



2012 - 2017

Bay Area Emergency Public Information and Warning Strategic Plan Summary



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**BAY AREA EMERGENCY PUBLIC INFORMATION AND WARNING STRATEGY SUMMARY
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STRATEGIC PLAN SUMMARY

BACKGROUND

“Homeland security” is the coordinated effort to ensure a community is prepared to prevent, protect against, mitigate, respond to, and recover from threats and acts of terrorism, natural hazards and other human-caused incidents. A critical element of homeland security is the ability to provide emergency public information and warnings that result in people taking appropriate protective actions, whatever the hazard.

The National Preparedness Goal defines emergency public information and warning as the ability to “deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard and, as appropriate, the actions being taken and the assistance being made available.”¹

The Bay Area region is comprised of twelve counties (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, Monterey, and San Benito) and the three major cities of San Francisco, Oakland, and San Jose. The region is designed to enhance coordination and collaboration on homeland security and emergency preparedness issues. Each county serves as an Operational Area (OA) to coordinate emergency activities and resources of its political subdivisions under the Standardized Emergency Management System (SEMS).

Despite its overall size, the Bay Area is tightly interconnected in terms of mass media, mobility of population, and hazards. Through risk and capability assessments, the region has determined that the emergency public information and warning (EPI&W) capability is vital to enhancing preparedness and security. Moreover, the Bay Area has determined that a comprehensive regional approach to strengthening and sustaining that capability is needed and that the best way to achieve that goal is through a five year strategic plan.

The following *Bay Area Emergency Public Information and Warning Strategic Plan (EPI&W Strategy or Strategy)* outlines how public health and safety leaders can guide the whole community in developing and enhancing the ability to provide effective emergency public information and warnings that will help save lives and property in an all-hazards environment.

¹ U.S. Department of Homeland Security, *National Preparedness Goal* (September 2011); accessed at <http://www.fema.gov/pdf/prepared/npg.pdf>.

PURPOSE

The purpose of the *Strategy* is to provide a roadmap over the next five years for the Bay Area's component jurisdictions to come together as a region and to integrate, sustain and enhance the EPI&W capability for all hazards that pose a risk to the people and critical infrastructure in the Bay Area. While OAs will always have independent and intra-OA responsibilities and needs, the primary emphasis of the *Strategy* is to develop regional EPI&W capabilities through plans, organization, equipment, training, and exercises.

At the core of the EPI&W capability is the issuing of emergency public information or warnings that result in the public taking appropriate protective actions. Too often, more emphasis is placed on the means to issue the information or warning (reverse telephone, siren, email, etc.) and less on what the results are once the information or warning is released to the public. While the means of issuing emergency information and warnings is important, it is virtually meaningless if the intended public protective actions are not achieved.

SCOPE AND APPROACH

The *Strategy* is not an operational or tactical plan for any jurisdiction, agency or entity. Nor does it alter or impose any new statutory or regulatory authority or responsibility upon any agency in the Bay Area related to public safety, health, or security. Rather, the *Strategy* is designed as an integration tool and guide. The *Strategy* embraces the "whole community" approach, a means by which the public and private sectors (including nonprofits, access and functional needs organizations, residents and visitors) work together on a given topic to assess and satisfy the needs of the community.

Through the *Strategy*, the Bay Area seeks to unify otherwise disparate jurisdictions by outlining a set of well-established standards, policies, and practices, and infusing them in a set of regional goals and objectives the whole community can strive to achieve. The approach involves the following steps: Develop organizational structures and agreed-upon practices develop plans and operating procedures; acquire the appropriate tools and technology; and finally provide training, education and exercises across the whole community to strengthen, test and evaluate region EPI&W capabilities.

VISION

The Bay Area's Vision for emergency public information and warning is described as the following: An interoperable and standards-based system of multiple emergency public information and warning systems that allows Bay Area leaders and public health and safety personnel to disseminate prompt, clear, specific, accurate, and actionable emergency public information and warnings to all affected members of the community in order to save lives and property concerning known threats or hazards.

THE COMMON ALERTING PROTOCOL

A critical element to building an interoperable system of systems is the Common Alerting Protocol (CAP). CAP provides an open, non-proprietary digital message format for all types of warnings. It does not address any particular product application or communications delivery method. Rather, regardless of the hazard, CAP allows a consistent warning message to be disseminated simultaneously over *many* different warning delivery devices, increasing warning consistency and effectiveness while simplifying the warning task. The CAP is the basis for the new federal Integrated Public Alert and Warning System (IPAWS) and the related Commercial Mobile Alert System (CMAS). More information on IPAWS, CMAS and other EPI&W standards and tools can be found in Section 1.7 of the full *Strategy*.

By adopting the Common Alerting Protocol as the standard, Bay Area OAs can make technology procurements that are standards-based and vendor-agnostic.

