



This document outlines the systems and procedures used for Alert and Warning throughout the Yolo Operational Area

Yolo Operational Area Alert & Warning Plan

Support Annex to local
Emergency Operations Plans

Version 0.2

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INTRODUCTION

Emergency communications to the public, commonly known as Alert & Warning continue to change with advancements in technology and the changing face of smart devices. Essential to all jurisdictions is an effective alert and warning strategy to support the distribution of information to the public. In an emergency/disaster, the strategies and systems used become critical. The magnitude of a particular emergency situation will determine the degree to which systems are utilized.

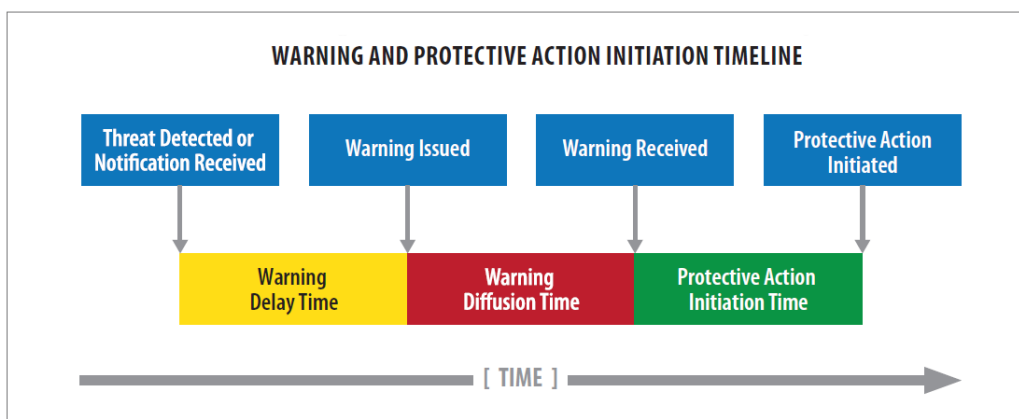
The Yolo Operational Area (OA) has 6 jurisdictions (4 incorporated cities, the unincorporated area and one Tribal nation), and numerous special districts, state and private agencies which support a number of systems. OA partners Alert & Warning systems used together during a disaster/emergency ensure wide spread distribution of information to a greater number of residents than could be reached by any one system.

“basic human nature creates a “response-gap” delay between getting a warning and initiating a protective action. Most people do not take a protective action until they think that the threat communicated in the warning will affect them.”

- A Guide to Public Alerts and Warnings for Dam and Levee Emergencies, 2015

PURPOSE

This annex discusses the technologies which exist within the Yolo OA for the purposes of alert & warning to the public as well as key information for those constructing messages for these systems¹. The annex is designed to decrease the Warning Delay Time and Warning Diffusion Time that frequently exists in public alert & warning.



¹ The annex does *NOT* identify/discuss tactical communications. For more information on this topic, reference the Tactical Interoperable Communications Plan (TICP).

CONSTRUCTING EMERGENCY MESSAGES

The single most important thing to motivate effective public protective action is to construct the best emergency messages possible and disseminate those messages via appropriate methods. The contents of the messages that the public receives in alerts, warning, and other information is the factor that most influences public protective action-taking behavior in an emergency.

MESSAGE CONTENT

There are five essential components of an emergency alert/warning message. These five topics are listed and defined to the right. Each topic is color-coded to make it easy for the sender to see where these different topics are placed in the message templates contained in this section.

MESSAGE STYLE

Messages should be constructed with specificity and clarity.

Specificity – be precise with the wording selected for each of the five components.

Clarity – construct messages free of jargon and in a manner which will clearly be understood by those receiving the message.

