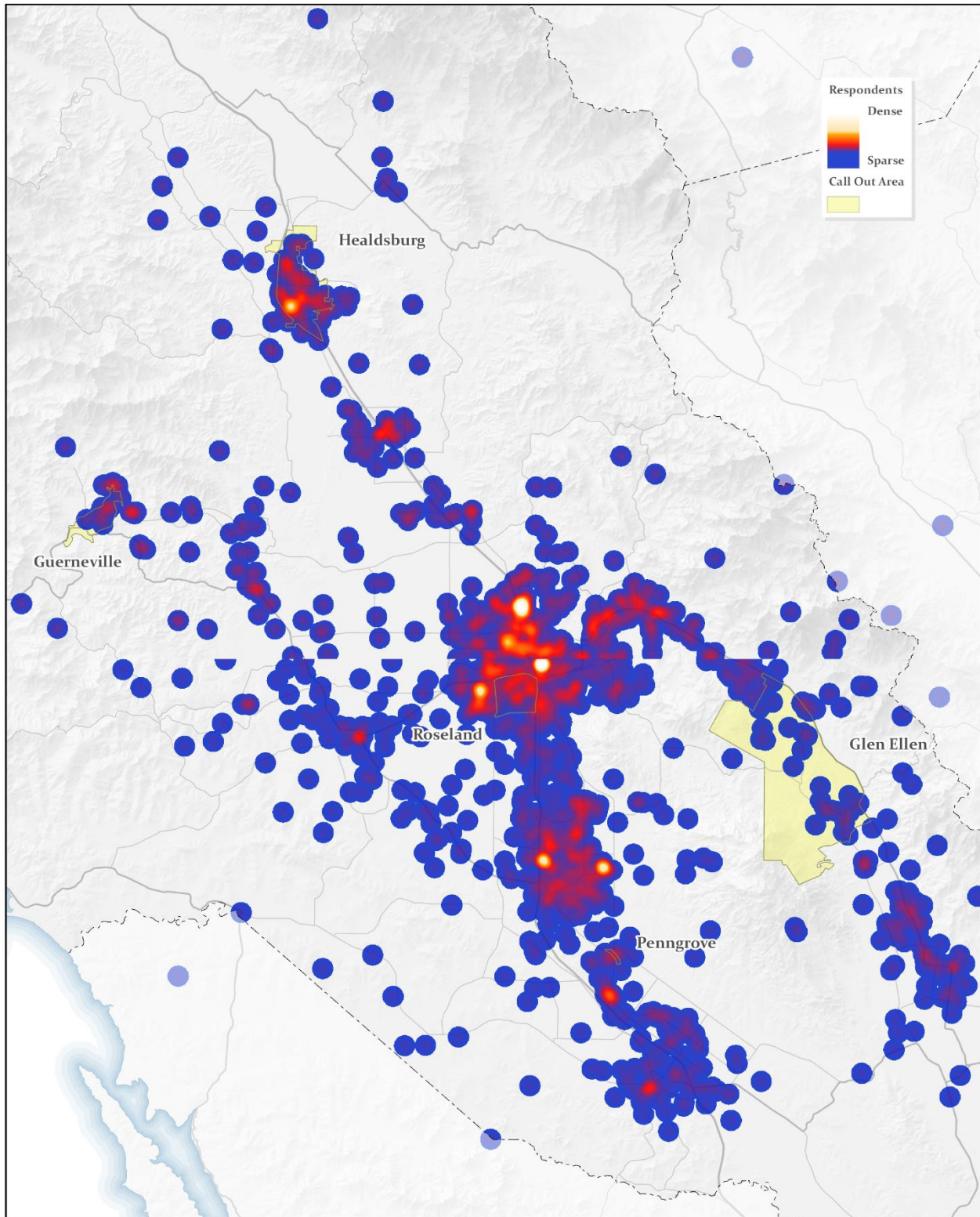
Participating Organizations (in alphabetical order)
City of Healdsburg
City of Petaluma
City of Rohnert Park
City of Santa Rosa
City of Sebastopol
Comcast
County of Sonoma
County Administrator’s Office
County Counsel
Fire and Emergency Services Department
General Services Department
Health Services Department
Human Recourses/Risk Management
Information Services Department
Permit Sonoma
Public Information Officers
Sheriff’s Office
Transportation and Public Works Department
KZST 100.1FM
REDCOM
Santa Rosa Junior College
Sonoma County Public Safety Consortium
Sonoma Media Group
Sonoma Office of Education
Sonoma State University
Sonoma Water
Town of Windsor

Appendix D: MAPS

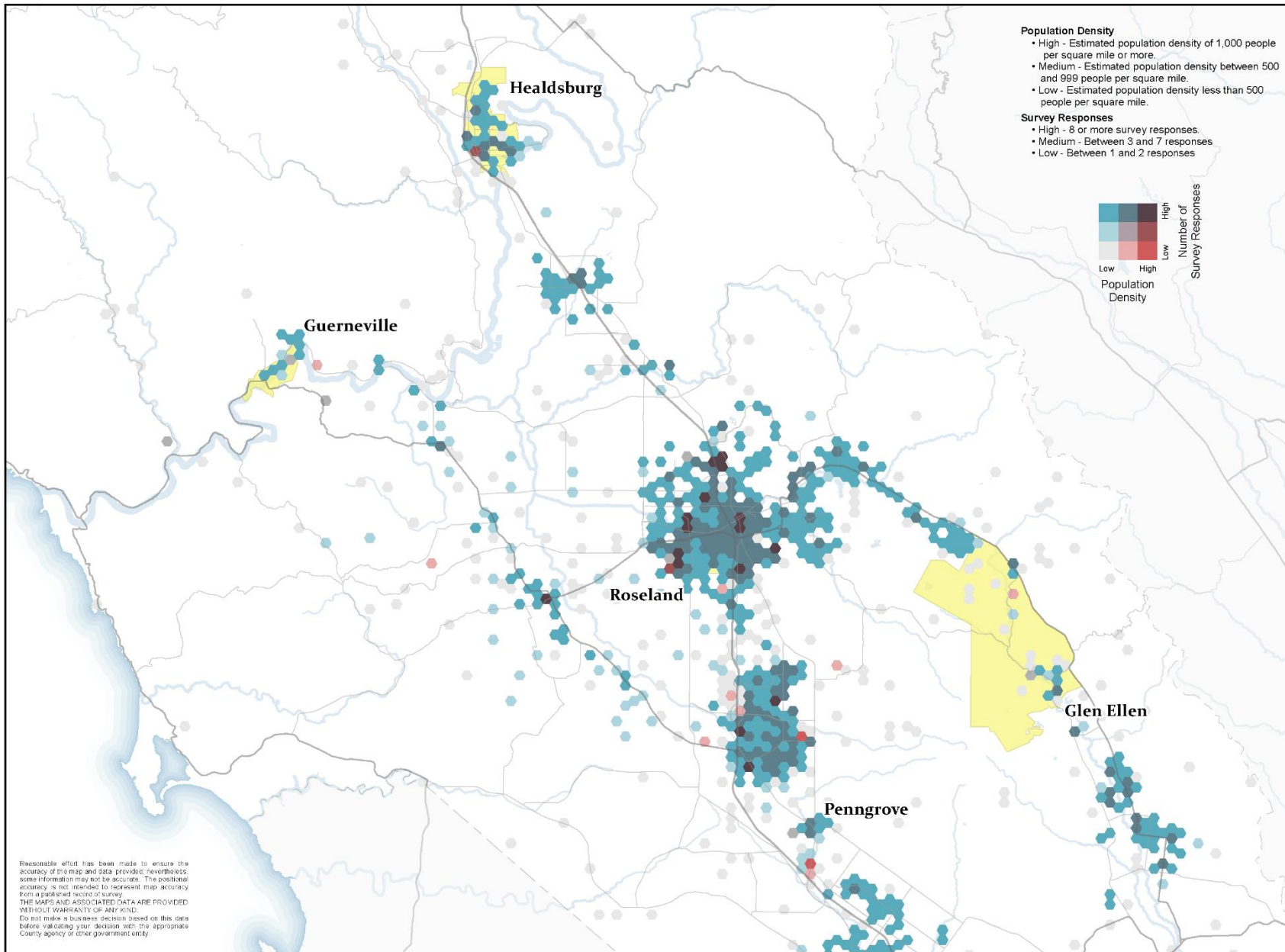
September 12, 2018 - Test Area Scenarios