DEFINING AN EPI&W SYSTEM

A system is defined as “a regularly interacting or interdependent group of items forming a unified whole.”² In emergency public information and warning practice, the word “system” often is used to describe a “product.” This can sometimes lead to significant confusion, as it inaccurately describes what makes up an EPI&W system. A full EPI&W system at either the municipal, OA or regional level involves more than just products or technology. Well-trained and tested personnel and effective plans, procedures, and organization play a vital role in developing a complete EPI&W system at any level.

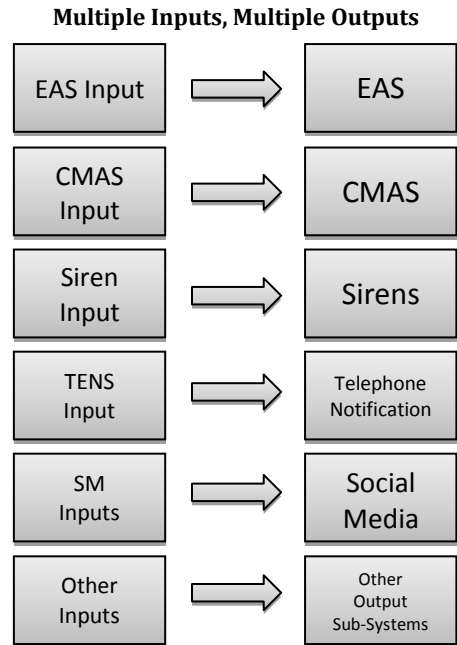
When dealing with technology, every warning system has, at minimum, one or more “input sub-system(s)” and one or more “output sub-system(s).” These sub-systems are defined as follows:

- **Input Sub-Systems:** These involve warning-origination tools used to create warning messages. They usually involve a computer application that can be general purpose or which can be specialized for a particular hazard or agency. Most proprietary warning tools/products are input sub-systems. Such tools typically provide pre-scripted templates for common hazards and protective action patterns (shelter-in-place, evacuate, etc.).
- **Output Sub-Systems:** These are methods used to deliver information and warnings to the public. These warning delivery methods include sirens, telephones, CMAS, EAS, highway message signs, emails, etc., and are usually described as delivery systems.

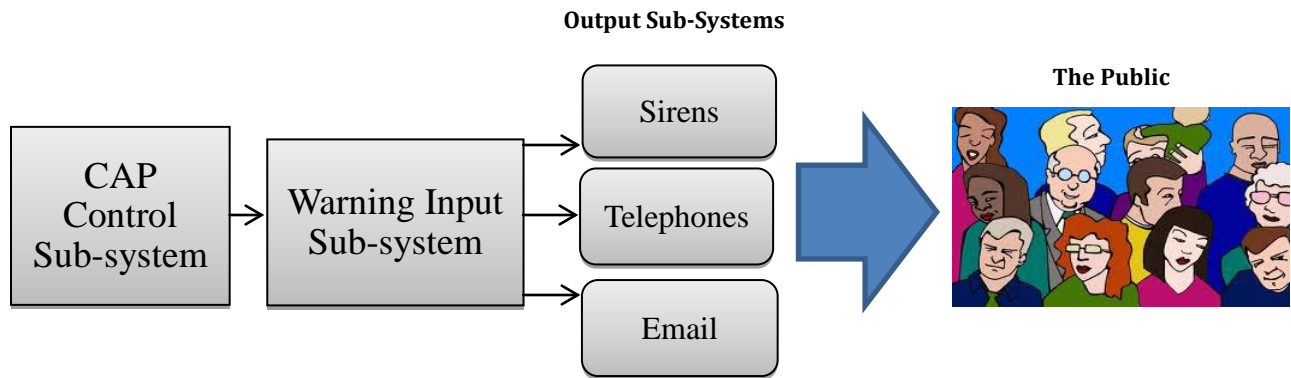
² From mirrriam-webster.com; various other sources use similar language.

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Often, when a warning message must be delivered by an OA, one or more input and output sub-systems are used, resulting in a complex and duplicative array of technological input procedures. This is outlined in the multiple inputs/multiple outputs Figure above. These challenges only grow when dealing with a hazard impacting multiple jurisdictions and the need to deliver a consistent warning message across several OAs. Fortunately, the relationship between inputs and outputs doesn't have to be one-to-one. By careful design, using the CAP as the centerpiece, it is possible to devise a single input that can trigger multiple simultaneous warning outputs -- a write-it-once approach for public warning. This is done by using a single CAP control sub-system.



A control sub-system is the “middleware” that allows for the mixing and matching of various input and output sub-systems. For example, the IPAWS is a control sub-system. Using IPAWS or any other CAP-based control sub-system, a user first inputs the warning message to the input sub-system; the control sub-system then takes the message from the input sub-system and shoots that single consistent message out through multiple output/delivery sub-systems. This process is outlined in the Figure below. Moreover, by adding a few automated rules, the resulting warning system can determine which input messages should go to which output/delivery sub-system(s) on the basis of geography, severity of hazard, time of day, etc.