MESSAGE CONTENT & ORDER

Short messages (90 or 140 characters) work best if the content is presented in the following order:

source, guidance and time, threat, location, message expiration time

SOURCE: say who the message is from

THREAT: describe the event and its impacts

LOCATION: state the impact area boundaries in a way that can be easily understood (for example use street names, landmarks, natural features, and political boundaries)

GUIDANCE/TIME: tell people what protective action to take, the time when to do it, how to accomplish it, and how doing it reduces impacts

EXPIRATION TIME: tell people when the alert/warning expires and/or new information will be received

Longer messages, for example those that may be part of a press release, work best if the message content is presented in the following order.

source, threat, location, guidance and time, message expiration time

INTEGRATED PUBLIC ALERT & WARNING SYSTEM (iPAWS)

The Federal Emergency Management Agency’s (FEMA) Integrated Public Alert and Warning System (iPAWS) is an Internet-based capability Federal, State, local, tribal and territorial alerting authorities can use to issue critical public alerts and warnings. Alerting authorities can use iPAWS and integrate local systems that use Common Alerting Protocol standards with the iPAWS infrastructure. iPAWS provides public safety officials with an effective way to alert and warn the public about serious emergencies using the Emergency Alert System (EAS), Wireless Emergency Alerts (WEA), the National Oceanic and Atmospheric Administration (NOAA) Weather Radio, and other public alerting systems from a single interface.

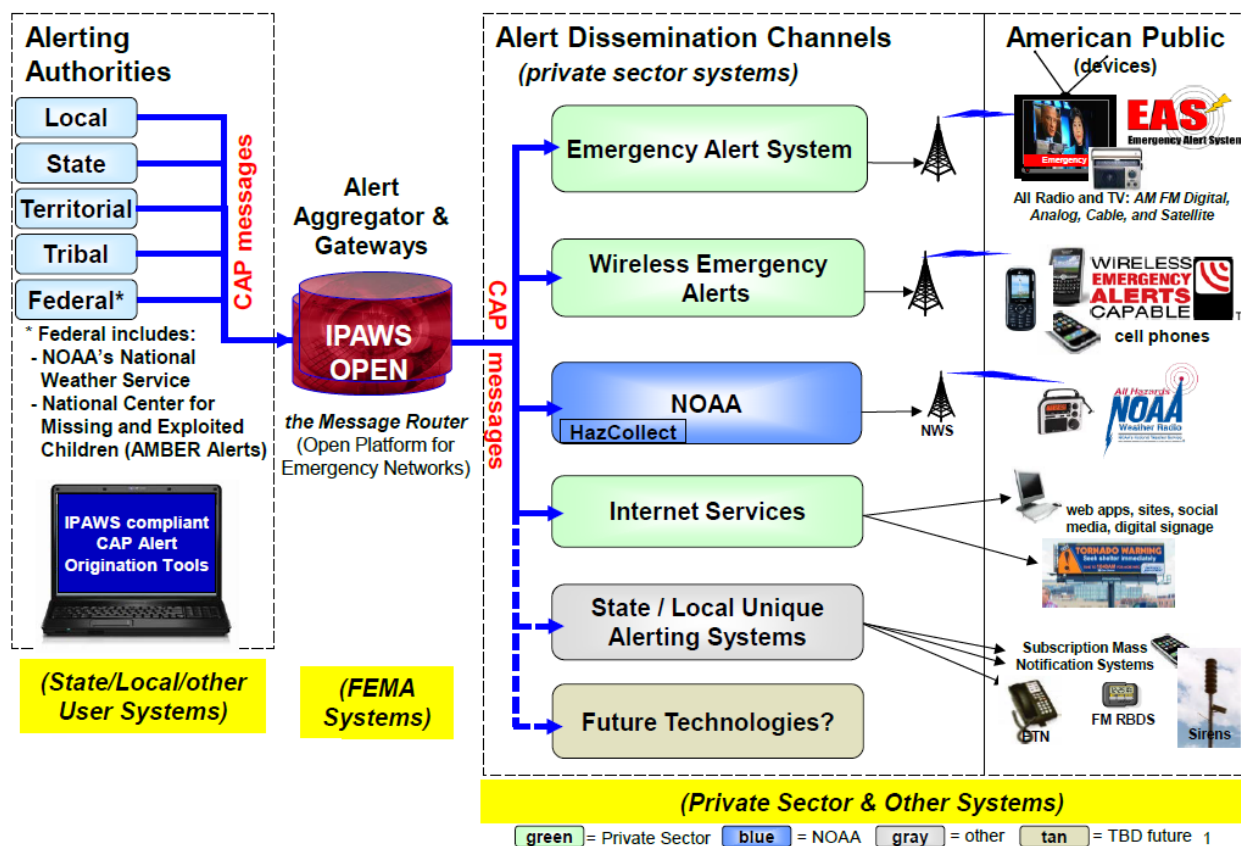


Figure 1 - iPAWS Architecture

The Yolo County Office of Emergency Services is the only authorized alerting official within the iPAWS architecture and maintains alerting authority for the entire Operational Area. Many of the systems included in iPAWS are accessible by other alert and warning senders, on an individual system basis, throughout the Yolo OA. iPAWS open is the primary way that Yolo County accesses the Emergency Alert System and Wireless Emergency Alert System. The sending platform for the Yolo OA is the Yolo-Alert Mass Notification system.