Respondents Heat Map

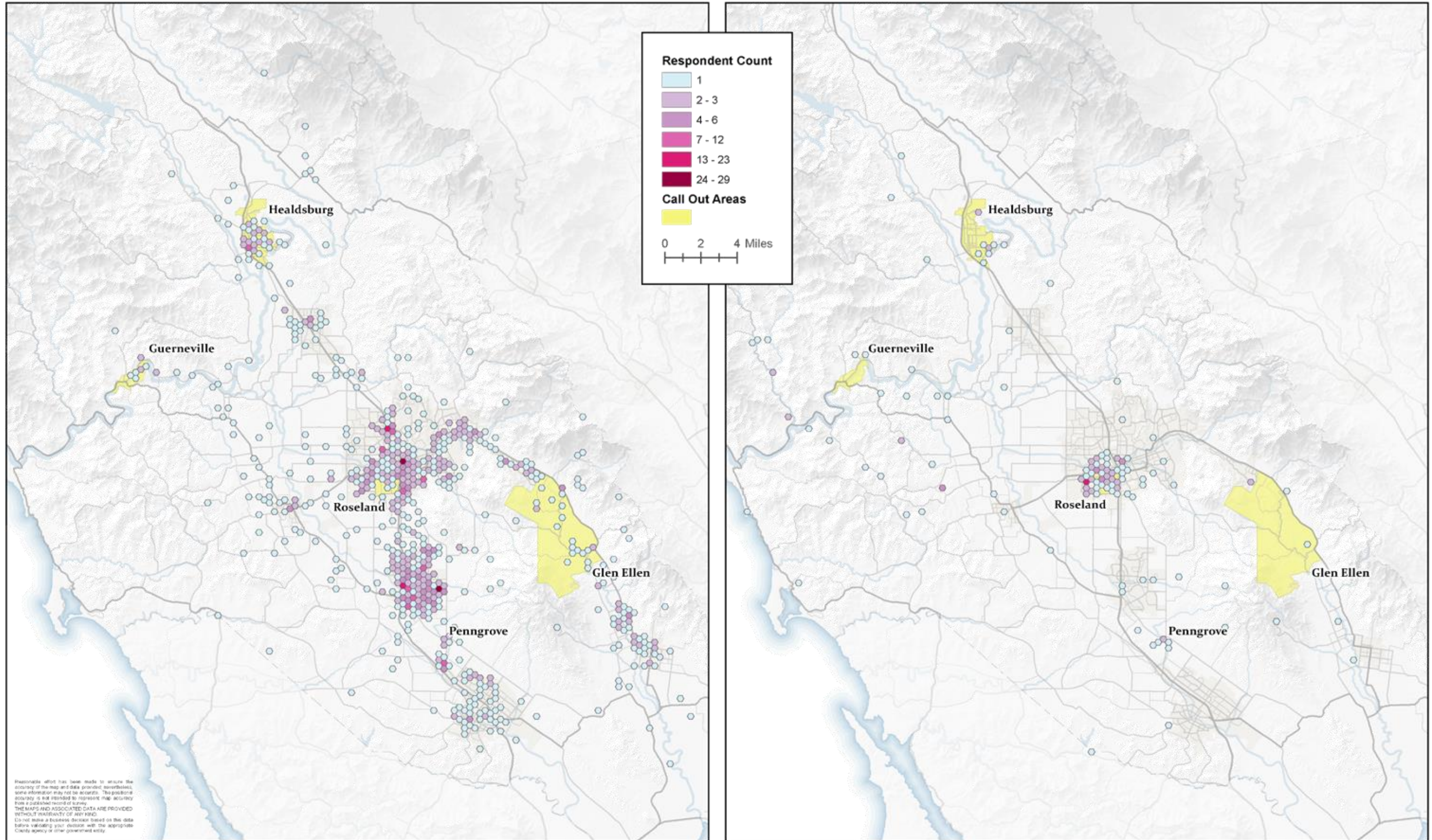


Population Density and Survey Responses



AT&T Survey Results

Verizon Survey Results



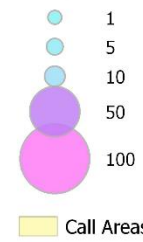
Survey Response Time Series

Alert Call Times

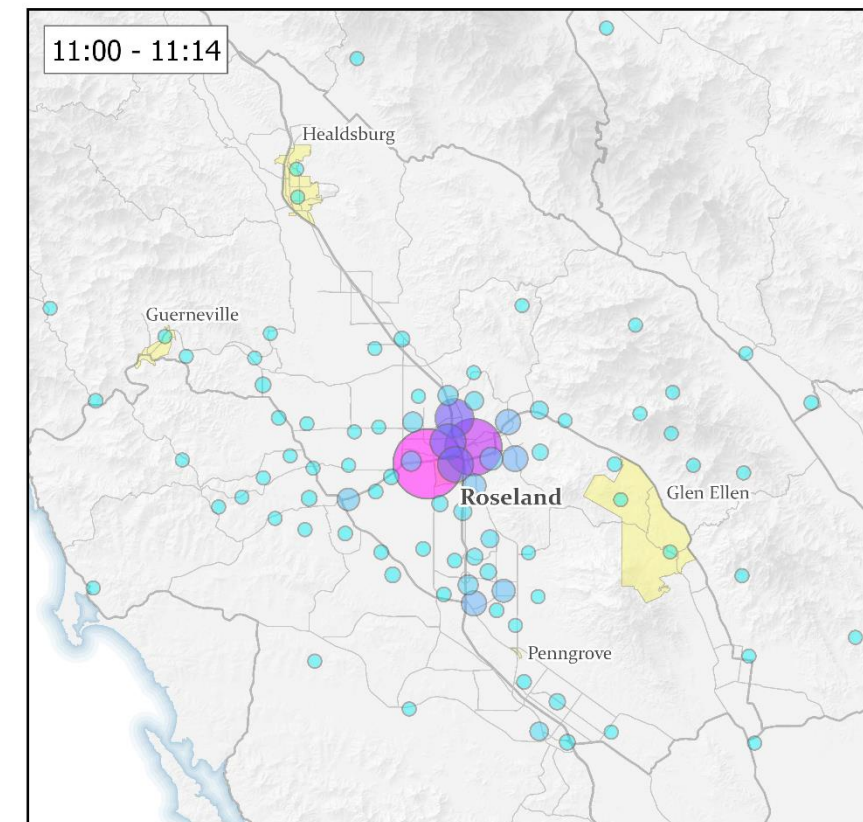
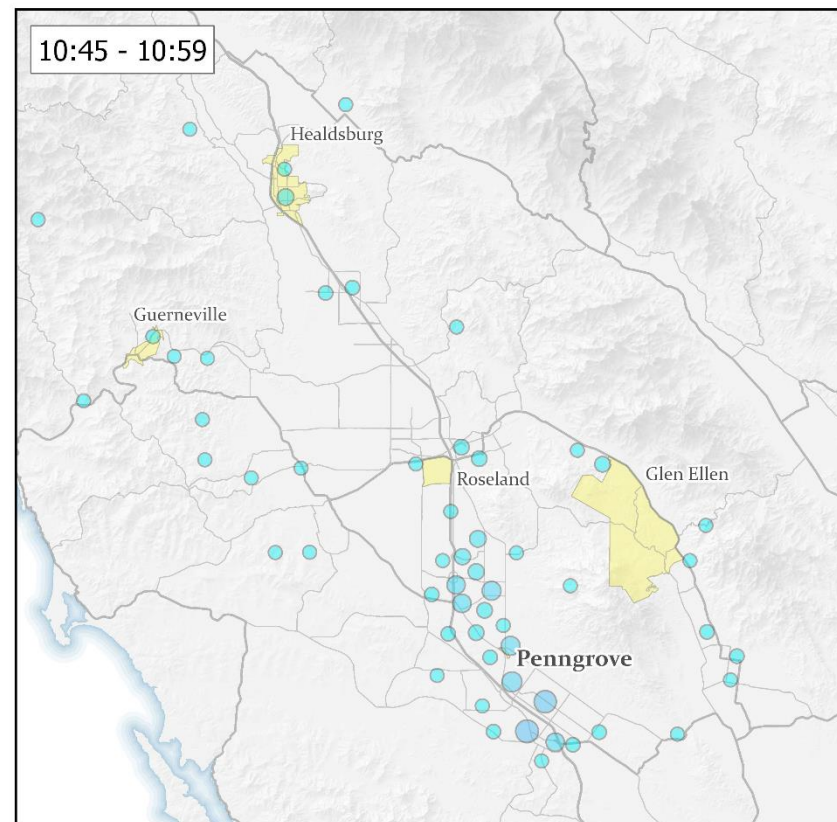
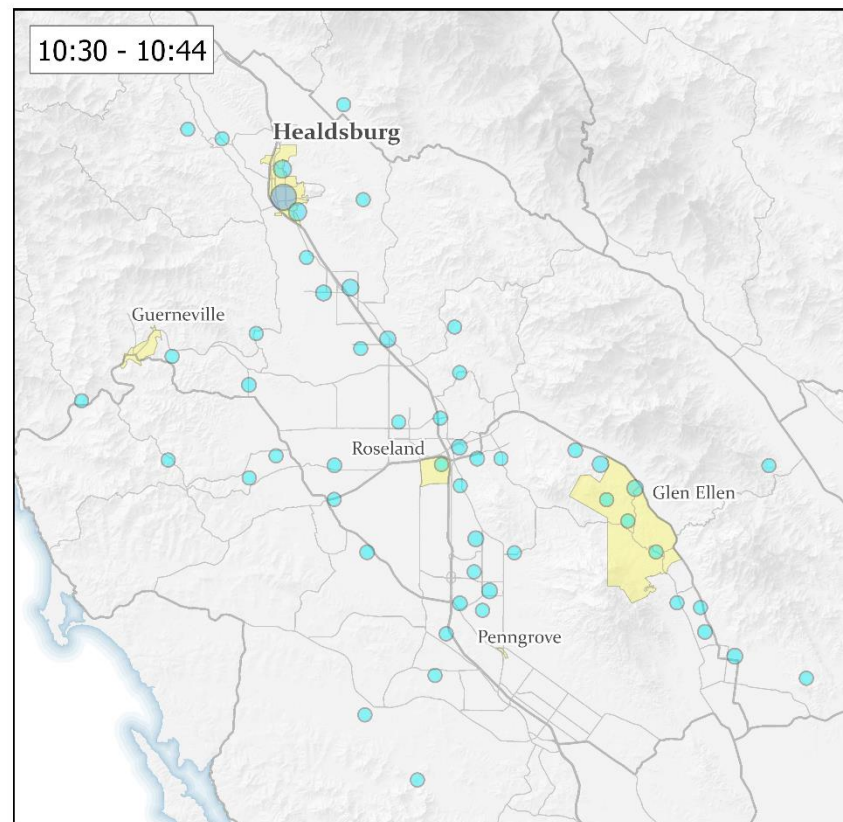
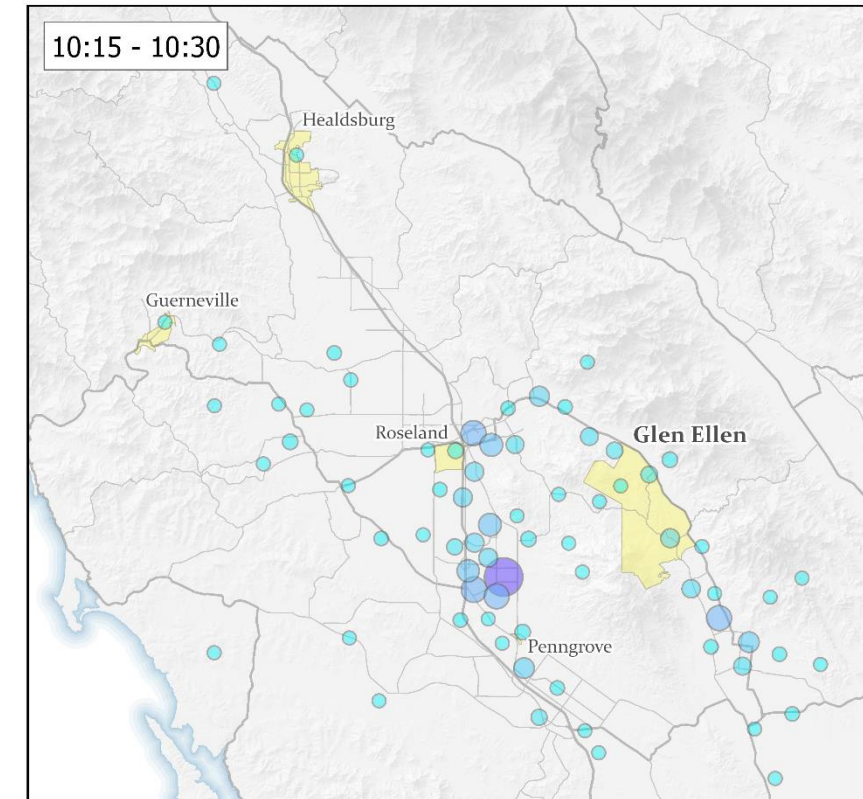
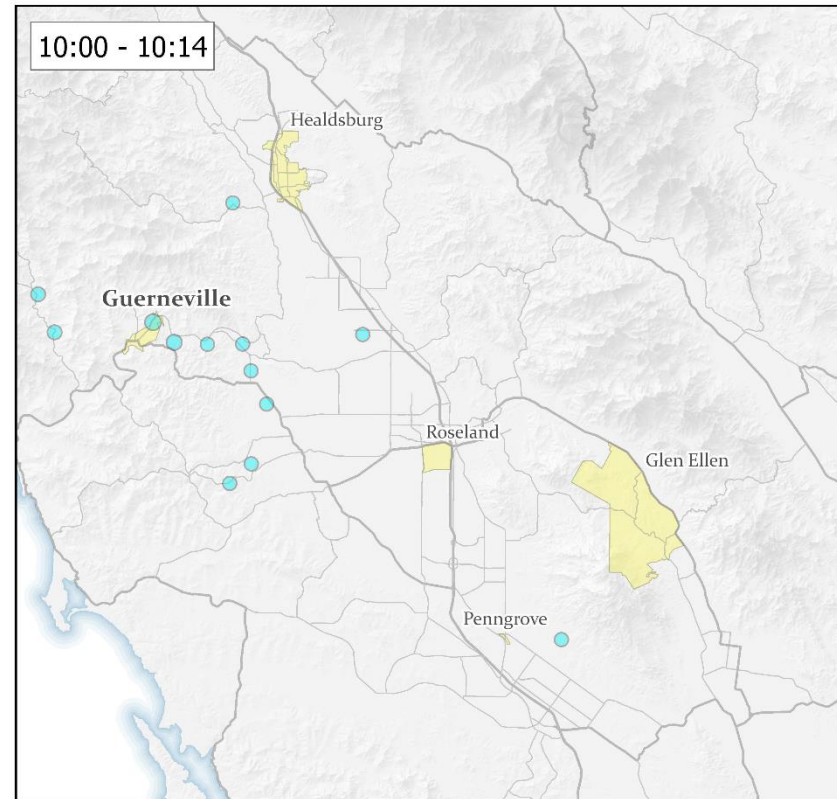
Guerneville: 10:00 AM
 Glen Ellen: 10:15 AM
 Healdsburg: 10:30 AM
 Penngrove: 10:45 AM
 Roseland: 11:00 AM