By understanding the distinction between input sub-systems and output sub-systems, it becomes possible to mix-and-match any number of separate capabilities into a “unified whole” that is greater than the sum of its parts. This process can be replicated at the OA and the regional level. In doing so, each OA and the Bay Area as a whole can make the transition from a collection of parallel but unrelated warning products to a much more manageable, efficient, and effective integrated “system of systems.”

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THE SYSTEM OF SYSTEMS APPROACH

Given the size and diversity of the Bay Area, developing a single, centrally-managed EPI&W system is not feasible or necessary. Rather, through common standards, such as the CAP, and the implementation of plans, organization, training, and exercises, the region can achieve an effective regional system of emergency public information and warning systems. Such an approach may be defined as follows:

A “system of systems” exists when a group of independently operating emergency public information and warning systems within each OA comprised of people, organizations, plans, procedures, and technology are interoperable, thus enabling public health and safety personnel to effectively deliver emergency public information and warnings within and across jurisdictions in the Bay Area.³

EPI&W technology between jurisdictions alone *will not* make OAs in the Bay Area fully interoperable. Indeed, the OAs and other jurisdictions and allied agencies must connect *standards based - technology, people, plans, procedures and organizations to achieve true interoperability*.⁴ Building and connecting these elements is necessary for both *intra-OA* and *inter-OA* interoperability. Moreover, a regional system of systems recognizes that the Bay Area can connect independently-operated and managed emergency public information and warning systems among its OAs, while not forcing the OAs to lose their independence and control over the timing and delivery of information and warnings to their constituents.

The benefits of adopting the “system of systems” approach at the OA and regional level are many. As outlined by the DHS Office of Interoperability and Compatibility⁵ these include: increased capability and efficiency, greater flexibility to upgrade technology, decreased reliance on proprietary technology, cost savings, and a greater ability to expand.

FOCUS AND MISSION

While there is overlap and interconnectedness between “emergency public information” and “public warning” there are relevant differences between immediate public warning and emergency public information. For purposes of the *Strategy*, the terms “public warning” and “emergency public information” are defined as follows:

- “Public warning” refers to urgent communications intended to alert some or all of the public of an immediate threat or hazard and to recommend specific protective actions members of the public can take to reduce harm.

³See, U.S. Department of Homeland Security, Office of Interoperability and Compatibility, *The System of Systems Approach for Interoperable Communications*, at page 1. While the definition used therein was for the purpose of interoperable emergency radio communications, the definition is based upon a universal principal of multi-system interoperability that may be applied to the emergency public information and warning capability (and other capabilities).

⁵ Id at 5.

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- “Emergency public information” accounts for various communications covering more extensive releases of information from agency spokespersons and subjectmatter experts prior to, during, or following an incident, that are intended to educate and guide members of the public, reduce losses, speed recovery, and enhance resilience.

Emergency public information is largely (but not exclusively) managed by public information officers while immediate warnings are largely (but not exclusively) managed by on-site incident commanders and warning officers in an emergency operations center. This functional distinction is recognized at the State of California level under the State Emergency Plan and will be reflected in Bay Area policy and planning work groups called for under the *Strategy*.

CAPABILITY ASSESSMENT

As part of the *Strategy's* development, in March 2012, the Bay Area conducted a series of EPI&W assessments involving all twelve OAs, the cities of San Jose and Oakland and eleven allied agencies in the region including the Bay Area Rapid Transit (BART), the California Emergency Management Agency (CalEMA), California Department of Transportation (Caltrans), and the National Oceanic and Atmospheric Administration (NOAA) among others. The complete set of findings from the assessment and gap analysis report were issued in May 2012.⁶ A summary of the OAs capabilities and critical capability gaps at the state and regional levels is provided below.

ALAMEDA

Alameda County has procedures that address EPI&W, but these procedures are generally not formalized into plans. Alameda has multiple means of disseminating all warning messages to the public, such as via telephone, press releases, Emergency Broadcast System, and social media. However, Alameda does not have a single, integrated mechanism for activating all its warning dissemination tools simultaneously and with a consistent message. The county provides some training to public information officers (PIOs) and public information staff, but comprehensive training is lacking, and few exercises are conducted to evaluate EPI&W capabilities.

MARIN

Marin County provides annual training to appropriate staff on the operation of public information, alert/warning, and notification equipment, and has the ability to freely access training for new and existing technology. Some standard messages for public health and fire emergencies exist, but most planning and procedures are informal. Marin is working on a regional PIO Public Outreach and Community Preparedness group and is hoping IPAWS helps with standardization as well as regional consistency. However, the county has not

⁶ The full report can be found at the Bay Area UASI, *Emergency Public Information & Warning Gap Analysis Report*, May 2012.

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required OA warning systems to support activation using the CAP, or required users to receive IPAWS training.

NAPA

Napa County is currently updating their warning message preparation protocols, procedures, and templates to coincide with the launch of an updated WARN software. Aside from periodic joint information-sharing exercises, warning systems are not exercised regularly and participation occurs on an ad hoc basis. The county would benefit from increased written plans and procedures, as well as from public warning entities being able to monitor major broadcasts, e.g., the Emergency Alert System.