EMERGENCY ALERT SYSTEM (EAS)

The Emergency Alert System (EAS) is used by alerting authorities to send warnings via broadcast, cable, satellite, and hard wired communication pathways. Emergency Alert System participants, which consist of broadcast, cable, satellite and hard wired providers, are the stewards of this important public service in close partnership with alerting officials at all levels of government. The EAS is also used when all other means of alerting the public are unavailable, providing an added layer of resiliency to the suite of available emergency communication tools.

Accessing the EAS within the Yolo Operational Area can be accomplished in two ways:

- EAS is part of iPAWS open and is therefore accessible by Yolo OES when messages are sent through the Everbridge Mass Notification System using iPAWS
- OA Emergency Management partners can contact the Yolo Emergency Communications Agency (YECA) for a direct launch of the EAS system only

WIRELESS EMERGENCY ALERTS (WEA)

WEA is a public safety system that allows customers who own certain wireless phones and other enabled mobile devices to receive geographically-targeted, test-like messages alerting them of imminent threats to safety in their area. WEA enables government officials to target emergency alerts to specific geographic areas through cell towers that broadcast emergency alerts for reception by WEA-enabled mobile devices.

Currently, the smallest level of WEA alert accessible through the OA sending platform is the entire Yolo County jurisdiction. Access to send WEA messages through Yolo-Alert requires a separate digital certificate, completion of the IS247.a course and agreement with FEMA, and all are user specific. Current individuals who can send WEA alerts in Yolo County are:

- Yolo County Office of Emergency Services (OES) Coordinator

Message content for WEA's cannot be customized. Message limits are constrained to 90 characters. Once a message is entered for a WEA alert, the message format will be determined by the assigned values of the common alerting protocol. The specific format will resemble the following example:

“[Event name corresponding to event code element] **in this area until** [Expiration time in local time zone derived from expires element]. [Assigned value derived from instruction-specific event code (EVI, SPW) or response type element per below]. [Sender Name value, typically associated with the alert originator log in ID]”

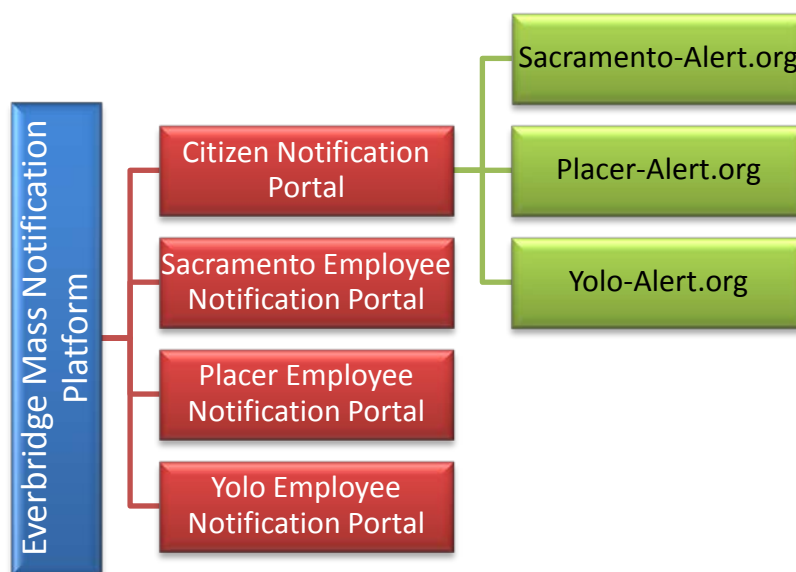
For more information on the Common Alerting Protocol, reference the IS-247.a course from FEMA.