Survey locations have been aggregated together using a distance of 1/2 mile. Total number of responses for each aggregated point are symbolized on map as proportional symbols.

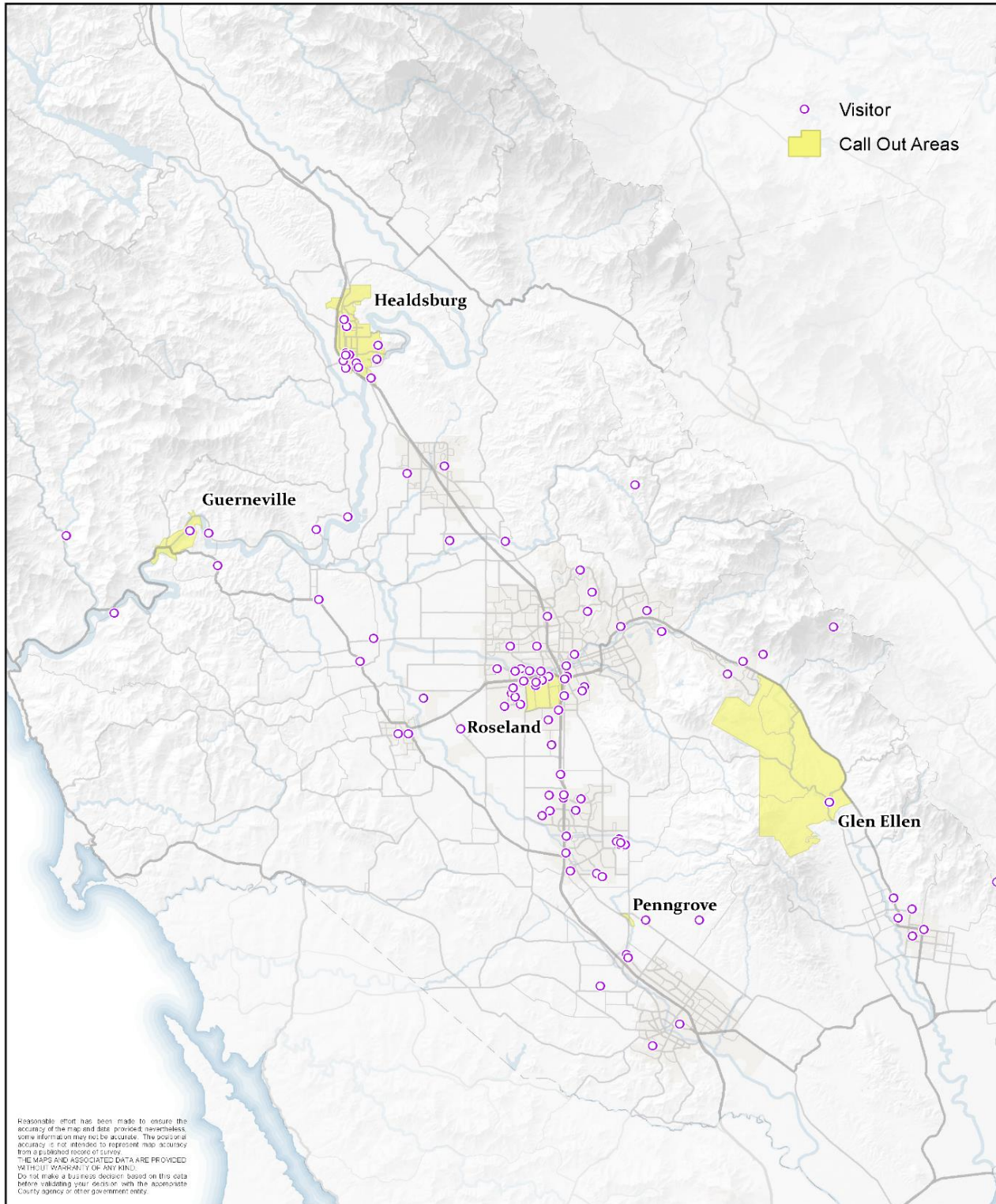
Survey Counts



Reasonable effort has been made to ensure the accuracy of the map and data provided; nevertheless, some information may not be accurate. The positional accuracy is not intended to represent map accuracy from a published record of survey. THE MAPS AND ASSOCIATED DATA ARE PROVIDED WITHOUT WARRANTY OF ANY KIND. Do not make a business decision based on this data before validating your decision with the appropriate County agency or other government entity.