OAKLAND

Oakland recently updated its Emergency Operations Plan (EOP) to address EPI&W needs and has relevant procedures to supplement the plan. Oakland lacks depth in staff who are adequately trained in emergency public information and warning and who can support joint information center (JIC) and emergency operations center (EOC) functions. Current staff with PIO training and expertise are overtaxed because they have other roles and responsibilities in addition to public information and warning. Beyond staffing, Oakland also needs ongoing training that addresses emergency public information and warning and favors a region-wide Bay Area planning/working group dedicated to EPI&W issues.

CONTRA COSTA

The county maintains a Community Warning Program (CWS) that involves a small, dedicated staff of warning specialists who support local Incident Commanders in the development and dissemination of public warning messages during an incident. The CWS involves a CAP-based system that links a single input message tool to the warning delivery devices of the county and several local jurisdictions. These devices include telephones, sirens, email and many others. Contra Costa has fully integrated the CWS with IPAWS and has acquired public-alerting authority for the use of CMAS. However, Contra Costa has not formalized its training programs to ensure consistent and ongoing training for staff involving JIC policies and operations, crisis emergency risk communication for PIOs, and public information staff.

MONTEREY

Monterey County has established plans and procedures that address EPI&W needs. Monterey continually aims to improve its capabilities to reach out to non-English speaking populations. For example, Monterey collaborates with California State University, Monterey Bay, on an ongoing basis to translate brochures that address personal preparedness and use of technology, e.g., social media. Although Monterey can disseminate alerts and notifications via telephone service, the existing database of telephone numbers does not provide information that indicates the primary language of the person/contact associated with each number. Monterey has provided its PIO and other appropriate public information staff with EPI&W training.

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SAN BENITO

San Benito's PIO section has a process in place to coordinate emergency public information with the counties of Santa Cruz and Monterey. The tri-county area's PIO and 2-1-1 telephone notification systems are linked to ensure that a common, unified message is disseminated to the public. Although collaboration among the tri-county area is strong, San Benito is not currently involved with any region-wide Bay Area forum or working group that is dedicated to public information and warning issues. San Benito has provided its PIO and all appropriate public information staff with some training relevant to EPI&W.

SAN FRANCISCO

San Francisco has a wide variety of means for disseminating warning messages to the public and has developed relatively robust protocols. These include Alert SF, a text-based message delivery program that delivers emergency information to cell phones and other text-enabled devices and email accounts. San Francisco also has 109 outdoor sirens located across the OA designed to alert residents and visitors and has approximately 50,000 Twitter™ followers for disaster preparedness and response. While the OA can deliver messages in Cantonese and Spanish via sirens, there are remaining challenges for multi-lingual warnings due to the variety of populations in the OA.

SAN JOSE

San Jose uses Santa Clara County's voluntary, subscription-based warning program called AlertSCC to send notifications to cell phones, mobile devices, e-mails, and/or landlines. Additionally, San Jose provides public information messages through its city emergency web-site and is in the process of developing its social media capabilities to support messaging efforts. However, San Jose does not currently have the capability to integrate into IPAWS due to compatibility issues with equipment/technology.

SAN MATEO

The San Mateo County warning systems and procedures are exercised often, but ongoing training in the OA is lacking. Most plans and procedures for EPI&W are not formalized, but a written EPI&W annex is in development. San Mateo would benefit from access to regional resources, as well as regional economies of scale.

SANTA CLARA

Santa Clara uses the voluntary, subscription-based warning program called AlertSCC to send notifications to cell phones, mobile devices, e-mails, and/or landlines. Although AlertSCC is in place, Santa Clara does not currently have the capability to integrate into IPAWS due to equipment compatibility issues. In addition, the County has not fully implemented the use of social media (e.g., Twitter and Facebook) to support dissemination of emergency public information and warnings.

SANTA CRUZ

Santa Cruz has established a process to coordinate emergency public information with the Counties of San Benito and Monterey. Santa Cruz's EOC has designated seats for each locality (within its area) in order to facilitate interagency coordination. However, Santa Cruz does not currently have written/formalized agreements established with

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municipalities and other organizations to address their support in the JIC. Currently, Santa Cruz has multiple means of disseminating warning messages to the public, including equipment that is certified for activation of IPAWS. Santa Cruz has provided its PIO and all appropriate public information staff with some training relevant to EPI&W.

SOLANO

Although Solano has written EPI&W plans, most cities have their own capabilities which can hinder coordinated warning operations. Solano would benefit from increased standardization and interoperability of warning system, as well as from more consistent training and formal exercises.

SONOMA

Sonoma has a joint powers agreement with its cities. It also has relatively well-developed policies for JIC participation and for coordinating with special needs and other community organizations. For example, the Auxiliary Communications Service (ACS) ham radio community is explicitly integrated into warning efforts. Sonoma would benefit from clearer knowledge of its legal duties and abilities to exercise warning systems. Sonoma is currently working on the IPAWS transition, which should alleviate current turnover and activation issues arising from using different warning products.