YOLO-ALERT.ORG

Yolo-Alert.org, powered by Everbridge®, is part of a Regional Mass Notification system maintained between Yolo, Sacramento and Placer counties. Regional configurations and information are located in the Regional Mass Notification Plan. Each jurisdiction within the Yolo Operational Area has the ability to use Yolo-Alert.org for alerts & warnings, as well as community messaging.

The Regional Mass Notification System contains data from many different sources. During an emergency all sources can be used to push information to as many people as possible. Some of these sources include:

- **White Pages** – Annually all numbers in the traditional “White Pages” section of a phone book are uploaded into the system. This data set can be used at any time for any notification.
- **Yellow Pages** - Annually all numbers in the traditional “Yellow Pages” section of a phone book are uploaded into the system. This data set can be used at any time for any notification.
- **Unlisted Numbers** – Unlisted numbers are supplied² and loaded into the system by carriers who service land-line based phone numbers to facilitate emergency notifications. This data set can *ONLY* be used in extreme circumstances.
- **Citizen Opt-in** – Citizens can go to the web portal and register for a free account within the system. This is the data set which contains cellular, Voice Over IP (VOIP) lines and e-mail based information. This data set may be used to forward community messages to a citizen *IF* they opt-in for those type of messages.



² 18 U.S. Code § 2702 & PUC section 9.2.6 A1

All Public Service Answering Points (aka PSAP or 9-1-1 Dispatch Center) and Offices of Emergency Services (OES) in the three partnering counties have access to launch a notification to any portion of the system at any time. Notifications can also be sent by the vendor provided that the requesting agency has an active account on the system. This allows for another jurisdiction or the vendor to distribute notifications even if access to the web portal is unavailable due to connectivity issues in the affected jurisdiction.

CITIZEN EMERGENCY NOTIFICATION

Emergency Mass Notification requests typically come from a Fire or Law Enforcement Official to a local PSAP or OES. The PSAP or OES is the sender of the information contained in the notification request. An emergency notification request in the Yolo OA will only be accepted from:

- Law enforcement official ranked lieutenant or higher
- Fire official ranked battalion chief or higher
- Jurisdictional Emergency Services Directors³ (ESD)
- Jurisdictional Public Information Officers (PIO)

The primary methodology used for citizen emergency notification is geo-graphic. The Mass Notification system allows a sender to draw a shape on a map so that every phone number, e-mail, TTY/TTD associated with an address within the shape will be notified.

Officials noted above will need to provide the following information⁴ to the sending agency:

- Name and rank
- Message content
- Defined shape or group to be notified
- Vehicle for message delivery (i.e. voice, text, etc.)

Volunteer groups which serve in an emergency capacity within the Yolo OA have been defined and programmed into the Citizen Portal. The membership of these groups in the system is maintained through a partnership between the Yolo County Office of Emergency Services and the group wishing to use the system for group notification. Current groups programmed into the system include:

- Davis Community Emergency Response Team (CERT)
- Davis Police Department Volunteers
- West Sacramento CERT
- Yolo Amateur Radio Emergency Services (ARES)
- Yolo Sheriff's Aero Squadron
- Yolo Sheriff's Animal Services Volunteers
- Yolo Sheriff's Search & Rescue Team
- Yolo Sheriff's STARS

³ As outlined in County Ordinance or City Municipal Code

⁴ A sample form is included in Appendix YMN-1 for reference.

COMMUNITY MESSAGING

Yolo-Alert.org also has the ability to house subscription lists. A subscription list is a feature that allows a citizen to opt-in to receive community messages on specific topics. The owner of the subscription list maintains the discretion of sending any community messages⁵ to their respective subscription lists.

The current subscription lists and owners are as follows:

List Owner	Subscriptions
211	211 Community Resources
City of Davis	Community Messages Press Releases Urgent Safety Alerts
City of West Sacramento	Advisory - Press Release Advisory - Road Closures Advisory - Traffic and Police Activity Advisory - Weather Alert Community Messages – Crime Prevention Community Messages – Emergency Prep Community Messages – Events Community Messages – Fire Prevention Community Messages – Public Meetings
City of Winters	Community Messages Press Releases Urgent Safety Alerts
Clarksburg	Community Messages
Dunnigan	Community Messages
Yolo County Housing	Community Announcements Housing Announcements Opportunities (Jobs, Training, Youth)
Yolo County Sheriff’s Office	Community Messages Press Releases Urgent Safety Alerts

EMPLOYEE EMERGENCY NOTIFICATION

Employee notification portals for each respective jurisdiction have all of the same sending functionality as the Citizen portal and are maintained by each independent jurisdiction via data uploads. Each jurisdiction within the Yolo OA works with the Yolo County Office of Emergency Services to maintain the data in the Yolo employee portal.

