

California

Statewide Communications Interoperability Plan

December 2007

A composite image featuring a firefighter in a yellow jacket with 'RADIO COMMUNICATIONS' printed on it, holding a radio. The background shows a fire scene with firefighters and a house. The text 'RADIO COMMUNICATIONS' is written in large, bold, black letters across the firefighter's jacket.

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California's public safety and public service practitioners provide a wide range of support including law enforcement, fire protection, disaster response, transportation management, flood control, criminal detention and rehabilitation, search and rescue, and other services to over 36 million residents and 44 million visitors to the state each year. In order to effectively provide these services, the state's public safety and public service agencies must be able to communicate effectively as they prepare for, respond to, and recover from routine and emergency operations, natural disasters and acts of terrorism. Although we have made significant steps toward achieving this goal, the lack of voice and data communications interoperability continues to represent a significant challenge for public safety practitioners in California. Protecting our communities from these threats and achieving statewide communications interoperability is the highest priority of Governor Schwarzenegger's Administration.

I am therefore pleased to provide you with the 2007 California Statewide Communications Interoperability Plan (CalSCIP). Through the combined efforts of the California Statewide Interoperability Executive Committee (CalSIEC) and Public Safety Radio Strategic Planning Committee (PSRSPC), this plan defines a strategy for improving statewide interoperable communications. The CalSCIP serves several key purposes well beyond the statutory requirement articulated by the Department of Homeland Security (DHS). It accurately reflects the complexity of the interoperable communications environment in our state as measured against all elements of the Interoperability Continuum: *governance, standard operating procedures, technology, training and usage*, necessary for successful statewide communications interoperability advancement. It defines a robust mission and vision for statewide public safety communications interoperability in California; it reflects the current status of state, regional and local agency systems and challenges; and identifies key objectives and initiatives driving California towards integrated statewide communications interoperability. The document is—in effect—a comprehensive roadmap for all agencies and jurisdictions to improve voice and data interoperable communications. At the heart of the plan is a vision of a system-of-systems integrating existing public safety communications networks.

Furthermore, this document demonstrates the Office of Emergency Services' desired outcome of practitioner buy-in for a shared statewide vision. The plan leverages a practitioner-driven governance structure, and incorporates local, tribal, and regional communications interoperability planning groups into the landscape of communications interoperability.

The CalSCIP initiatives will be updated and measured to increase the availability of interoperability information, improve collaboration, coordinate interoperability projects, and improve the technological capabilities of California's practitioners. As we move towards the 2017 vision, we must remain dedicated and continue to improve the ability to communicate between disciplines and across jurisdictional borders. With help from practitioners statewide, California will continue to move forward and be a model for the Nation.

Sincerely,

Henry Renteria
OES Director

SAFECOM Criteria Compliance Matrix

Criteria #	Description	Section/Page #
1.	Background and Preliminary Steps	
1.1	Provide an overview and background information on the state and its regions. Include geographic and demographic information.	Section 2.0. Page 12
1.2	List all agencies and organizations that participated in developing the plan. (List them according to the categories recommended for a communications interoperability committee in the All-Inclusive Approach section above.)	Section 2.5. Page 177 Appendix C. Page 184
1.3	Identify the point of contact. DHS expects that each state will have a full time interoperability coordinator. The coordinator should not represent or be affiliated with any one particular discipline and should not have to balance the coordinator duties with other responsibilities.	Section 2.6. Page 25
1.4	Describe the communications and interoperability environment of the current emergency response effort.	Section 2.2. Page 15
1.5	Include a problem definition and possible solutions that address the challenges identified in achieving interoperability within the SAFECOM Interoperability Continuum.	Section 2.2. Page 15
1.6	Identify any Tactical Interoperability Communications Plans in the state.	Section 2.4. Page 23
1.7	Set the scope and timeframe of the plan.	Section 2.7. Page 25
2.	Strategy	
2.1	Describe the strategic vision, goals, and objectives for improving emergency response interagency wireless communications statewide, including how they connect with existing plans within the state.	Section 5.0. Page 139
2.2	Provide a strategic plan for coordination with neighboring states. If applicable, include a plan for coordination with neighboring countries.	Section 4.3. Page 116 Section 5.0. Page 149
2.3	Provide a strategic plan for addressing data interoperability in addition to voice interoperability.	Section 4.2. Page 66 Appendix K page 204
2.4	Describe a strategy for addressing catastrophic loss of communication assets by developing redundancies in the communications interoperability plan.	Section 4.2. Page 59
2.5	Describe how the plan is, or will become, compliant with the National Incident Management System (NIMS) and the National Response Plan.	Section 4.3. Page 113
2.6	Describe a strategy for addressing communications interoperability with the safety and security elements of the major transit systems, intercity bus service providers, ports, and passenger rail operations within the state.	Section 4.3. Page 117 Section 5.0. Page 149
2.7	Describe the process for periodic review and revision of the state plan.	Section 6.0. Page 153
3.	Methodology	
3.1	Describe the method by which multi-jurisdictional, multi-disciplinary input was provided from all regions of the state. For an example of a methodology that ensures input from all regions, see the Statewide Communication Interoperability Plan, or SCIP, methodology developed by SAFECOM.	Section 3.0. Page 26
3.2	Define the process for continuing to have local input and for building local support of the plan.	Section 6.1. Page 153
3.3	Define how the TICPs were incorporated into the statewide plan.	Section 2.4. Page 22
3.4	Describe the strategy for implementing all components of the statewide plan.	Section 6.0. Page 152