STATE GAPS

Due to budget limitations, state capabilities in the region have dissipated in both emergency public information and warning. Specifically, the State Regional Emergency Operations Center has been pulled back to Sacramento and left a void for local Bay Area stakeholders to fill concerning regional level incidents. This includes managing EPI&W through a JIC.

REGIONAL GAPS

- There is currently little formal pre-incident regional coordination of EPI&W activities, such as the coordinated procurement of input sub-systems. There is also no established and ongoing pre-incident regional planning and coordination structures or personnel dedicated to managing it in the Bay Area.
- Almost all of the OA's warning tools must be activated one-by-one and do not support activation using the CAP version 1.1 or 1.2. This means when a warning message must be delivered by an OA, inputs and outputs are often one-to-one, resulting in a complex and duplicative array of technological input procedures. This creates avoidable delay, additional workload, and opportunities for error on the part of warning originators.
- The current patchwork of public warning systems among the OAs and other regional allied agencies causes great inconsistency in the type, content, and format of warnings received by the public.

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- OAs across the region have few means of determining the effectiveness of the emergency public information and warnings they are providing. Success is often defined as the ability to push information out as opposed to whether appropriate actions were taken by those who received the information and/or warnings.
- There is a lack of consistency in how similar warning systems are used across OAs. For example, in one OA, a siren is used to warn of a tsunami whereas another OA uses a siren for an industrial accident, and a third for general hazards.
- While the region as a whole has a number of programs to minimize isolation from warning systems for those with access and functional needs and limited English proficiency, there is little formal planning and coordination among OAs with the various community-based organizations throughout the region.
- The region lacks a systematic and consistent means to develop pre-scripted warning messages based on the best available social and physical science data.
- Few OAs have a social media policy, and several are not monitoring social media or using their social media accounts to push information and warnings to the public and to track how information is being used by the public.
- There is a lack of training and education for elected and senior officials on how to coordinate through a JIC during a major incident.
- Public education on warning systems is limited across the region. While there are preparedness campaigns focused on being “ready” for an incident, there is little in the way of explaining the warning methods used in an OA, what those methods mean, and what protective actions should be taken when a warning is issued.
- Emergency public information and warning is not fully integrated or considered a priority within the Bay Area’s regional training and exercise program. Training and exercises involving EPI&W across OAs does occur but it is sporadic and consistency in training and evaluations is unknown.

GOALS AND OBJECTIVES

To close the identified capability gaps and sustain existing capabilities, the Bay Area has developed four strategic goals and nineteen objectives to drive its EPI&W efforts over the next five years. These goals and objectives, found in greater detail in Section 5 of the full *Strategy*, are functionally organized, interconnected and largely sequenced around:

- Goal 1: Organization and Practice
- Goal 2: Planning and Operational Coordination
- Goal 3: Tools and Technology
- Goal 4: Training, Education, and Exercises

The goals and objectives outline a series of steps within each of the four areas that the region must take to build towards a truly integrated and well-functioning EPI&W “system of systems.” In taking these steps, each OA will enhance its individual capacity and help bring the region to a higher level of EPI&W effectiveness. Finally, none of the goals and objectives offers a “silver bullet” that can solve the complex challenge of issuing and coordinating effective emergency public

There is no silver bullet for strengthening EPI&W and an over-emphasis on technology solutions may cause other elements, such as organization, planning, training, and exercises, to be neglected.

information and warnings. This is especially true in the area of technology. While technology does play a vital role in strengthening EPI&W capabilities, it is but one piece of the puzzle. Viewing technology as the “answer” may in fact make a situation worse, as it creates unrealistic expectations and may cause other areas of EPI&W to be neglected.

Given the strain on local, state, and federal budgets, the Bay Area’s strategic approach in developing the goals and objectives is to ensure that the goals and objectives are based upon what is actually and realistically achievable under the foreseeably long period of constricted public safety budgets. Such an approach avoids trying to build capabilities in non-priority areas or entirely new, exotic and expensive local or regional systems and approaches that cannot be sustained.

The goals and objectives focus on the next five years, but will be reviewed and updated annually as necessary. Some of the objectives likely will carry over from year to year, while others may be removed or updated based on the Bay Area’s progress and actual needs. The goals and objectives will continue to be defined by risk analysis, identified capability gaps, and sustainment priorities. The following is a summary of the Bay Area’s four EPI&W goals and nineteen objectives and the associated lead entity⁷ for implementing the objective:

⁷While the proposed regional EPI&W Program Manager is designated as the specific lead entity for certain objectives, the EPI&W Program Manager will also serve as the overall lead for the *Strategy’s* implementation and will support all other lead entities in implementing their respective objectives.