Visitor Respondents



Appendix E: PUBLIC SURVEY

Sonoma County Alert and Warning Public Survey

Sonoma County is conducting an Alert and Warning exercise on September 12. Data collected from this exercise will be used to update plans, policies, and procedures. It is important that you are precise as possible when providing this data to help emergency managers understand the abilities and limitations to the alert and warning systems.

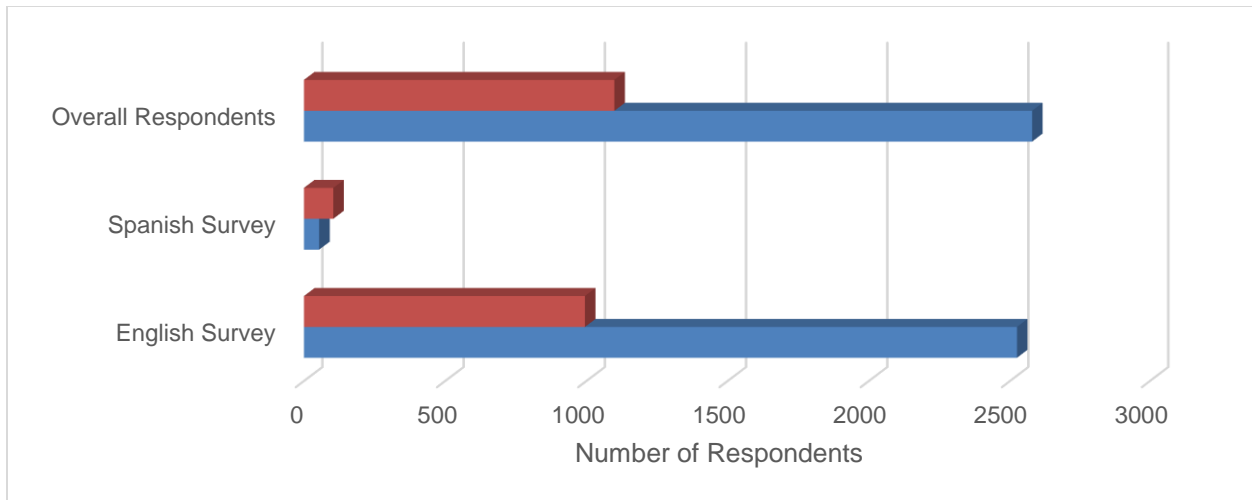
For more information about the exercise, go to www.socoemergency.org.

Public Survey					
Name:					
Did you receive an alert on September 12?	Yes	No			
Did you know about the alert prior to September 12?	Yes	No			
Where were you when you received the alert? <i>Please be as exact as possible when identifying the location you received the alert.</i>					
					N/A
What time did you receive the alert?					
Did you receive the alert on your cell phone?	Yes	No			
Who is your mobile carrier?	Verizon	AT&T	Metro PCS	Sprint	Other:
What is your mobile operating system?	Android	iOS – Apple	Blackberry	Windows	Other:
Did you receive the alert in any other way?	TV	AM Radio	FM Radio		
Any comments, questions, or concerns?					

Appendix F: PUBLIC SURVEY RESPONSE STATISTICS

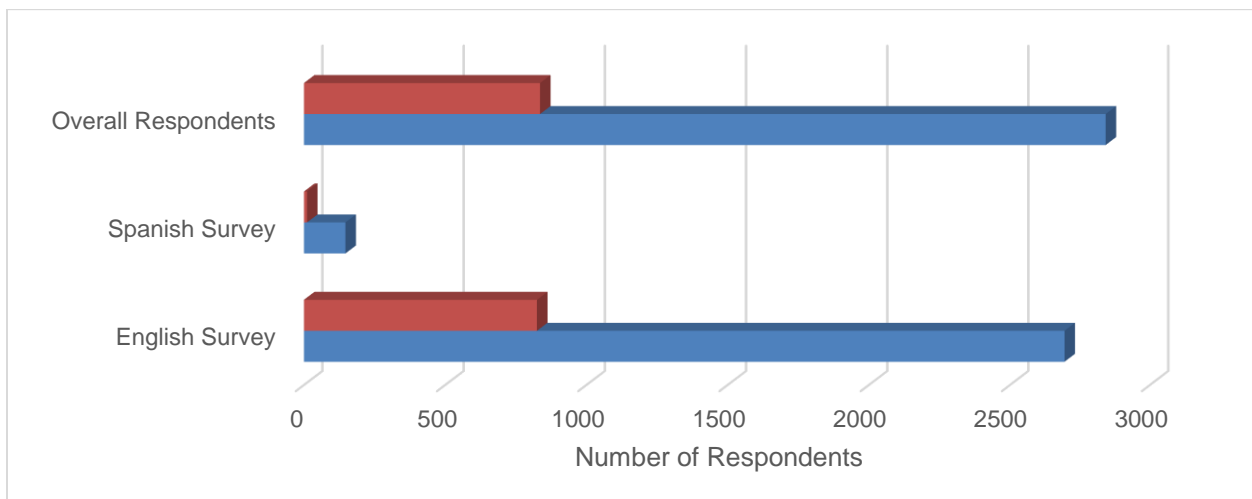
These statistics are from the Public Survey responses received after the exercise.

Did you know about the alert prior to September 12?



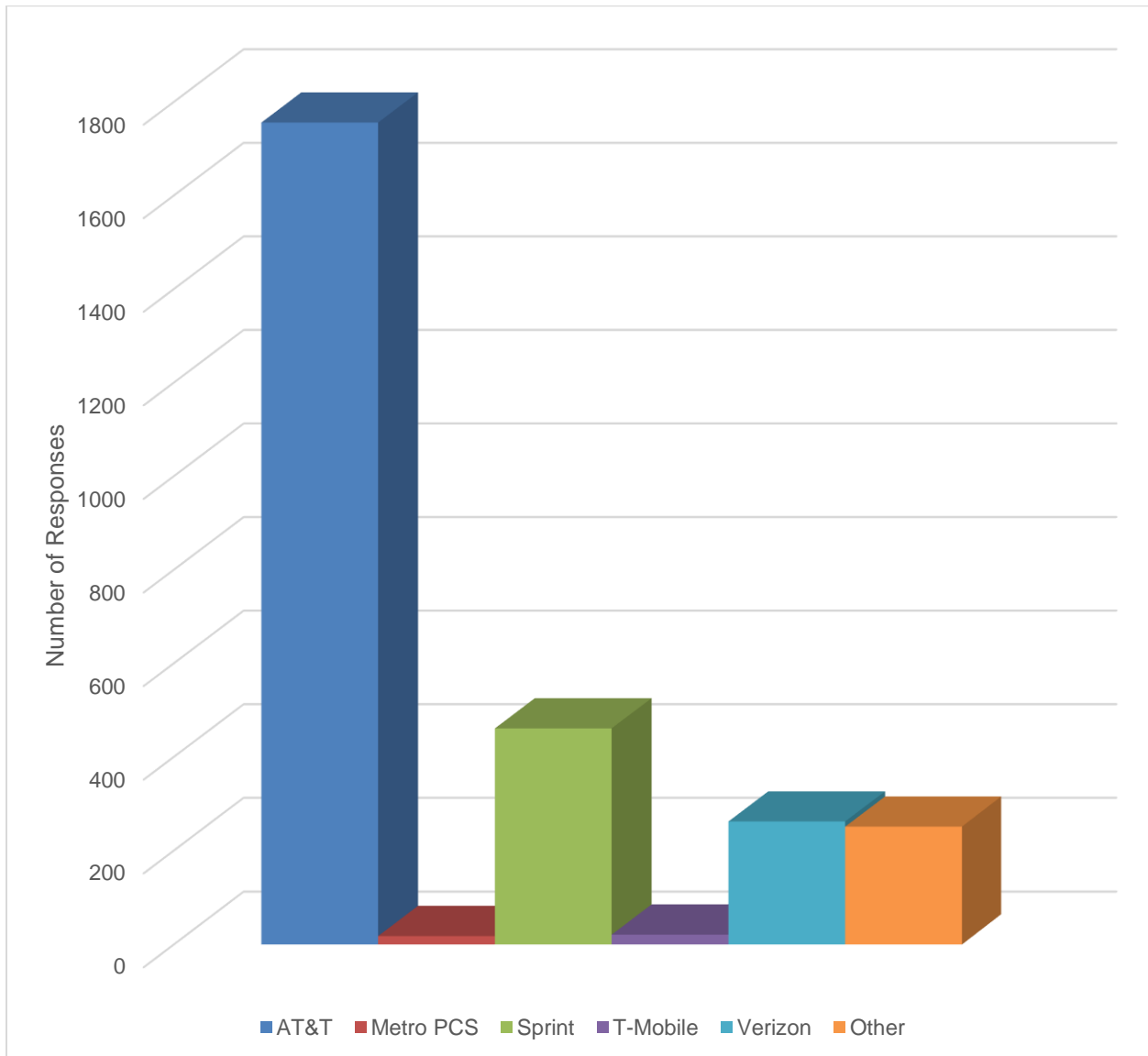
	English Survey	Spanish Survey	Overall Respondents
■ No	995	104	1099
■ Yes	2525	54	2579

Did you receive an alert on September 12?