4.	Governance	
4.1	Identify the executive or legislative authority for the governing body of the interoperability effort.	Section 4.1. Page 42
4.2	Provide an overview of the governance structure that will oversee development and implementation of the plan. Illustrate how it is representative of all of the relevant emergency response disciplines and regions in the state.	Section 4.1. Page 45
4.3	Provide the charter for the governing body, and use the charter to state the principles, roles, responsibilities, and processes.	Section 4.1. Page 45 Section 5.0. Page 142
4.4	Identify the members of the governing body and any of its committees.	Section 4.1. Page 46
4.5	Provide a meeting schedule for the governing body	Appendix G page 185
4.6	Describe multi-jurisdictional, multi disciplinary agreements needed for decision making and for sharing resources.	Section 5.0. Page 143
5.	Technology	
5.1	Include a statewide capabilities assessment (or a plan for one) which includes critical communications equipment and related interoperability issues. At a minimum this should include types of radio systems, data and incident management systems, the manufacturer, and frequency assignments for each major emergency responder organization within the state. Ultimately more detailed information will be required to complete the documentation of a migration strategy. States may use the Communications Asset Survey and Mapping (CASM) tool to conduct this assessment.	Section 4.2. Page 55 Section 5.0. Page 145 Appendix J page 198
5.2	Describe plans for continuing support of legacy systems and developing interfaces among disparate systems while migrating to newer technologies.	Section 4.2. Page 65 Section 5.0. Page 144
5.2.1	Describe the migration plan for moving from existing technologies to newly procured technologies.	Section 4.2. Page 67
5.2.2	Describe the process that will be used to ensure that new purchases comply with the statewide plan, while generally allowing existing equipment to serve out its useful life.	Section 4.2. Page 67 Section 5.0 Page 148
6.	Standard Operating Procedures (SOPs)	
6.1	Include an assessment of current local, regional, and state operating procedures which support interoperability.	Section 4.3. Page 109
6.2	Define the process by which the localities, regions, and state will develop, manage, maintain, upgrade, and communicate standard operating procedures (SOPs), as appropriate.	Section 4.3. Page 118
6.3	Identify the agencies included in the development of the SOPs and the agencies expected to comply with the SOPs.	Section 4.3. Page 121
6.4	Demonstrate how the SOPs are NIMS-compliant in terms of the Incident Command System (ICS) and preparedness.	Section 4.3. Page 110
7.	Training and Exercises	
7.1	Define the process by which the state will develop, manage, maintain and upgrade, or coordinate as appropriate, a statewide training and exercises program.	Section 4.4. Page 148
7.2	Describe the process for offering and requiring training and exercises, as well as any certification that will be needed.	Section 4.4. Page 123
7.3	Explain how the process ensures that training is cross-disciplinary.	Section 4.4. Page 122 Section 5.0. Page 147
8.	Usage	
8.1	Describe the plan for ensuring regular usage of the relevant equipment and the SOPs needed to improve interoperability.	Section 4.5. Page 132 Section 5.0. Page 149
9.	Funding	
9.1	Identify committed sources of funding or the process for identifying and securing short- and long-term funding.	Section 4.6. Page 135
9.2	Include a plan for the development of a comprehensive funding strategy. The plan should include a process for identifying ongoing	Section 5.0. Page 150 Section 7.0. Page 158

	funding sources, anticipated costs, and resources needed for project management and leveraging active projects.	
10.	Implementation	
10.1	Describe the prioritized action plan with short- and long-term goals for achieving the objectives.	Section 6.0. Page 153
10.2	Describe the performance measures that will allow policy makers to track the progress and success of initiatives.	Section 6.2. Page 156
10.3	Describe the plan for educating policy makers and practitioners on interoperability goals and initiatives.	Section 6.1. Page 153 Section 5.0. Page 145
10.4	Describe the roles and opportunities for involvement of all local, tribal, and state agencies in the implementation of the statewide plan.	Section 6.1. Page 153
10.5	Establish a plan for identifying, developing, and overseeing operational requirements, SOPs, training, technical solutions, and short- and long-term funding sources.	Section 6.1. Page 153
10.6	Identify a point of contact responsible for implementing the plan.	Section 2.6. Page 25
10.7	Describe critical success factors for implementation of the plan.	Section 6.2. Page 157
11.	PSIC Requirements	
11.1	Describe how public safety agencies will plan and coordinate, acquire, deploy, and train on interoperable communications equipment, software, and systems that: <ul style="list-style-type: none"> 1) utilize reallocated public safety spectrum- the public safety spectrum in the 700 MHz frequency band; 2) enable interoperability with communication systems that can utilize reallocated public safety spectrum for radio communications; or 3) otherwise improve or advance the interoperability of public safety communications systems that utilize other public safety spectrum bands. 	Section 8.0. Page 159 Section 5.0. Page 146
11.2	Describe how a strategic technology reserve (STR) will be established and implemented to pre-position or secure interoperable communications in advance for immediate deployment in an emergency or major disaster.	Section 4.3. Page 60
11.3	Describe how local and tribal government entities' interoperable communications needs have been included in the planning process and how their needs are being addressed.	Section 3.0. Page 29 Section 6.1. Page 153 Appendix 8.0. Page 159
11.4	Describe how authorized non-governmental organizations' interoperable communications needs have been included in the planning process and how their needs are being addressed (if applicable).	Section 3.0. Page 29 Section 6.1. Page 153