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Goal 1: Establish Consistent Practices and Organizational Structures For Emergency Public Information and Warning	Lead Entity
<p>Objective 1.1 Establish a Bay Area emergency public information and warning framework (Framework) as a baseline agreement for inter-agency and regional cooperation and coordination. The Framework is designed to serve as the foundation for establishing a regional approach to emergency public information and warning in the Bay Area and for more formal regional undertakings in the future. At its core, the Framework outlines that the region will agree to certain practices and procedures for EPI&W that the region’s jurisdictions, special districts, and others will strive to achieve. It is the first step and sets the foundation for OAs and other agencies to come together as a region on EPI&W.</p>	<p>UASI Management Team</p>
<p>Objective 1.2 Develop regional policy and program structures and assign a regional program manager for emergency public information and warning initiatives and programs. Once the Framework is agreed to, the Bay Area UASI Management Team will assign a regional EPI&W Program Manager to manage and oversee the <i>Strategy’s</i> implementation (whereupon after five years, the region will evaluate the future of the position). The Program Manager will re-establish the following two groups to strengthen regional collaboration:</p> <ul style="list-style-type: none"> • The Bay Area Emergency Public Information Network (BAEPIN) to foster increased coordination and collaboration among the PIOs in the region; • The EPI&W Work Group to focus regional efforts on public warnings. <p>These groups will serve as coordinating bodies for the <i>Strategy’s</i> implementation and updates.</p>	<p>UASI Management Team and the EPI&W Program Manager</p>
<p>Objective 1.3 Develop a process for joint regional procurement of future emergency public information and warning tools and for sustaining current public information and warning capabilities. After the regional organizational structures are in place, it will be critical for OAs, municipalities, special districts and other allied agencies in the region to have procedures in place to procure equipment and services that meet the basic standards agreed upon in the Framework and best practices, such as the CAP. This will include developing language that can be used uniformly in agencies’ request for proposals and potentially, regional contracting mechanisms in the future. This will ensure that whether the EPI&W equipment or services are procured on a regional or jurisdictional basis, the same standards will apply and the equipment and service deliverables will be interoperable.</p>	<p>The EPI&W Program Manager and OA Procurement Offices</p>
<p>Objective 1.4 Increase the capability to work with partner organizations to reach people with access and functional needs and</p>	<p>EPI&W Program</p>

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<p>limited English proficiency. To fully implement the whole community approach, the EPI&W Program Manager and OA emergency managers will build relationships with the staff and volunteer leaders of community-based organizations (CBOs) that serve access and functional needs and/or limited English proficiency populations. The Program Manager will focus on CBOs that cross multiple OAs, and the emergency managers will focus on intra-OA groups. This will be done to enhance the ability to send warnings to access and functional needs and/or limited English proficiency populations that are most likely to result in appropriate protective action response. It will be achieved by assisting CBOs in building the capacity to communicate quickly with their constituents through networks that use social media and other tools.</p>	<p>Manager and OA Emergency Managers</p>
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<p>Goal 2: Strengthen Regional Planning and Operational Coordination For Emergency Public Information and Warning</p>	<p>Lead Entity</p>
<p>Objective 2.1 Enhance local and regional plans for joint information center (JIC) operations, and develop network-based “virtual” JIC support. Upon establishing the regional organization and structures in Goal 1, the Bay Area will establish a joint regional program for expanding the level of specificity of JIC plans, standardizing JIC structure and roles, and providing JIC training and exercises at the local and regional level. This will include updating the Regional Emergency Coordination Plan with an EPI&W concept of operations annex. Local EOPs will also be updated as needed.</p>	<p>The EPI&W Program Manager, Regional Catastrophic Planning Team and OA Emergency Managers</p>
<p>Objective 2.2 Develop policy and guidance for social media use in EPI&W and formally integrate social media activities into response plans, including the establishment of community partnerships. A critical element to updating regional and local EOPs is the full integration of social media into those plans. This will include procedures for monitoring social media after information and warnings are issued to detect the presence of incorrect or unreliable information, the rate at which people begin protective activities, and more. This view into what the public is thinking, doing, and not doing is critical to assessing the effectiveness of the information and warnings being provided. Problems can be detected and then addressed in subsequent public messages to correct misinformation and public response deficiencies.</p>	<p>The EPI&W Program Manager and OA PIOs</p>
<p>Objective 2.3 Adopt protective actions for all potential Bay Area hazards and develop science-based warning message templates to communicate effective protective actions to the public. Public warning providers in the Bay Area will develop social and physical science-based, pre-scripted and pre-vetted public warning and subsequent emergency public information messages to quickly adapt as</p>	<p>The EPI&W Program Manager</p>