BEST PRACTICES FOR SENDING NOTIFICATIONS

The following best practices have been demonstrated during past events. Those sending messages via Yolo-Alert will follow as many of these as possible, specifically for public alerts & warnings:

⁵ A sample form for sending Community Messages is included in Appendix YMN-2.

- A voice recording will be attached to the message when sending a phone message. Every attempt will be made to avoid the use of the text-to-speech engine. (If possible, have a locally known person record the message so that the voice is recognized by citizens).
- Publishing to the Everbridge Network will be done so that other Everbridge owners may receive the message and decide whether or not to redistribute it. Any private entity owning an Everbridge Mass Notification product worldwide may choose to republish an emergency notification if they have facilities in Yolo County.
- The contact preferred delivery order will be used for devices.
- If they are to be used as a call back hotline for questions from residents, 2-1-1 can be provided as the sender caller ID.
- A single contact cycle will be used in cases where protective actions required are not immediate.
- A hyperlink to additional information via a website should be provided for messages distributed via e-mail and text (use a tiny URL when possible).

UC DAVIS WARNME AND AGGIE ALERT

UC Davis WarnMe and Aggie Alert provide University of California, Davis faculty, staff, students and other subscribers with timely information and instructions during emergencies or other urgent situations that may directly affect their well-being. The system can send simultaneous messages to the university community by e-mail, text, telephone and cell phone.

This UC Davis Mass Notification System is powered by Rave Mobile Safety®. The following positions on the UC Davis campus can authorize use of the system:

- UC Davis Police personnel
- UC Davis Fire Chief
- UC Davis Emergency Manager

When possible, they will consult with the UC Davis Strategic Communications Department (StratCom) regarding urgent or security/safety-based informational communications before distribution. Strategic Communications is the primary department to work with OA Public Information Officers as part of Emergency Support Function 15 – External Affairs. For more information see the ***Yolo County Emergency Public Information & Crisis and Emergency Risk Communication Plan***.

To minimize duplication between Yolo-Alert.org and WarnMe, unlisted white and yellow page contact numbers for the UC Davis campus located in Davis are not loaded into Yolo-Alert.org. Campus buildings that are located within Placer, Sacramento and Yolo counties which are not on the main Davis campus may still be alerted by any one of the three member counties.

SOCIAL MEDIA

Social media is a critical piece of the Operational Area's alert and warning strategy due to its extensive use by every jurisdiction within the OA. Several jurisdictions maintain multiple accounts on a variety of platforms and endeavor to ensure messages are consistent across all accounts. Posting guidelines for each jurisdiction are outlined in social media policies on file within each jurisdiction. A summary⁶ of social media platforms utilized by each jurisdiction is provided below.

Jurisdiction/Agency	Pinterest	Google +	Facebook	Twitter	Flickr	Instagram	YouTube	Nixle	Vimeo	Nextdoor	Periscope
City of Davis			X	X		X				X	
City of West Sacramento			X	X			X	X		X	X
City of Winters			X	X		X	X	X		X	
City of Woodland			X	X						X	
Yolo County	X		X	X	X		X	X			
Yolo County Housing			X	X			X				
Yocha Dehe Wintun Nation			X	X		X	X				
University of California, Davis	X	X	X	X		X	X		X		
Sacramento- Yolo Mosquito Vector Control District			X	X							
Yolo-Solano Air Quality Management District			X	X							
Yolo County Flood Control & Water Conservation District							X				

While social media can be a very effective way to supply alert and warning information, special consideration must be given to the messages being posted on each system. Factors such as character constraints, type of message to be posted and typical following on each platform should be taken into consideration when identifying notification strategies and designing messages for an incident. For more detailed information, postings to social media should link back to a jurisdictional website.