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Executive Summary

One of the most prominent issues facing the public safety community today is the lack of communications interoperability, which is commonly defined by many as "the ability of public safety emergency responders to communicate with whom they need to, when they need to, as authorized." Communications interoperability serves as a vital tool for public safety and public service professionals, whether they are responding to a major incident, conducting a task force operation, or coordinating responses to daily events. This capability can provide life-saving support and can streamline response coordination efforts under a myriad of circumstances, including incidents that employ emergency responders from multiple agencies or jurisdictions. To maximize such a capability, California recognizes that an agency must be operable before it can be interoperable across agencies and jurisdictions.

California has been working to address communications interoperability – an essential capability for public safety and public service professionals during all types of incident response and recovery scenarios – for decades. California has a long history of standardized response, including development of an Incident Command System (ICS) in the 1970s by fire services in southern California and California's all hazards/all disciplines Standardized Emergency Management System (SEMS) in the 1990s. Notably, California's SEMS emergency program was recognized as a standard and best practice and was used as the model for the new NIMS program. Through the combined efforts of the California Statewide Interoperability Executive Committee (CalSIEC) and Public Safety Radio Strategic Planning Committee (PSRSPC), the State ensures that local, regional, tribal, and state needs are addressed and coordinated. Additionally, the State took the Department of Homeland Security (DHS) Tactical Interoperability Communications Plan Urban Area Security Initiative (UASI) requirement and brought it a step further to require that by December 2008, each Operational Area in the State must develop or be included in a TICP as a requirement for future State funding.

Furthermore, driven by the need to address the annual wild fires, as well as prepare for other statewide hazards, California has made great strides in communications interoperability over the last forty years. These accomplishments have been evident in recent incidents, such as a recent September 2007 fire incident in Southern California. In this incident, emergency responders from multiple disciplines converged from across the state to successfully contain the blaze. The fire response involved coordination among the San Diego County Sheriff's Department, California Highway Patrol, several volunteer firefighting outfits, CAL FIRE, the Southern Operations Center, and many other agencies. While the fire consumed nearly 837 acres and took more than four days and almost \$4 million to contain, further damage was prevented because agencies were able to communicate without any major problems. Measures for interoperability and coordination helped streamline the response and were deemed critical success factors in this instance.¹ California seeks to make such instances of using communications interoperability proficiently part of the norm, not the exception.

The 2008 *California Statewide Communications Interoperability Plan (CalSCIP)* is the first-ever comprehensive initiatives-based strategy that will be implemented and updated every two years

¹ Zane, Robert. "The Angel Fire: Everything Worked." *Ramona Home Journal and Julian Journal*. October 2007. http://www.ramonajournal.com/news/2007/1001/Front_Page/064.html

to advance the interoperable communications capabilities of California's public safety community. Development of the CalSCIP required information and expertise from several key governance groups across the State including local, regional, and state public safety representatives. The CalSCIP is designed to serve as a critical guiding document—a roadmap of sorts—in the effort to achieve communications interoperability not only within the state, but also across state lines and international boundaries.

The purpose of the CalSCIP is to achieve the State's strategic goals and develop a statewide strategic planning framework for an innovative, inclusive, scalable, sustainable, and well-managed interoperability infrastructure that promotes national standards and is effective in addressing the unique urban and rural requirements of public safety first responders and designated public service organizations serving the citizens of California. This mission requires a coordinated effort from the entire public safety community including local, regional, tribal, and state agencies. It is California's vision that:

“By 2017, ensure all local, regional, tribal, state and Federal public safety first-responders and designated public service organizations operating within California are able to communicate in real time, across disciplines and jurisdictions, to respond more effectively during day-to-day operations and major incidents.”