	English Survey	Spanish Survey	Overall Respondents
■ No	825	11	836
■ Yes	2695	147	2842

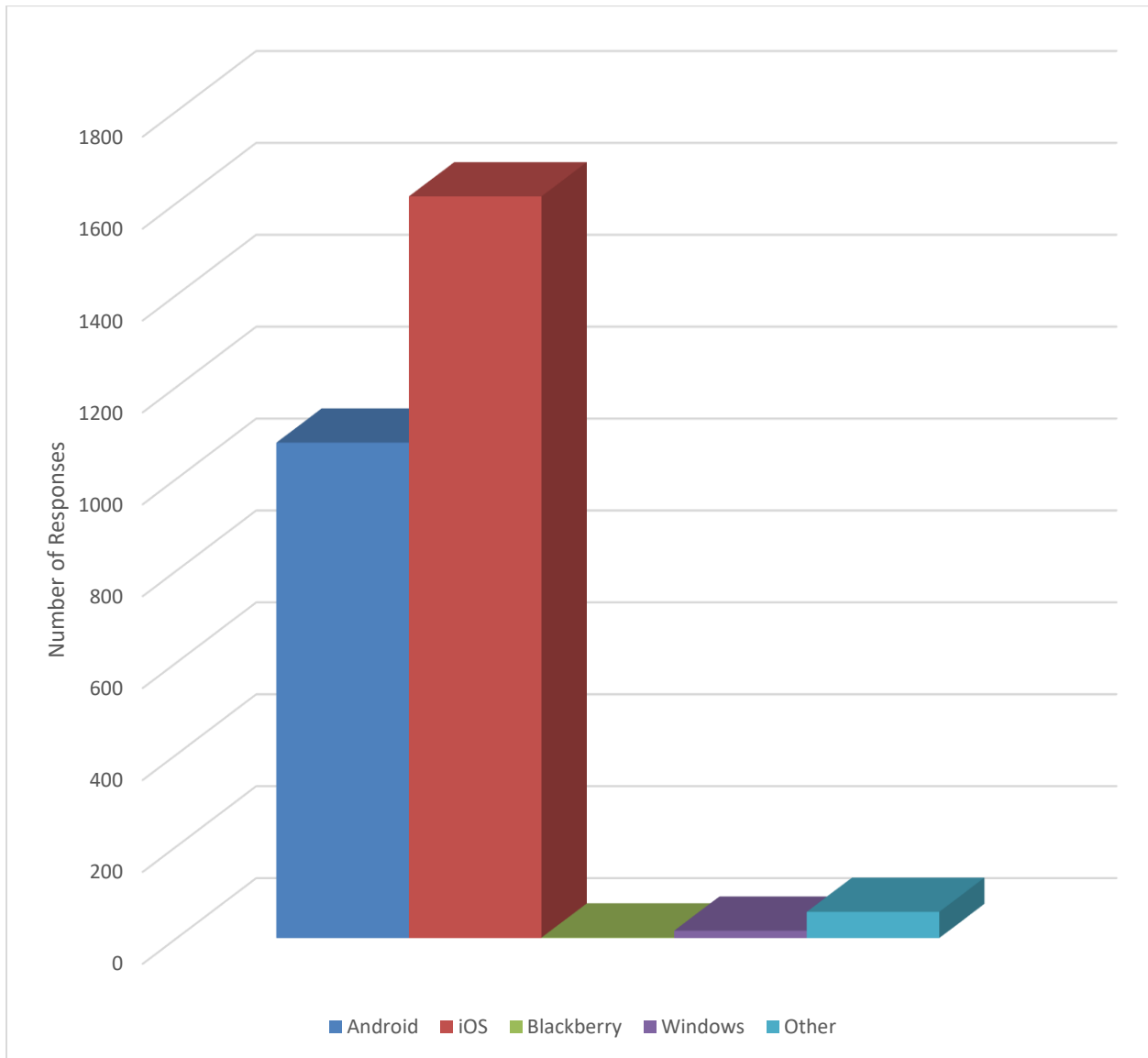
Mobile Carriers



Carrier	Number of Responses	Percentage of Total
■ AT&T	1756	63%
■ Metro PCS	18	1%
■ Sprint	461	17%
■ T-Mobile	21	1%
■ Verizon	262	9%
■ Other *	251	9%

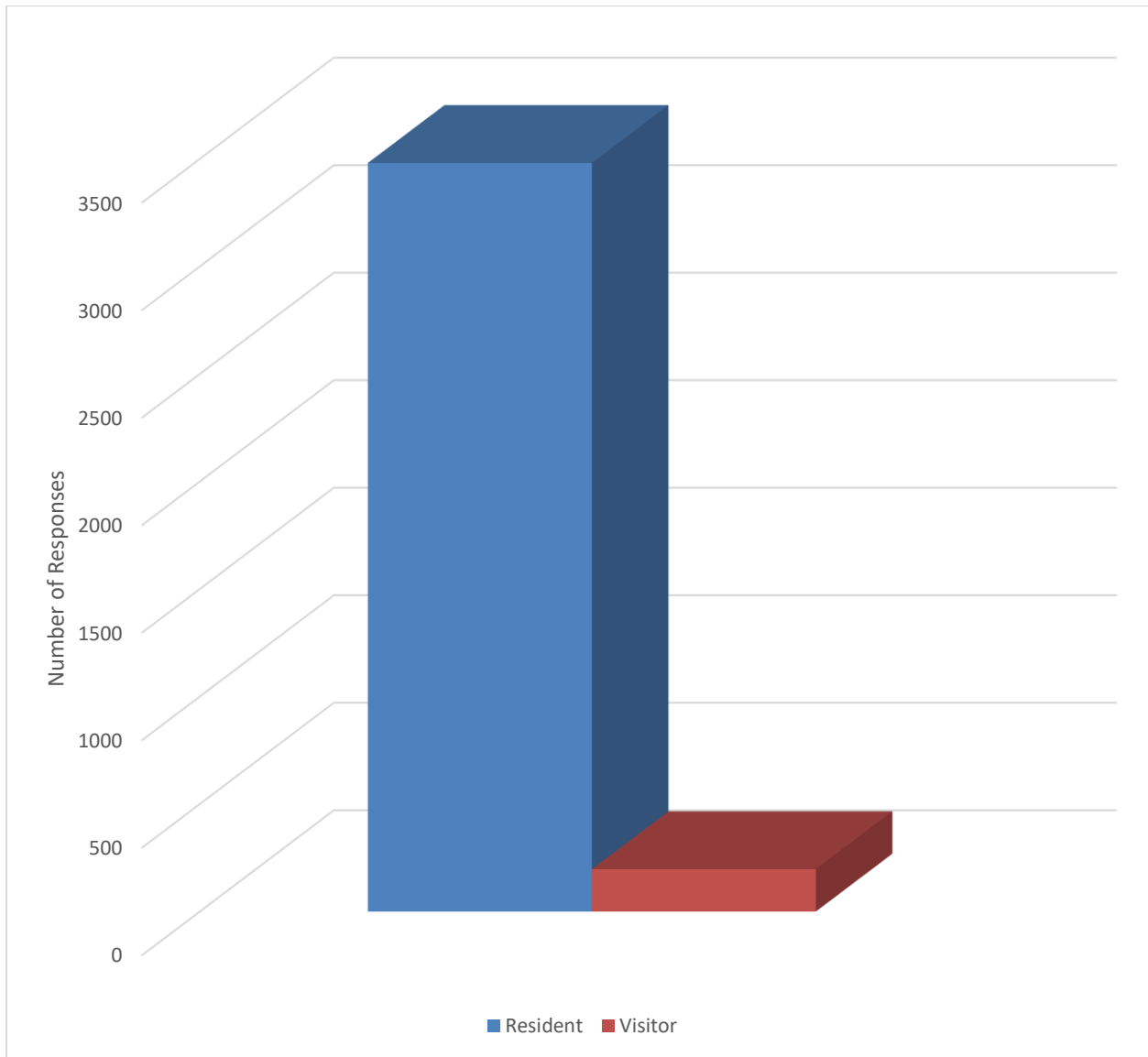
* A majority of the Other category were prepaid phone providers such as Cricket.