The following is a matrix to assist message senders in identifying the most appropriate form of message for each platform:

⁶ For specific account information see Appendix YMN-3

System	Short Message Format	Longer Message Format	Video/Image Format
Pinterest	X		X
Google+		X	X
Facebook		X	X
Twitter	X		X
Flickr	X		X
Instagram			X
YouTube			X
Nixle	X		
Vimeo			
Nextdoor		X	
Periscope		X	X

WEBSITES

A critical way to distribute information is via local websites. Whether using a traditional alert and warning system or social media, additional information will need to be provided. Prior to releasing an emergency notification, information will need to be added to a local website (or multiple sites) so that links can be provided in the alert and warning messages (preferably via tiny URL).

It is important to compile, edit and make the web-based information “live” as quickly as possible, and to keep the information current. At the beginning of an event, information on a website may be launched in simple paragraph format while additional resources (infographics, maps, etc.) are under development. Edits to the page initially launched throughout the duration of the event are recommended to maintain a consistent URL. A jurisdiction will never wait on the distribution of an emergency message based on the fact that the website is not active at the time of dissemination.

Several websites exist within the Yolo Operational Area which may be used to disseminate emergency information.

2-1-1 YOLO

2-1-1 Yolo is a resource to provide information to the public via an on-line database and a call center. The database can be accessed via www.211yolo.org.

The call center can be accessed by dialing:

- 2-1-1 or
- (855) 866-1783

Operational Area partners will work through local Public Information Officers to draft talking points that will be provided to 2-1-1 call center operators. Information provided to the call center often contains more in depth information regarding any message that has been sent previously through other systems referenced in this Annex.

COUNTY

The Yolo County website, in addition to being the primary location for emergency information coming from Yolo County, has two emergency notification components which can assist with public notifications:

1. The homepage can be overridden with an emergency message banner. During times where alert and warning messages are of a time sensitive nature and county-wide nature, this functionality may be enabled to relay pertinent information directly on the main page of the website.
2. An eSubscription service accompanies the website with e-mail addresses of those who have elected to receive notifications as specific webpages are updated. During times of emergency, a notification can be sent to the entire database.

DAVIS

The City of Davis posts emergency information on their website and has the ability to use the following online tools:

1. The main homepage of the website has a feature which can be turned on which can insert a red banner at the top of the home page allowing city officials to display an emergency message.
2. The City Newsletter, Davis Together, has a following of 18,000+ citizens. This following can be accessed to allow emergency messages to be distributed to all citizens who receive the newsletter.
3. An eSubscription service from the company Vision Internet accompanies the City of Davis website. It contains the e-mail addresses of those citizens who have elected to receive notifications as specific pages are updated. During times of emergency, a notification can be sent to the entire database of individuals no matter what update they have opted in for.
4. The City of Davis maintains a Customer Service Center for citizens to access city services. As part of this functionality the city can use the e-mails associated with user accounts to provide emergency information to the public.

WEST SACRAMENTO

West Sacramento posts emergency information in multiple places for citizens of their jurisdiction as well:

1. The City of West Sacramento has the ability to rotate an emergency message into the main banner on the City's homepage.
2. The City Newsletter, iLights, has a following of 1,200+ citizens. This following can be accessed to allow emergency messages to be distributed to all citizens who receive the newsletter.
3. The City maintains an online Utility Billing System for citizens. As part of this functionality the city can use the e-mails associated with user accounts to provide emergency information to the public.
4. West Sacramento maintains an App powered by PublicStuff®. This App is available for Apple and Android devices and has the ability to provide notifications to users of the app.

WINTERS

The City of Winters has the following resources available to spread information to citizens:

1. The City of Winters has the ability to rotate an emergency message into the main banner on the City's homepage.
2. An eSubscription service is available on the website. It contains the e-mail addresses of those citizens who have elected to receive notifications. During times of emergency, a notification can be sent to the entire database of individuals no matter what update they have opted in for.
3. The City maintains an online Utility Billing System for citizens. As part of this functionality the city can use the e-mails associated with user accounts to provide emergency information to the public.

WOODLAND

The City of Woodland utilizes the following methods to distribute information to citizens:

1. The main homepage of the website can be set to display an emergency notification message as part of the update section.
2. The City maintains an App powered by PublicStuff®. This App is available for Apple and Android devices and has the ability to provide notifications to users of the app.
3. An eSubscription service from the company Civica accompanies the City of Woodland website. It contains the e-mail addresses of those citizens who have elected to receive notifications. During times of emergency, a notification can be sent to the entire database of individuals no matter what update they have opted in for.
4. The City of Woodland maintains an Online Service Center for citizens to access city services. As part of this functionality the city can use the e-mails associated with user accounts to provide emergency information to the public.