In support of the strategic 2017 vision, the following goals focus on improved interoperable communications:

- **Goal 1: Governance** – Maintain coordinated governance for integrated regional and statewide public safety voice and data interoperable communications systems planning
- **Goal 2: Standard Operating Procedures** – Maintain NIMS/SEMS-compliant Standard Operating Procedures for statewide interoperable communications
- **Goal 3: Technology** – Develop a statewide standards-based System of Systems communications network for California's public safety and designated public service practitioners
- **Goal 4: Training & Exercise** – Ensure that regular interoperable communications training and exercise opportunities are designed and offered statewide to California's public safety and designated public service practitioners
- **Goal 5: Usage** – Encourage daily usage statewide of interoperable communications equipment and Standard Operating Procedures

At this point in time, all the critical elements outlined in the Interoperability Continuum have been addressed at varying levels of compliance. **Governance** bodies are focused on addressing interoperability issues existing at the local, regional, and state levels of government. They are coordinated statewide by the joint efforts of the California Statewide Interoperability Executive Committee (CalSIEC) and the Public Safety Radio Strategic Planning Committee (PSRSPC). **Standard Operating Procedures** (SOPs) based on locally driven resource sharing agreements and cooperative frameworks are in place and actively used during incident response and mutual aid scenarios across jurisdictions and regions. Communities are making strides to coordinate **technology** purchases at a regional level and working to enhance their connectivity through a broader statewide System of Systems vision. At the same time, many agencies balance the need for interoperability with a requirement to address their operability and obsolescence issues. Communications components are increasingly integrated into various **training and exercise** activities across the State and in the evaluation of the Tactical Interoperable

Communications Plans (TICPs). Finally, understanding the importance of **regularly using interoperable communications capabilities** has become part of the public safety philosophy in California. Although there has been significant achievement in the interoperability arena, several strides still remain to be taken on the path towards achieving California's 2017 Vision in achieving statewide communications interoperability. Future progress requires continued coordination, integration, and improvement upon the results achieved at the local, regional, and State level to date.

Steps will be made towards the goals through the accomplishment of 16 2008 CalSCIP initiatives. This statewide plan identifies key short- and long-term strategic initiatives for the state to consider when addressing grant funding allocations and disbursement, planning for interoperability projects, and coordinating across disciplines and jurisdictions to improve communications. Each initiative is a stepping stone towards the achievement of one or more of the strategic goals and is grouped into overarching categories: Governance, Technology, SOPs, Training and Exercises, Usage, and Funding.

With the completion of the CalSCIP and the collaborative process used in its development, the State of California has arrived at a crucial launching point for coordinating statewide communications interoperability and planning efforts. This plan represents the collective expertise of California's public safety community, documents the existing efforts underway to bridge interoperability gaps, and identifies a path forward to guide the implementation of future initiatives.

How to Use this Document

The United States Department of Homeland Security required that every state develop and adopt a statewide communications interoperability plan by the end of 2007 as a stipulation for receiving future homeland security grant funds for communications interoperability initiatives. However, the utility of developing such a statewide communications interoperability plan and the level of investment required does not end with this process. This document captures a shared understanding for the roles, responsibilities, and objectives required to make progress towards California's 2017 vision. The CalSCIP follows a classic strategic planning approach by documenting:

1. California's current state of communications interoperability planning and capability along each lane of the SAFECOM Interoperability Continuum
2. A desired future state through a clearly defined statewide Mission, Vision, Goals, and Objectives
3. A clearly defined strategy advancing California rightward along each lane of SAFECOM's Interoperability Continuum as required for achieving California's desired future state.

California is committed to the improvement of statewide public safety interoperable communications through effective governance, stakeholder management and coordination, and continues to be a leader in the nation. This plan represents the collective expertise of California's public safety community, documents the existing efforts underway to bridge interoperability gaps, and identifies a path forward to guide the implementation of future initiatives.

2.0 Background

2.1 State Overview

California's size, complexity, and economic productivity make it preeminently a state of superlatives. The characteristics of the State offer several key considerations that must be addressed when building communications interoperability. The geography and topography as well as the number of citizens and landmarks that must be protected all contribute to the complexity of the situation when planning and building communications systems.

➤ Geographic Background

The State of California is located on the Pacific coast of North America and bordered by Oregon, Nevada, and Arizona in the United States, and Baja California in Mexico. California covers 158,869 square miles, an area comparable to the combined areas of the following states and regions:

- Pennsylvania (46,058 miles²)
- New York (53,989 miles²)
- Vermont (9,615 miles²)
- New Hampshire (9,283 miles²)
- Connecticut (5,544 miles²)
- Massachusetts (9,241 miles²)
- Rhode Island (1,231 miles²)
- New Jersey (8,215 miles²)
- Delaware (2,396 miles²)
- Maryland (12,297 miles²)
- Washington, D.C. (68 miles²)

Because of California's geographic diversity and size, interoperable communications presents many challenges throughout the state. Frequency promulgation across diverse terrain over many miles requires an innovative approach to interoperable communications. CalSCIP articulates this approach later in the document as part of the System of Systems solution.

The map below, (Figure 1), demonstrates California's topography, major waterways, and interstate highways.