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<p>needed during actual events. These messages may serve as annexes to local and regional EOPs. Guidance on protective actions that correspond to the necessary message topics will be identified and adopted by Bay Area public health and safety personnel. As a result, in the event of a disaster, Bay Area public information and warning practitioners can more quickly issue warnings with an increased probability of timely protective action response by the public.</p>	
<p>Objective 2.4 Provide timely and effective warning information to isolated populations in the Bay Area. The OAs will take three major policy and planning steps to better reach isolated populations across the Bay Area. These steps are:</p> <ul style="list-style-type: none"> • The full set of reasons for warning isolation will be brought together so that every type of individual and group who are warning-isolated are known in each OA. This will include people isolated by social position, activity, impairments, language, location, and more. • OAs will build or enhance relationships with local community-based organizations for those with access and functional needs and limited English proficiency so those groups can assist OAs in outreach to isolated populations. • OAs will develop dedicated means (e.g., tone alert radios) to communicate warnings to key decision makers working in institutions. 	<p>The EPI&W Program Manager and OA Emergency Managers</p>
<p>Objective 2.5 Establish a regional operational support cell for effective public warning. To begin to make operational the regional approach to EPI&W, the Bay Area will establish a regional warning officer program and concept of operations through a single regional operating framework. Any incident commander from any agency in the region will be able to request support from the on-call warning officer, who will then attach to the incident command system (ICS) as a technical specialist. The duty warning officer will confer with the incident commander or designee (frequently the operations chief) to obtain relevant details, clarify the protective action strategy, compose a warning message, plan the distribution of the warning, and then activate the appropriate warning technologies at the incident commander’s instruction.</p>	<p>The EPI&W Program Manager</p>

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<p>Goal 3 Acquire Tools and Technology Necessary to Provide Emergency Public Information and Warnings Before, During, and After an Incident</p>	<p>Lead Entity</p>
<p>Objective 3.1 Integrate existing and future warning tools in the Bay Area. The Bay Area will move to adopt a regional CAP-based control sub-system to serve as a clearinghouse to bind all the existing technical warning capabilities of OAs, municipalities, and districts into a comprehensive technology system of systems. An authorized warning originator, e.g., a warning duty officer from the regional support cell, will input a single warning message, which is rendered in the CAP format and automatically distributed to all appropriate delivery sub-systems, e.g., email, sirens, telephones in the region, for simultaneous delivery in a form particular to each medium yet consistent in content across all media.</p>	<p>The EPI&W Program Manager</p>
<p>Objective 3.2 Implement the Federal Integrated Public Alert and Warning System (IPAWS). Bay Area OAs will move to implement IPAWS across the Bay Area. IPAWS is a federally-managed control sub-system designed to enable federal, state, territorial, tribal, and local alert and warning officials to access multiple broadcast and other communications pathways for the purpose of creating and activating alert and warning messages related to any hazard impacting public health and safety. Implementation of IPAWS will create a one-stop-shop for OAs to access multiple federal warning input and output sub-systems, including EAS, NOAA Weather Radio, CMAS, and others.</p>	<p>OA Emergency Managers</p>
<p>Objective 3.3 Implement the Commercial Mobile Alerting System (CMAS). Upon implementing IPAWS, Bay Area OAs will use the Commercial Mobile Alert System (CMAS) to provide warning text messages of up to 90 characters to members of the public via an individual’s wireless device through the IPAWS-OPEN platform. Such messages may be geographically targeted down to the county level. CMAS will enable warning messages to be sent to any cell phone within range of a particular cellular communications tower, and messages can be sent even if cellular voice and data services are overloaded. CMAS also uses a unique signal and vibration to attract attention, which is designed to help those with access and functional needs become aware of the message.</p>	<p>OA Emergency Managers</p>

Goal 4 Develop and Provide Emergency Public Information and Warning Training, Education, and Exercise Programs	Lead Entity
<p>Objective 4.1 Fully integrate public information and warning into regional training programs. EPI&W will be fully integrated and made a priority within the regional training program. This will include training on writing EPI&W messages, JIC training, etc. Specialized EPI&W training on access and functional needs groups, as well as those with limited English skills, will be fully incorporated. To save time and resources, training may be delivered online or at sub-regional sites, e.g., hubs, to minimize travel. As a result of dwindling federal grant funds, the Bay Area will also seek to leverage partnerships between OAs and allied agencies in the region to include maritime ports, mass transit agencies, and airports.</p>	<p>Regional Training and Exercise Program Manager</p>
<p>Objective 4.2 Fully integrate public information and warning into regional exercise programs. The Bay Area will identify opportunities for coordinated cross-jurisdictional exercises and will expand other exercise efforts in the region to test and evaluate the EPI&W capability. This will involve exercises that include EPI&W as part of a larger scenario and capabilities to be tested, as well as designing exercises specifically around testing and evaluating EPI&W only. In addition to regional exercises, OAs will also benefit from, “exercise mutual aid,” such as sharing exercise templates and simulation resources to reduce the burdens on individual OAs in developing and putting on an exercise. Finally, a password-protected database of After Action Reports will be developed that can be accessed by regional stakeholders.</p>	<p>Regional Training and Exercise Program Manager</p>
<p>Objective 4.3 Include Representatives of the Access and Functional Needs Community in Exercise Planning, and Execution at the Operational Area and Regional Levels. Representatives from the Emergency Information Access Council (EIAC) and other organizations should become active in the design and execution of EPI&W exercises at the regional and OA level. These representatives will help set expectations and work with public safety and emergency management personnel on the joint development of exercises.</p>	<p>Regional Training and Exercise Program Manager</p>
<p>Objective 4.4 Increase Training Opportunities in Social Media Use, and Establish a Regional Platform to Exchange Best Practices and Develop Regional Awareness Around Existing Social Media Capabilities. Personnel who use social media platforms to support EPI&W should be identified and provided with opportunities to attend trainings specific to the use of these tools. Specialized training to adapt to technological advancements and the use of social media will enhance the usefulness of social media during an incident, both in terms of pushing information out and in monitoring how people are reacting to</p>	<p>Regional Training and Exercise Program Manager</p>