ADDITIONAL ALERT & WARNING METHODS

There are multiple other systems maintained throughout the Yolo Operational Area. Systems may be maintained by departments within City/County government, special districts or private partner agencies.

MEDICAL AND HEALTH SYSTEMS

Systems under this section are maintained by the Yolo County Health & Human Services Agency. For additional information on the use of any system listed in this section, please refer to the Information Sharing and Communications Plan for the Health & Human Services Agency.

California Health Alert Network (CAHAN)

The California Health Alert Network is a Mass Notification System provided by the California Department of Public Health and powered by Everbridge®. Within Yolo County, the maintenance and administration of this system is the responsibility of the Emergency Preparedness Division. The primary purpose of CAHAN is to distribute Health related alerts/notifications to Healthcare Groups.

Disaster Healthcare Volunteers (DHV) Database

The DHV System is a database of healthcare volunteers who have registered with Yolo County as Healthcare volunteers. This system, among others, has the ability to distribute messages to those who are registered in the system. Within Yolo County, the maintenance and administration of this system is the responsibility of the Emergency Preparedness Division.

Women Infants & Children (WIC) Autodialer

The WIC Autodialer is a system which can issue phone calls to Yolo County WIC participants. The system is normally used to relay appointment information but has the capability of distributing any notification that WIC deems in the best interest of their participants.

SCHOOL SYSTEMS

All School Districts within Yolo County have access, internally, to auto-dialer systems that are normally used to contact parents with information pertaining to their child. Local jurisdictions will partner with schools to ensure that consistent messages are being released through these autodialer systems.

PHYSICAL NOTIFICATION SYSTEMS

A physical notification system is one that would be used to visually post a message, physically deliver a message and/or audibly sound a message.

Posting Locations

During times where Mass Notifications are issued, local fire departments will be the primary posting location(s) within a jurisdiction to provide information to citizens who have no additional way of accessing other resources mentioned in this Annex.

Door-to-Door

In emergencies/disasters that are fast moving (such as fires) local public safety professionals may issue notifications by going door-to-door. Public safety officials will be identified to members of the public by uniforms issued from their agency.

Sirens & Loudspeakers

Public safety officials may communicate with the public through audible sirens and loudspeakers. In some cases, vehicles with loudspeakers may be used to relay information to neighborhoods.

Another common form of notification can be a siren with an audible tone. At this time alert and warning sirens do not exist in Yolo County. If sirens are added throughout the county, their individual tones and meanings will be added to this Annex.

Transit System – Yolobus

In the event time allows, information can be printed and posted within buses owned by Yolobus. Signage to be displayed inside buses can be printed on heavy cardstock while messages for the outside of the bus must be weatherproofed prior to delivery.

APPENDIX YMN-3: SOCIAL MEDIA ACCOUNTS

Agency	Official Social Media Handle										
	Pinterest	Google +	Facebook	TwittYer	Flickr	Instagram	YouTube	Nixle	Vimeo	Nextdoor	Mindmixer
Woodland PD			/WoodlandPD								
City of Woodland			/CityOfWoodland	@CityofWoodland						X	
Environmental Services			/EnviroWoodland								
Community Services			/WoodlandRec								
Woodland Public Library			/woodlandpl								
UC Davis Fire			/UCDFD	@ucdavisfire		ucdavisfire			westvalley		
				@firechieft							
UC Davis	/ucdavis	/+ucdavis	/UCDavis	@ucdavisnews		ucdavis	UCDavis				
City of Davis Fire			/cityofdavisfire	@cityofdavisfire		cityofdavisfire					
City of Davis			/CityofDavis	@cityofdavis						X	cityofdavis
City of Davis PD			/CityofDavisPoliceDepartment								
City of Winters			/City-of-Winters-CA	@CityofWinters		cityofwinters	TheCityofWinters			X	
Winters PD			/Winters-Police-Department					winters			
City of West Sacramento			/CityofWestSacramento	@cityofwestsac			cityofwestsac			X	
West Sacramento PD			/WestSactoPD	@WestSacPoliceDe				west-sacramento-police-department			
West Sacramento Parks & Rec			/westsacfun	@westsacfun			WestSacParks				