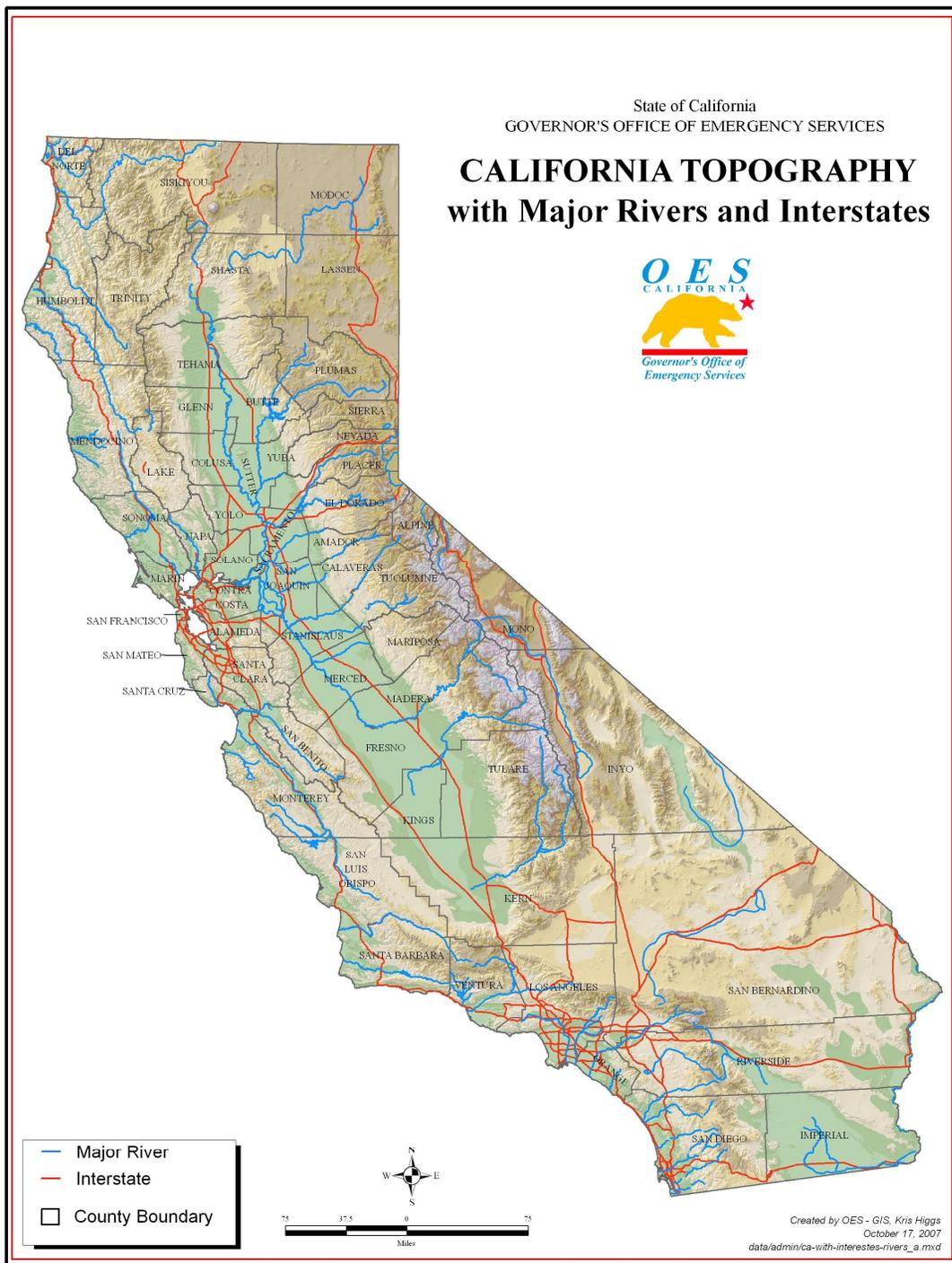


Figure 1: California Topography with Major Rivers and Interstates

➤ **Demographic and Population Background**

As of 2007, California's population has reached 37,700,000, making it the most populated state and the 13th fastest-growing state. This includes a natural increase since the last census of 1,909,368 people and an increase of 774,198 people due to net migration. Immigration from

outside the United States resulted in a net increase of 1,724,790 people, and migration within the country produced a net decrease of 950,592.² According to the *Sacramento News & Review*, California's population will increase to 50 million people by 2025.³

California is the second most populous state in the Western Hemisphere, exceeded only by São Paulo State. More than 12 percent of US citizens live in California and its population is greater than that of all but 34 countries.⁴ California has eight of the top 50 US cities in terms of population. Los Angeles is the nation's second-largest city with a population of 4,018,000 people, followed by San Diego (8th), San Jose (10th), San Francisco (14th), Long Beach (34th), Fresno (36th), Sacramento (37th) and Oakland (44th). In addition to the large number of California residents, there were 30 million domestic air passenger visitor arrivals to and through California airports in 2006.

➤ **Industrial Background**

California can be generally divided into three major metropolitan regions: The San Francisco Bay Area, Southern California and the Great Central.