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<p>that information. Additionally, lessons learned and best practices around the use of social media to support EPI&W will be shared throughout the region using a web-based platform.</p>	
<p>Objective 4.5 Train and Educate Elected and Senior Officials on Advances in Emergency Public Information and Warning Practice. The Bay Area will take advantage of California’s Senior Officials Workshop, which provides a forum to discuss strategic and executive-level issues related to disaster preparedness and response in order to enhance coordination among officials responsible for emergency response to a disaster.</p>	<p>The EPI&W Program Manager and OA Emergency Managers</p>
<p>Objective 4.6 Share and Coordinate Public Warning System Testing Schedules. Joint testing of OA warning systems will improve coordination and the calibration of public expectations regarding warning capabilities across OAs.</p>	<p>The EPI&W Program Manager and OA Emergency Managers</p>
<p>Objective 4.7 Develop Regional Public Education for Warning and Protective Actions. The Bay Area will develop a consensus on a regional template for public warning education focused on generic information applicable across the Bay Area. Each OA will then modify the template as needed and develop its own OA based template for distribution to the public as a reference during actual incidents. This will help the public better understand how it will receive warnings and what protective actions should be taken as a result.</p>	<p>The EPI&W Program Manager</p>

STRATEGY IMPLEMENTATION

The regional EPI&W Program Manager will have overall responsibility for managing and tracking execution and implementation of the *Strategy*. This will include working with appropriate stakeholders at the OA level and through BAEPIN, the UASI EPI&W Work Group and such other organizations and agencies as needed. The Program Manager will also be responsible for reporting to the Bay Area UASI Approval Authority and Advisory Group and other regional entities as needed on specific implementation tasks, thus ensuring that the *EPI&W Strategy* is followed and updated annually.

Implementation will occur through a series of projects and other steps outlined in more detail in Section 6 of the full *Strategy*. Each objective in the *Strategy* will serve as a project along with several implementing steps or tasks and associated costs, timelines, and grant eligibility. These projects and implementing steps are based on a sequence of first, getting properly organized; second, having the appropriate plans and procedures in place; third, acquiring the appropriate technology and tools; and fourth, testing and evaluating the

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plans, organization, and equipment through training and exercises.⁸ The total cost of all projects by goal over a five year period is summarized in the table below.

EPI&W Goals and Projects	Total Costs
Goal 1 Projects	\$681,159
Goal 2 Projects	\$845,620
Goal 3 Projects	\$195,660
Goal 4 Projects	\$735,400
TOTAL STRATEGY COST	\$2,457,839

While implementation of the *Strategy* is not mandatory, in the event the Bay Area's OAs, municipalities, special districts, etc. make no changes in their EPI&W capabilities, most of the identified capability gaps will remain and the ability to come together fully as a region on EPI&W issues will likely not occur. However, given the strain on public safety budgets, implementation of the *Strategy* will be contingent upon available resources.⁹

STRATEGY EVALUATION

A consistent mechanism to evaluate the effectiveness of the emergency public information and warning activities (i.e., the plans developed, personnel hired, equipment purchased, number of people trained, and exercises conducted) generated through investments is crucial. The results from each evaluation will be used to update the *Strategy* to make sure it accurately reflects where the Bay Area needs to focus its efforts.

Evaluating the implementation of this *Strategy* will be done in the form of measuring whether the identified emergency public information and warning capability gaps are being closed and tracked. Such an evaluation requires consistent data collection and analysis.

⁸ Before the region or its OAs should even consider technology solutions, they must first ensure they are properly organized, have the appropriate plans in place for the technology to support, and have a full understanding of the standards that now govern EPI&W technology, e.g., the CAP.

⁹ As part of the process to generate resources for the *Strategy's* implementation, the Bay Area leadership will explore with the California Emergency Management Agency the opportunity of using a portion of the State of California's 20% hold back of UASI grant funds to help fund elements of the *Strategy*.

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There is no single method to assess capabilities. Rather, there are a number of data sources and methodologies to help with this activity, each of which can be used in the evaluation process:

- Self-assessments (workshops, questionnaires, etc.)
- Performance-based assessments (real-world incidents and exercise events)
- Modeling and simulation

NEXT STEPS

The *Strategy* is, at a minimum, a five year plan with many of the goals and objectives designed around a sequenced approach to implementation. This means the Bay Area is not expected to tackle all of its problems at once or in a single year or even set of years. Rather, each issue and capability should be addressed one step at a time through a logical sequence of actions as outlined in the *Strategy* Implementation Section. In doing so, the region will steadily build toward its goals and objectives and be able to adapt to changing circumstances, such as advancements in technology, and other variables over time.