Mobile Operating System



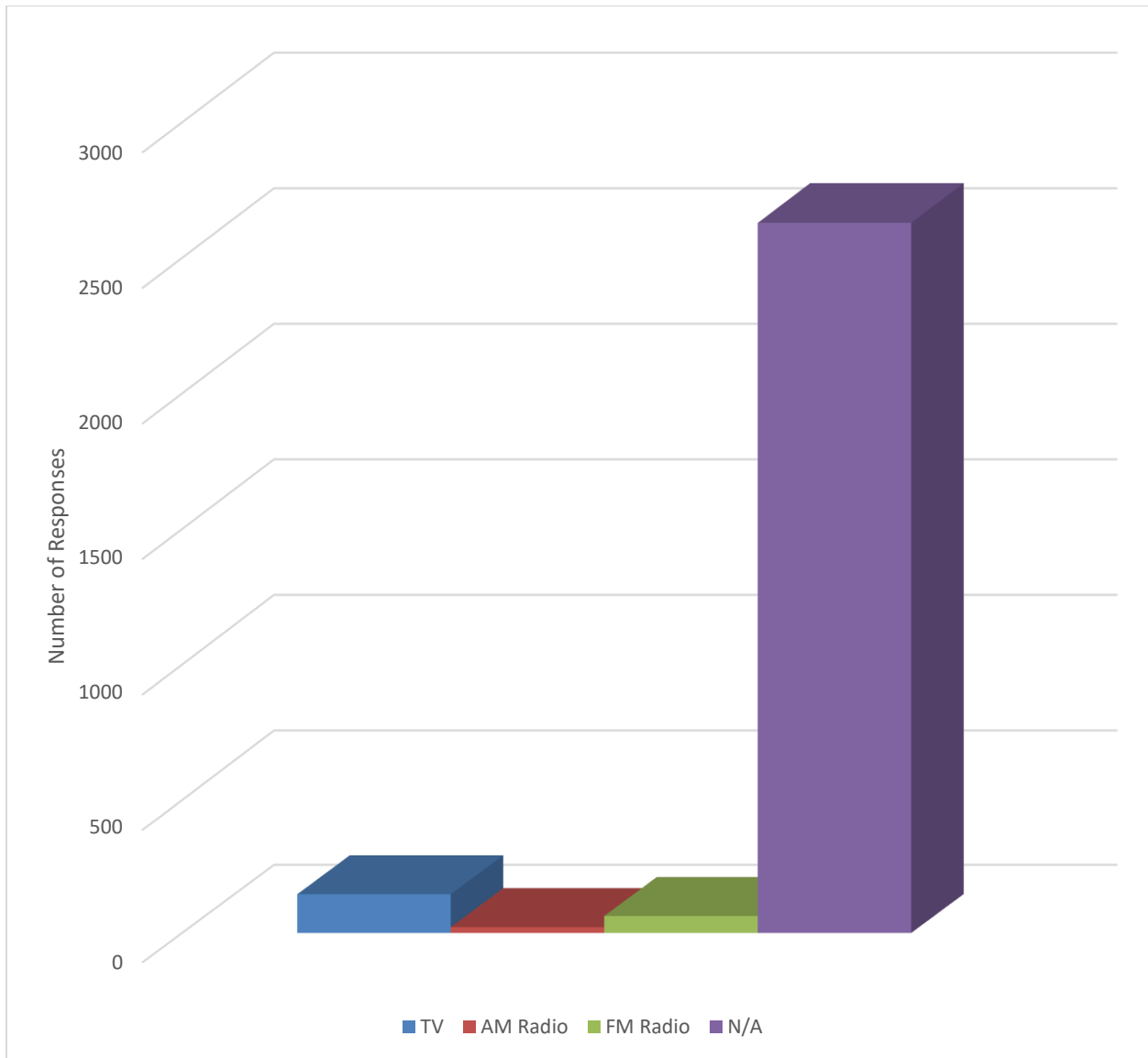
Carrier	Number of Responses	Percentage of Total
Android	1078	39%
iOS	1614	58%
Blackberry	1	0%
Windows	16	1%
Other	57	2%

Resident vs. Visitor



Carrier	Number of Responses	Percentage of Total
■ Resident	3481	95%
■ Visitor	197	5%

Did you receive the alert in any other way?*



Carrier	Number of Responses	Percentage of Total
■ TV	146	5%
■ AM Radio	22	1%
■ FM Radio	64	2%
■ N/A *	2629	92%

* Not an accurate representation of how many people received the EAS alert as most filled out the survey prior to the EAS notification at 11:15 AM.

Appendix G: FCC WAIVER REQUEST



County of Sonoma
FIRE & EMERGENCY SERVICES DEPARTMENT
FIRE SERVICES * EMERGENCY MANAGEMENT * HAZARDOUS MATERIALS



JIM COLANGELO, INTERIM DIRECTOR

July 26, 2018

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

RE: Sonoma County Wireless Emergency Alert Test Date Change

Dear Secretary Dortch:

Due to FEMA's recent announcement of its National WEA and EAS test, Sonoma County hereby requests a change of our requested test date of Thursday, September 20, 2018 to Wednesday, September 12, 2018. As before, we request approval for an FCC Rule Waiver in order to conduct a live Emergency Alert System (EAS) and Wireless Emergency Alert (WEA) test by the Sonoma County Fire and Emergency Services Department (FES). FES is the primary alert and warning authority for IPAWS in Sonoma County. Our proceeding 15-91 Confirmation Number is 20180720276758822.

The live test would be conducted on Wednesday, September 12, 2018. This test would target multiple areas within Sonoma County. This will be the first live test of the WEA system for Sonoma County. The purpose of conducting the test at this time is to ensure that emergency management officials in Sonoma County have a clear understanding of how alerts would perform in our varied topography.

Since our wildland fires last year, there has been a lack of faith in the emergency warning systems in Sonoma County. With updated policies and trainings, it is vital that we conduct a WEA test to inform our residents and build confidence.

Sonoma County wants our citizens to be familiar with the format of various alert and warning system formats. In the event of an emergency, WEA, EAS and other emergency messaging will direct citizens to our emergency information website (socopsa.org) for more information.

The text of the test will read: **TEST emergency message - Sonoma County. www.socopsa.org to provide feedback. No other action needed.**

FES has already begun to prepare a comprehensive communications plan and exercise plan. Staff have been in direct contact with jurisdictions who have successfully conducted WEA and EAS tests to include Washington DC. Sonoma County will draw upon the experiences of those jurisdictions and lessons learned to fully inform and prepare this test effort.

As a part of this test, a media campaign to target our constituents, as well as surrounding counties, will be implemented to ensure public understanding of the need and value for the scheduled WEA/EAS test. Sonoma County will also reach out to the public information officers of the affected

Sonoma County Fire and Emergency Services Department


local jurisdictions to help with communication with local broadcasters, newspapers, and cable providers. Currently, Sonoma County is assessing the need for purchasing airtime and print space in local media markets. Postcards will also be sent to residents located in targeted WEA test areas. Additionally, the information will be posted on multiple websites and distributed on various social media accounts throughout Sonoma County and surrounding jurisdictions.

FES will work with participating CMS providers and EAS participants that operate within Sonoma County. All emergency response agencies that operate within and adjacent to Sonoma County, including first responder organizations such as Law Enforcement, Fire/EMS agencies, and 911 public safety answering points (PSAPS), will be informed to ensure they are aware of the test and confirm to the public the WEA/EAS message is a test. In addition, a steering committee will aid in developing the exercise plan and communicate it with key stakeholder agencies.

Subsequent to the test, FES will execute the evaluation element of the exercise plan. The evaluation will have three components, several hundred staff and volunteers strategically located within the test area to evaluate the WEA capabilities, responses provided by the public through the website survey, and a contractor who will be telephonically surveying residents within Sonoma County.

We appreciate the opportunity to partner with the FCC and FEMA to test the WEA functionality within Sonoma County. Thank you for your consideration!

Respectfully,


Jim Colangelo
Interim Director

Appendix H: FCC WAIVER DA 18-827

Federal Communications Commission DA 18-827

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of)
)
Improving Wireless Emergency Alerts and) PS Docket No. 15-91
Community-Initiated Alerting)
)
Amendments to Part 11 of the Commission's) PS Docket No. 15-94
Rules Regarding the Emergency Alert System)

ORDER

Adopted: August 7, 2018 Released: August 7, 2018

By the Chief, Public Safety and Homeland Security Bureau:

I. INTRODUCTION

1. In this *Order*, the Public Safety and Homeland Security Bureau (Bureau) of the Federal Communications Commission (Commission) grants a limited waiver of the Commission's Emergency Alert System (EAS) and Wireless Emergency Alert (WEA) rules to permit EAS Participants¹ and Participating Commercial Mobile Service (CMS) Providers² to participate in a test to be conducted by the Sonoma County Fire and Emergency Services Department (FES).³ This test will be a combined live EAS and end-to-end WEA test, conducted on September 12, 2018. For the reasons discussed below, we grant the FES request, subject to certain conditions.

II. BACKGROUND

2. The EAS is a national public warning system through which EAS Participants deliver alerts to the public to warn them of impending emergencies.⁴ The primary purpose of the EAS is to provide the President of the United States with "the capability to provide immediate communications and information to the general public at the National, State and Local Area levels during periods of national emergency."⁵ State and local authorities also use the EAS to distribute voluntary weather-related and

¹ The Commission's rules define EAS Participants as broadcast stations; cable systems; wireline video systems; wireless cable systems; direct broadcast satellite service providers; and digital audio radio service providers. 47 CFR § 11.11(a).

² Participating CMS Providers are commercial mobile service providers that have elected voluntarily to transmit WEA alert messages. 47 CFR § 10.10(d), (f).

³ See Letter from Jim Colangelo, Interim Director, County of Sonoma, Fire and Emergency Services Department, Marlene Dortch, Secretary, Federal Communications Commission (filed July 20, 2018) (on file in PS Docket No. 15-91) (July 20 FES Letter), as amended by Letter from Jim Colangelo, Interim Director, County of Sonoma, Fire and Emergency Services Department, Marlene Dortch, Secretary, Federal Communications Commission (filed July 27, 2018) (on file in PS Docket No. 15-91) (July 27 FES Letter).

⁴ 47 CFR § 11.1 *et seq.* See also *Review of the Emergency Alert System*, EB Docket No. 04-296, Sixth Report and Order, 30 FCC Rcd 6520 (2015).