The San Francisco Bay Area includes Oakland, San Francisco and San Jose, Oakland is an important port and manufacturing city. San Francisco is a major international tourism center. San Jose is one of the most important manufacturing centers in the nation and lies at the heart of Silicon Valley. Also in the metropolitan region is Berkeley, charter campus of the University of California, recognized as the world's leading public university system.⁵

In Southern California, the city of Los Angeles holds an influence in the United States in finance, international trade, and culture. The area is a leading manufacturing and entertainment center. San Diego is the hub of an extensive metropolitan area (population 2.9 million in 2005). The city is an important naval base and commercial port, and it serves as the major trade center for the Imperial Valley to the east.

The Great Central is a large, flat valley that dominates the central portion of the state, stretching nearly 400 miles from north to south. Its northern half is referred to as the Sacramento Valley, and its southern half as the San Joaquin Valley. The two halves are joined by the shared delta of the Sacramento and San Joaquin Rivers. The Central is the nation's most productive agricultural region. In the north, Sacramento, the state capital, is an administrative center as well as a commercial and manufacturing city. Fresno and the smaller cities of Stockton and Bakersfield are food-processing centers in the San Joaquin Valley. The largest cities in the state north of Sacramento are Redding, a tourist center for the mountain region; Chico, a commercial and service center for a large almond- and fruit-growing region; and Eureka, a seaport, fishing and lumbering center.⁶ Combined, the cities of California contribute much to the nation's economy and culture.

² Population Division (22 Dec 2006). "[Table 4: Cumulative Estimates of the Components of Population Change for the United States, Regions and States: April 1, 2000 to July 1, 2006 \(NST-EST2006-04\)](#)" (.XLS). U.S. Census Bureau. Retrieved on [2007-06-30](#).

³ Melinda Welsh (1 Feb 2007). [2 hours to L.A.—why not?](#). Sacramento News & Review. Retrieved on [2007-06-30](#).

⁴ Department of Economic and Social Affairs Population Division (2006). "[World Population Prospects, Table A.2](#)" (.PDF). 2006 revision. United Nations. Retrieved on [2007-06-30](#).

⁵ http://encarta.msn.com/encyclopedia_761561899_10/California.html

⁶ http://encarta.msn.com/encyclopedia_761561899_10/California.html

2.2 California's Interoperability Background

California has had a number of disasters of unprecedented magnitude. While the State has been fortunate to have avoided a terrorist attack like those of New York City and Washington, D.C., California's public safety community must continue to better prepare itself for any disaster—whether man-made or natural. California's disasters in the past have included:

- Floods
- Earthquake
- Agricultural Emergency
- Wildland Fires
- Drought
- Medical Disaster
- Weather/Storm
- Civil Disturbance
- Transport Disaster
- Landslide
- Energy Shortage
- Epidemic
- Hazardous Material
- Dam Failure⁷

In situations where these disasters have occurred, emergency responders have greatly benefited from interoperable communications. As communications is one of the most fundamental aspects in both major incidents and day-to-day operations of public safety functions, interoperability is key. The communication function becomes even more important during a multi-jurisdictional response to a critical incident. With a state as large and as diverse as California, it is important to note that critical incidents do not adhere to political boundaries and often require multi-jurisdictional or multi-county responses. By ensuring that communications are interoperable, California's public safety community will be able to respond to any incident effectively and efficiently.

It is well understood that due to the size, terrain, and unique concerns of California, "solving" interoperability for the state will entail a relatively long process and demand a great number of resources. This process will require interagency collaboration and cross-discipline coordination to ensure the needs of emergency responders are met. Furthermore, it will take more than state-of-the-art technology. Rather, it will require equal effort along all lanes of the Interoperability Continuum (see Figure 9a), against which progress will be measured. By effectively using California's portion of PSIC Grant funds, the State can continue to bolster regional systems and foster collaboration to further the state's "System of Systems" approach to providing state and local emergency responders with fully interoperable communications throughout California.

California has developed into a national leader in the field of homeland security. The State's information sharing systems, critical infrastructure protection programs, and training and exercise programs are all considered model programs and have been incorporated into many federal strategies and standards. This, coupled with an excellent mutual aid and incident

⁷ State of California Emergency Plan, September 2005

management system run by OES, makes California one of the most prepared states in the nation. However, work remains to be done.

➤ **Coordinated Efforts**

The Office of Emergency Services

California has long been a leader in disaster preparedness and emergency management. Since 1917, various iterations of the emergency services organization have existed in California. For many years, war-related and natural disaster organizations were separate and distinct.

In 1945, the Legislature combined the responsibility for planning and preparing for all emergencies - natural, technological and man-caused -- into a single state agency that functioned under the authority of the California Disaster Act. In 1970, the California Emergency Services Act (ESA) was signed into law, establishing the OES with a Director who would report directly to the Governor. Under the purview of the ESA, OES coordinates overall state response to major disasters in support of local government. *OES is responsible for assuring the State's readiness and ability to respond to and recover from natural, technological, and war-related emergencies.* OES assists local governments with their emergency preparedness, response, and recovery efforts, and provides a crucial linkage for accessing federal support. The agency is also responsible for statewide interoperable communications.