Agency	Official Social Media Handle										
	Pinterest	Google +	Facebook	TwittYer	Flickr	Instagram	YouTube	Nixle	Vimeo	Nextdoor	Mindmixer
West Sacramento Fire			/WestSacFire	@WestSacFire			WestSacFire	west-sacramento-fire-department			
Port of West Sacramento				@PortofWestSac							
Yolo County			/YoloCounty	@YoloPIO							
Yolo County Health Services			/Yolo-County-Department-of-Health-Services	@Yolohealth			YoloHealth				
Yolo County District Attorney			/YoloCoDistrictAttorney	@YoloDA			YoloCountyDA				
Yolo County Library	/YoloCountyLib		/yolocountylibrary								
Yolo County Planning, Public Works, & Environmental Services			/Yolo-County-PPWES	@YoloPPW							
Yolo County Sheriff's Office			/YoloCountySheriffsOffice					yolo-county-sheriffs-office			
Yolo County OES					Yolo OES		OES Yolo				
Yocha Dehe - Golf Club			/Yocha-Dehe-Golf-Club	@yochadehegolfclub		yochadehegolfclub					
Yocha Dehe - Cache Creek Casino			/cachecreek	@CacheCreekCR			cachecreekcr				
Yocha Dehe - Seka Hills			/sekahillsproducts	@SekaHills			Yocha Dehe Wintun Nation				
Yolo County Housing			/Lisaa.baker.7	@Lisa_A_Baker			YCH Channel				

Agency	Official Social Media Handle										
	Pinterest	Google +	Facebook	TwittYer	Flickr	Instagram	YouTube	Nixle	Vimeo	Nextdoor	Mindmixer
Yolo-Solano Air Quality Management District			/YoloSolanoAir	@YoloSolanoAir							
Yolo County Flood Control & Water Conservation District							yoloflood				
Sacramento-Yolo Mosquito & Vector Control District			/SYMVCD	@SYMVCD							

APPENDIX YMN-4: CHARACTERISTICS OF EMERGENCY MESSAGE DISSEMINATION CHANNELS

Dissemination Channels	Speed ⁸	Coverage ⁹	Concentration ¹⁰	Message Comprehensiveness ¹¹
Door-to-Door alerting	Slow	Limited	Concentrated	High
Loud speakers and public address (PA) systems	Fast	Limited	Concentrated	Medium
Wireless Emergency Alerts (WEA)	Very Fast	Widespread	Dispersed	Very Low
Wireless communications (SMS)	Very Fast	Widespread	Dispersed	Very Low
Radio	Moderately Fast	Widespread	Dispersed	High to Low
Television broadcast	Moderately Fast	Widespread	Dispersed	Very High to Medium
Television message scrolls	Moderately Fast	Widespread	Dispersed	Low
Newspaper	Very Slow	Widespread	Dispersed	Very High
Dedicated tone alert radios	Very Fast	Limited	Concentrated	High
Tone alert and NOAA Weather Radio	Fast	Widespread	Dispersed	High
Text Telephone (TDD/TTY)	Fast	Widespread	Dispersed	Low
Reverse telephone distribution systems	Fast	Limited	Dispersed	High
Audio sirens and alarms	Fast	Limited	Concentrated	Very Low
Broadcast sirens	Fast	Limited	Concentrated	Medium
Message boards	Fast	Limited	Concentrated	Low
Aircraft	Slow	Limited	Concentrated	Low
Visual alerting	Fast	Limited	Concentrated	Low
Internet protocol (IP) based technology	Fast	Widespread	Dispersed	Very High to Medium
Social media	Fast	Widespread	Dispersed	Low

⁸ The rapidness of the system to reach its targeted audience ranges from Very Fast (less than 10 minutes) to Slow (greater than 60 minutes).

⁹ Coverage is the size of the area that can be reached by the channel (Widespread – a large of Limited – a small area).

¹⁰ Concentration is the degree to which the people that the channel reaches are co-located or dispersed (Concentrated – the message is delivered to targeted locations only or Dispersed – the message has the potential to reach everyone).

¹¹ Comprehensiveness, or the ability to convey the content needed for effective response classes.