⁵ 47 CFR § 11.1. See *Review of the Emergency Alert System*, EB Docket No. 04-296, First Report and Order and Further Notice of Proposed Rulemaking, 20 FCC Rcd 18625, 18628, para. 8 (2005) (*First Report and Order*). The FCC, the Federal Emergency Management Agency (FEMA), and the National Weather Service (NWS) implement the EAS at the federal level. See Presidential Communications with the General Public During Periods of National Emergency, The White House (September 15, 1995).

Federal Communications Commission DA 18-827

other emergency alerts to the public.⁶ EAS testing at the state and local level increases the proficiency of local emergency personnel, provides insight into the system's functionality and effectiveness at the federal level, and enhances the public's ability to respond to EAS alerts when they occur.⁷ The Commission's EAS rules contain procedures by which EAS Participants must test the system,⁸ and prohibit the unauthorized use of the EAS Attention Signal and codes.⁹

3. The WEA system allows authorized government entities to send geographically targeted emergency alerts to commercial wireless subscribers who have WEA-capable mobile devices, and whose commercial wireless service providers are Participating CMS Providers.¹⁰ The Commission's rules prohibit the use of the WEA Attention Signal except during actual emergencies, authorized tests, and certain public service announcements.¹¹ Additionally, the Commission's rules allow testing of WEA functionality only in limited circumstances that currently do not include end-to-end WEA tests to the public.¹² On November 1, 2016, the Commission adopted a *Report and Order* that amends the WEA testing rules to permit emergency managers to conduct end-to-end WEA tests to the public to assess how WEA is working within their jurisdictions.¹³ The rules allowing such tests will not be effective until May 1, 2019.¹⁴

4. The July 27 FES Letter requests a waiver of the Commission's rules to allow Participating CMS Providers and EAS Participants to participate in a combined EAS and WEA test.¹⁵ The purpose of the test is to ensure that emergency management officials in Sonoma County have a clear understanding of how alerts would perform in their varied topography.¹⁶ According to the July 27 FES Letter, since the wildland fires last year, there has been a lack of faith in the emergency warning systems in Sonoma County.¹⁷ Sonoma County has since updated its policies and training, and the July 27 FES Letter indicates that it is vital that it now conduct a WEA test to inform its residents and build

⁶ 47 CFR § 11.55(a), *First Report and Order*, 20 FCC Rcd at 18628, para. 8. While EAS Participants are required to broadcast Presidential Alerts, they participate in broadcasting state and local EAS alerts on a voluntary basis. *Id.*

⁷ See Communications Security, Reliability and Interoperability Council IV, Working Group Three, Emergency Alert System, State EAS Plans Subcommittee, Final Report at 14 (March 2014), https://transition.fcc.gov/pshs/advisory/csric/4/CSRIC_IV_WG3_EAS_Plans_Final_Report_032514.pdf (CSRIC EAS State Plan Report).

⁸ 47 CFR § 11.61.

⁹ 47 CFR §§ 11.45, 11.46.

¹⁰ *Commercial Mobile Alert System*, PS Docket No. 07-287, Third Report and Order, 23 FCC Rcd 12561, 12575, para. 32 (2008) (stating the requirements for wireless providers volunteering to participate in WEA).

¹¹ 47 CFR § 10.520(d). The Attention Signal is a loud, attention-grabbing, two-tone audio signal that uses frequencies and sounds identical to the attention signal used by the EAS. Compare 47 CFR § 10.520 with 47 CFR § 11.31(a)(2).

¹² 47 CFR § 10.350. Specifically, the Commission's rules require Participating CMS Providers to participate in monthly tests initiated by FEMA and in periodic tests of WEA's C-Interface. *Id.*

¹³ *Wireless Emergency Alerts: Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, 31 FCC Rcd 11112, 11154-11157, paras. 65-68 (2016) (*WEA R&O*).

¹⁴ *Id.* at 11161, 11165, paras. 79, 85 (stating that the deadline for state and local testing is 30 months after the rule's publication in the Federal Register); *Federal Communications Commission, Wireless Emergency Alerts, Amendments to Rules Regarding the Emergency Alert System*, 81 Fed. Reg. 75710 (Nov. 1, 2016) (establishing the date of Federal Register publication).

¹⁵ FES July 27 Letter at 1.

¹⁶ *Id.*

¹⁷ *Id.*

confidence.¹⁸ This would be the first end-to-end test of WEA in Sonoma County.

5. The combined EAS and WEA test would target multiple areas within Sonoma County. The July 27 FES Letter states that the proposed WEA test message to be delivered to the mobile devices would be: “TEST emergency message - Sonoma County. www.socopsa.org to provide feedback. No other action needed.”¹⁹

6. The July 27 FES Letter describes an extensive pre-test outreach and coordination plan that draws in part from the experiences of other jurisdictions, such as Washington D.C., which have already conducted these tests. FES’ comprehensive communication plan includes a media campaign to target its constituents, as well as surrounding counties, to ensure public understanding of the need and value of the scheduled WEA and EAS test.²⁰ Among other things, information would be posted on multiple websites and distributed on various social media accounts throughout Sonoma County and surrounding jurisdictions.²¹ The July 27 FES Letter also indicates that FES would contact the public information officers of the affected local jurisdictions to help with communication with local broadcasters, newspapers, and cable providers.²² In addition, Sonoma County would send Postcards to residents in targeted WEA test areas.²³

7. FES commits to coordinating with local wireless providers and EAS Participants that operate within Sonoma County.²⁴ According to the July 27 Letter, FES would also coordinate with all emergency authorities that operate within and adjacent to Sonoma County, including first responder organizations such as law enforcement, fire/emergency medical service agencies, and 911 public safety answering points (PSAPs), to ensure that they are aware of the test and can confirm to the public that the WEA/EAS message is a test.²⁵

III. DISCUSSION

8. A provision of the Commission’s rules “may be waived by the Commission on its own motion or on petition if good cause therefor is shown.”²⁶ The Commission may find good cause to extend a waiver, “if special circumstances warrant a deviation from the general rule and such deviation will serve the public interest.”²⁷ We conclude that there is good cause to grant the FES waiver request for the combined EAS and WEA end-to-end test.

9. We are persuaded by the FES July 27 Letter that the proposed test of the EAS and WEA will help educate the public, improve the understanding of FES personnel regarding how alerts would perform in their unique topography, and help build confidence in the emergency warning systems in Sonoma County. We are also persuaded that the proposed end-to-end test of WEA has value now, as opposed to after May 2019, because it would help ensure that WEA and the EAS can be effectively deployed in a coordinated manner during an emergency, and provide alert initiators and emergency managers valuable information on how the two systems can be used together to communicate to the

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.* at 2.

²² *Id.*

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.*

²⁶ 47 CFR § 1.3.

²⁷ See *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990) (citing *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969), *aff’d*, 459 F.2d 1203 (1973), *cert. denied*, 409 U.S. 1027 (1972)).

public. Accordingly, we conclude that limited waivers of the Commission’s EAS and WEA rules are warranted and in the public interest to test in Sonoma County.²⁸

10. We observe, however, that the combined EAS and WEA test would not be in the public interest if it were presented in a manner that could lead the public to conclude that an actual alert is being transmitted, or otherwise confuse the public.²⁹ We therefore condition this waiver upon the full implementation of the outreach plan described in the July 27 FES Letter, including outreach to the public, press, and relevant government agencies, and making clear that members of the public may receive multiple test messages.

11. We further condition this waiver to require that the test may only be conducted on September 12, 2018, as referenced in the July 27 FES Letter, and may only be conducted for the purposes described therein. Specifically, the waiver is based on representations that:

- (1) this test is necessary to ensure that emergency management officials in Sonoma County have a clear understanding of how alerts would perform in their varied topography;
- (2) FES will coordinate information about the test with Participating CMS Providers and EAS Participants that operate within Sonoma County and the surrounding counties, including first responder organizations such as police and fire agencies and 911 PSAPs, to ensure that they are aware of the test and can confirm to the public that the EAS and WEA messages are a test; and
- (3) pre-test publicity efforts will include a media campaign targeting Sonoma County, and communication with the public information officers of the affected jurisdictions to help with distribution of information to local broadcasters, newspapers, and cable providers.

12. We also condition this grant on FES modifying its proposed test message such that it does not exceed 90 characters in length.³⁰ In doing so, FES must ensure that the revised text continues to identify the message as only a “test.”³¹

13. We also require that the test and any post-test analysis and reports that FES may conduct or cause to be produced, are done in a manner consistent with customers’ expectations of privacy, confidentiality of Participating CMS Providers’ network information, and the overall security of the EAS and WEA systems and infrastructure.³² We encourage FES to report its test results in electronic format to the Bureau. Finally, we encourage members of the public who wish to report their results, to do so by filing them with the FCC’s Public Safety Support Center at <https://www.fcc.gov/general/public-safety-support-center>.

²⁸ These waivers do not extend to any other circumstances involving the broadcast or transmission of the WEA Attention Signal, the EAS codes, and/or the EAS Attention Signal.

²⁹ For example, transmitting a WEA test message without first informing emergency responders, such as 9-1-1 call centers, and the public about the test, could predictably result in confusion or panic.