California began coordinating interoperability efforts in the mid-1960s with the establishment of (CLEMARS as an operational component supporting California's Law Enforcement Mutual Aid Agreement under the California Disaster and Civil Defense Master Mutual Aid Agreement. Under the leadership of OES, CLEMARS was managed by a 15 member Executive Committee consisting of representatives of small and large local law enforcement agencies in northern and southern California, two sheriffs (one from a northern county and one from a southern county), representatives from the California Highway Patrol and the Department of Justice, and a representative of Federal law enforcement. In the 1970s a similar system of interoperability oversight was established by the California Fire Chiefs Association to manage three VHF Mutual Aid channels assigned to the Fire Service (the "White" channels), with oversight provided by OES.

In the early 1980s, a multi-disciplinary Executive Committee was chartered to establish CALCORD. CALCORD was California's first statewide VHF channel intended for on-scene ICS Command communications across all emergency responder disciplines. The CALCORD concept of a dedicated set of channels for incident inter-disciplinary use was proposed to the Federal Communications Commission (FCC) in 1987 during the *National Public Safety Planning Advisory Committee* (NPSPAC) process, and was adopted as the five (Calling and four tactical) 800 MHz Interoperability Channels.⁸

CalSIEC

In 2000, the FCC's *700 MHz Public Safety National Coordination Committee* (NCC), charged with addressing the overall utilization of the 700 MHz band, and with interoperability in general, recommended that:

⁸ *"Emergency Management into the 21st Century: The Strategic Vision"*.
<http://www.oes.ca.gov/Operational/OESHome.nsf/Content>

- The FCC designates channels for nationwide interoperability use in the 150 and 450 MHz bands as well as the 32 12.5 kHz paired channels of the nationwide interoperability spectrum in the 700 MHz band.
- The 700 MHz interoperability spectrum be managed by a State Interoperability Executive Committee (SIEC) in each state.

The FCC adopted the spectrum allocations recommended by the NCC⁹ and in 2001 charged each state with managing or delegating the management of the 700 MHz Interoperability Spectrum.¹⁰ In December, 2001, the Department of General Services Telecommunications Division, on behalf of the governor informed the FCC that California accepted the management role, with the responsibility placed with OES as an additional tasking within the existing suite of Mutual Aid and interoperability communications systems managed by the agency.

With the 2003 release of the NCC's *Final Report* recommending that a Statewide Interoperability Executive Committee manage all of the interoperability spectrum usage within each state, on August 7, 2003 OES's Director chartered the CalSIEC to "develop an integrated Statewide Interoperability Communications Plan covering all Mutual Aid and Interoperability channels."¹¹

The Public Safety Radio Strategic Planning Committee

Following the events of September 11, 2001, the California Legislature chartered the Public Safety Radio Strategic Planning Committee (PSRSPC) to improve existing state agency public safety radio systems and to develop interoperability among the state's public safety departments and between state public safety departments and local or Federal entities. This charter is codified in California Government Code §8592-8592.7, found in Appendix A. The membership of the PSRSPC is documented in the Governance section.

FIRESCOPE

The FIRESCOPE program is intended to complete the legislative attempt to unify these various fire agencies together into one voice and direction. The character of this group is comprised of diverse fire agencies derived from the founding legislation. The synergy created by these diverse fire agencies truly provides valuable input to the Director of OES in addressing the future of fire/rescue services in California and assures excellent representation for the continued development of FIRESCOPE products. In addition to its own mission and direct coordination with OES, FIRESCOPE is represented and actively participates in the CalSIEC.

The FIRESCOPE Program originated in Southern California in 1972. By legislative action, the FIRESCOPE Board of Directors and OES's Fire and Rescue Service Advisory Committee were consolidated as part of a working partnership on September 10, 1986. This consolidation represented all facets of local, rural, and metropolitan fire departments, the California Department of Forestry and Fire Protection, and Federal fire agencies.

⁹ **FCC Docket 00-348** "Third Memorandum Opinion and Order and Third Report and Order in the Matter of The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State, and Local Public Safety Communications Requirements Through The Year 2010 (WT Docket 96-86)," (Released October 19, 2000).

¹⁰ **FCC Docket 01-10**, "Fourth Report and Order, and Fifth Notice of Proposed Rule Making in the Matter of The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State, and Local Public Safety Communications Requirements Through The Year 2010 (WT Docket 96-86)," (Released January 17, 2001)

¹¹ OES Director's "MEMO FOR THE RECORD" dated August 7, 2003

Through this partnership, FIREScope was established as a statewide program under the acronym “Firefighting REsources of California Organized for Potential Emergencies.” To further support FIREScope’s statewide program, CALFIRMS (CALifornia Fire Information Resource Management Systems) in Northern California joined with FIREScope to act as the Northern Operations Team. Under provisions set forth by Senate Bill 27, chaptered on October 2, 1989, under Health and Safety Code Section 13070, OES, California Department of Forestry and Fire Protection (CAL FIRE) and the State Fire Marshal (SFM) jointly establish and administer the FIREScope Program.