³⁰ FES’s proposed test message exceeds 90 characters. Under the Commission’s rules, “[a] WEA Alert Message processed by a Participating CMS Provider must not exceed 90 characters of alphanumeric text.” 47 CFR § 10.430. The Commission revised its rules to permit 360-character length messages as of May 1, 2019. Until this date, however, WEA messages may not exceed 90 characters. *WEA R&O* at 11120, para. 11.

³¹ For example, an acceptable revision to the test WEA message would be: “TEST message. Sonoma County www.socopsa.org to provide feedback. No other action needed.”

³² See 47 U.S.C. § 222.

Federal Communications Commission

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IV. ORDERING CLAUSE

14. Accordingly, IT IS ORDERED that, pursuant to Section 4(i) of the Communications Act of 1934, as amended, 47 U.S.C. § 154(i), and Section 1.3 of the Commission's rules, 47 CFR § 1.3, Sections 10.400, 10.520(d), 10.530(b), 11.45, and 11.61 of the Commission's rules, 47 CFR §§10.400, 10.520(d), 10.530(b), 11.45, and 11.61 of the Commission's rules, ARE WAIVED, to allow a one-time test of the EAS and WEA in Sonoma County; which combined test must be conducted subject to the conditions described herein, on September 12, 2018. This action is taken under delegated authority pursuant to Sections 0.191 and 0.392 of the Commission's rules, 47 CFR §§ 0.191 and 0.392.

FEDERAL COMMUNICATIONS COMMISSION

Lisa M. Fowlkes
Chief, Public Safety and Homeland Security Bureau
Federal Communications Commission

Appendix I: ANALYSIS OF WIRELESS EMERGENCY ALERT SYSTEM (IPAWS) EFFECTIVENESS ON JUNE 5, 2018

13 June 2018

Memorandum for: Interim Director, Sonoma County Emergency Manager

Subject: Analysis of Wireless Emergency Alert System (IPAWS) effectiveness on 5 June 2018.

1. **BACKGROUND:** On the 5th of June 2018 a fire broke out at a Pallet Factory located near the Schellville Fire Station south of the City of Sonoma. Based on prior experience with fires at this location, the Sonoma Valley Fire Authority Incident Commander (IC) requested that the Sheriff's Office evacuate everyone within ½ mile of the incident. The Sheriff initially sent out a Nixle at 13:04, but cognizant of the limitations of Nixle requested the Division of Emergency Management (DEM) support to aid them in sending out an IPAWS alert. An Emergency Coordinator from DEM immediately deployed to the Sheriff Office dispatch to assist. The first Wireless Emergency Alert (WEA) was sent at 13:28 and an additional Spanish language WEA was sent at 13:39. A SoCoAlert was sent out at 13:36 between the two WEA alerts. This was the first use of IPAWS/WEA operationally in the County.
2. **INITIAL OBSERVATIONS:** The following initial observations were made:
 - a. A DEM Emergency Coordinator deployed to the fire to act as a liaison between the DEM and the IC. As he entered the region – but was outside the alert polygon – he received a WEA alert on his AT&T phone. Initially he felt that the system had worked, but afterwards realized he had not received the Spanish language WEA alert nor did he receive any alerts on his Verizon phone. He was within the activity area for both alerts prior to the alert's expirations.
 - b. Independently, the IC became suspicious when he did not receive a WEA alert. When able to, he polled all firefighters on scene. According to the Chief, out of 17 fire fighters, not one received a WEA alert.
 - c. I had a discussion with another Deputy Chief who claimed that "about 70%" of firefighters received a Nixle alert but "only 40%" received the WEA, but he qualified that was second hand information.
3. **SURVEY:** Staff members from the DEM and a bi-lingual employee of the Sheriff Department's Public Information Office conducted a door-to-door neighborhood survey. The methodology included:
 - a. The survey was conducted on the Tuesday following the fire at about the same time. The goal was to locate and survey people who would have reasonably been in the same place and time as when the fire occurred.
 - b. In many cases the survey respondent were unable to distinguish between SoCoAlert, WEA and Nixle Alerts, requiring significant time to figure out which version of the alert they received.
 - c. In cases where a survey respondent claimed they did not receive an alert, staff tried to ascertain if the "Amber Alert" function on their phone was turned off. If it was, the respondent was not included in the survey numbers. In addition, staff was able to determine that some respondents who did not receive the alert were well outside the alert footprint when it happened and therefore were not included in the survey data.

- d. Staff attempted to gather information to mimic a longitudinal cross-section of the targeted area of the alert. They contacted business owners, residents, and laborers in that area including specifically locating and surveying members of the Spanish-Speaking community.
 - e. Staff contacted 10 Spanish language survey respondents. Spanish language survey respondents constituted over 35% of the survey sample.
 - f. Despite challenges, staff was able to make contact with 28 individuals at 17 distinct locations around the fire zone and collect information.
4. **FINDINGS:** Our findings include:
- a. Of the 28 individuals 12 received a WEA message (42%)
 - b. Of the 16 that did not receive a WEA message, 9 used Verizon as a service provider. Additionally, one person with two phones received a WEA alert on their non-Verizon phone and did not on their Verizon phone. There was one anomaly with a Verizon phone receiving a WEA alert, but other than the one every single Verizon phone failed to receive an alert.
 - c. Metro PCS also did not seem to receive calls with four phones identified with this carrier, none of which received alerts.
 - d. AT&T and Sprint all seem to have received alerts.
 - e. As noted in paragraph 1 above, the Sheriff's Office sent two WEA alerts. As staff surveyed people, they specifically asked those that received the message whether they received both the English and Spanish language messages. With one anomalous exception, not one survey respondent received the Spanish language message. Staff have spoken with technical support at Code Red, the software vendor for the SoCoAlert system, to see if they have an explanation for this. According to the vendor, the Spanish language WEA did launch and they have offered no explanation for its failure.
 - f. Anecdotally, a wine tasting room manager said that when he received the alert he had a tour group in his tasting room and a substantial number of their phones went off simultaneously. Although he could not quantify it, it was noted by the tour group. Since the group was from out of the area, this indicates that WEA will reach cell phones from outside the area as indicated by the FCC and FEMA.
 - g. Unrelated to the operation of the WEA, the people we talked to were uniformly supportive of participating and providing feedback. There were a substantial number that were thankful and appreciative that we were conducting the survey as they recognized we were attempting to improve the system and make them safer.
5. **DISCUSSION:** This was informal and the sampling size was small. However, there appears to be some general trends that are emerging that need to be discussed and addressed. The Federal WEA system works, but our expectations were not met. To use the system we need to better understand its capabilities and limitations and conform our best practices to its idiosyncrasies. Three specific issues of the system that were identified in this survey include:
- a. The "carrier gap". The WEA simply did not reach a significant amount of the population due to some carriers not transmitting the alert. It seems plausible that the intended target area did not include a telecommunications tower that serviced Verizon and Metro PCS, hence the disparity in those that received the alert per wireless carrier.
 - b. Spanish language warnings did not reach a substantial number of people.

- 6. RECOMMENDATIONS: Based on this survey, DEM recommend the following:
 - a. It is recommended that following future WEA events, DEM solicit detailed and comprehensive feedback from the public through a survey to continue to better learn and understand the limitations of the system.
 - b. The polygon that is drawn in the system should be substantially larger than the intended alert area. In the case of the Pallet Fire, the Emergency Coordinator created a polygon that was approximately 1 and a half miles wider than the requested evacuation perimeters. However, it appears that even with a polygon that large, the message didn't get transmitted by the telecommunications providers with cell towers in the area.

Respectfully submitted:

Encl.
1- Screen shot from WEA 1
2- Screen shot from WEA 2

Samuel R. Wallis
Emergency Coordinator
Sonoma County Fire and
Emergency Services

Enclosure 1: Screen shot of first IPAWS message sent (English)

Launch Details:

- No name assigned
- LAUNCH ID: #1653
- Active For: On 55 x 0 s
- Event Code: EVI
- Category: FIRE
- Urgency: IMMEDIATE
- Certainty: OBSERVED
- Severity: EXTREME
- Response Type: EVACUATE
- LAUNCHED ON: JUN 05 2018 13:28
- EXPIRES ON: JUN 05 2018 14:23
- TIME ZONE: PST

Validation Codes:

Code Name	Code Number	Result
CAPEX	200	Ack

Messages:

- EAS/NWEM Message:** There is no EAS/NWEM Message for this launch
- WEA Message:** " Evacuations ordered w/in 1/2 mile of 1180 Fremont Rd. Sonoma due to fire. "
- Audio Message:** There is no Audio Message for this launch

Enclosure 2: Screen shot of second IPAWS message sent (Spanish)

Launch Details:

- No name assigned
- LAUNCH ID: #1654
- Active For: On 49 x 0 s
- Event Code: EVI
- Category: FIRE
- Urgency: IMMEDIATE
- Certainty: OBSERVED
- Severity: EXTREME
- Response Type: EVACUATE
- LAUNCHED ON: JUN 05 2018 13:39
- EXPIRES ON: JUN 05 2018 14:28
- TIME ZONE: PST

Validation Codes:

Code Name	Code Number	Result
CAPEX	200	Ack

Messages:

- EAS/NWEM Message:** There is no EAS/NWEM Message for this launch
- WEA Message:** " Evacuacion obligatoria dentro de 1/2 milla de 1180 Fremont Drive, Sonoma. Hay un incendio. "
- Audio Message:** There is no Audio Message for this launch