➤ **NIMS/Multi-Agency Coordination System (MCS)**

California has a long history of standardized response, including development of the Incident Command System (ICS) in the 1970s by fire services in southern California and California’s all hazards/all disciplines Standardized Emergency Management System (SEMS) in the 1990s. ICS became the backbone for California’s SEMS as well as the National Incident Management System (NIMS).

As a direct result of events during the 1991 East Bay Hills fire, SB 1841 was signed into law by Governor Wilson, directing OES to establish by regulation the SEMS. The system consists of ICS, mutual aid, the operational area concept and multi-interagency coordination. SEMS was developed in coordination with all interested State agencies with designated response roles in the state emergency plan and interested local emergency management agencies. The system officially took effect on December 1, 1996.

SEMS incorporates ICS, multi/interagency coordination, mutual aid, and the operational area concept to ensure effective emergency response in California. It permits organizations at all levels to respond to frequent and multiple disasters occurring anytime and anywhere in the state. It also facilitates priority setting, interagency cooperation, and the efficient flow of resources and information. Within SEMS there are five organizational levels: field, local, operational area, regional, and state.

California’s SEMS emergency program was recognized as a standard and best practice and was used as the model for the new NIMS program. NIMS was released as one of the new Federal initiatives in the post 9/11 environment geared towards better local, state, and national, coordination. As the nuances of NIMS, the complimentary (and also new) National Response Framework (NRF), and soon-to-be released National Preparedness Goal (NPG) are addressed for California compliance, interoperability and other new communications elements will need to be integrated into the state’s framework.¹² More detail on SEMS is provided in the SOP section of this plan.

2.3 Regions/Jurisdictions

Formal Mutual Aid response within the state of California is based on four governmental levels of increasingly justifiable mutual aid support. These levels are cities, counties/operational areas (“operational area” designates a specific geographic area and all political subdivisions operating

¹² California Interoperability: Introductory Information Version 10/13/06 Compiled by: California Statewide Interoperability Executive Committee (CalSIEC) and Public Safety Radio Strategic Planning Committee (PSRSPC) members.

within that area), mutual aid regions, and the state. To facilitate coordination of mutual aid, OES has geographically divided California into six mutual aid regions for all-hazards mutual aid coordination. Operational areas coordinate the provision of mutual aid for its subdivisions. All OAs have a mutual aid coordinator.¹³ For law enforcement, the county sheriff serves as the operational area mutual aid coordinator. The sheriffs in each mutual aid region elect one of their members as the Regional Law Enforcement Coordinator. The fire service selects a fire chief from within that operational area as the operational area mutual aid coordinator. Within a mutual aid region, the operational area coordinators select one of their members as the Regional Fire and Rescue Coordinator.

The statewide mutual aid system is an outgrowth of the California Disaster and Civil Defense and the Master Mutual Aid Agreement (Appendix B) Government Code §8561, the Emergency Services Act, and the Governor's Executive Order W-9-91 and is supported by the California Emergency Plan and by extension, the various Mutual Aid Plans in existence.¹⁴ Accordingly, public agencies are authorized by law to enter into joint power agreements; these agreements can be for the purposes of providing assistance to each other or even establishing joint management and ownership of regional systems. The Master Mutual Aid Agreement creates a formal structure wherein each local jurisdiction retains control of its own facilities, personnel, and resources, but may also receive or render assistance to other jurisdictions within the State. Written policies and procedures have been developed for several disciplines that function on a statewide basis.

The OES provides administrative oversight for the mutual aid regions through three Administrative Region Offices. State agency representatives establish liaisons with their local counterparts to relay information and mutual aid requests. The OES regional manager coordinates inter-regional mutual aid and state assistance as necessary at the request of the Operational Area (OA) Coordinators. Additionally, Fire and Rescue, and Law Enforcement Coordinators are assigned at the OA level.¹⁵

The following levels show the Emergency Organization breakdown¹⁶:

- *The Governor:*
The Governor is the chief constitutional officer of the State. The emergency powers of the Governor are described in the ESA.
- *The California Emergency Council:*
The California Emergency Council is the official advisory body to the Governor during times of emergency and on matters pertaining to emergency preparedness.
- *The State Office of Emergency Services:*
OES is part of the Governor's Office and performs executive functions assigned by the Governor. The Director coordinates the State's disaster preparedness and response

¹³ For Law Enforcement, 59 Operational Areas exist (58 counties plus the City of Los Angeles). The fire and rescue service has divided the state into 62 Operational Areas. 55 areas correspond with county boundaries. The Tahoe Basin Operational Area is a two state area with two counties in each state, and Los Angeles County has 5 Operational Areas within the county.

¹⁴ Law Enforcement Mutual Aid Plan

¹⁵ http://www.fullerton.edu/emergencypreparedness/EOP_Section_1/Concept_of_Operations.htm

¹⁶ State of California Emergency Plan, September 2005

activities, assisted by representatives of State agencies, under the authority of the ESA and Executive Order W-9-91.

- *Region:*

There are three OES Administrative Regions (Inland, Coastal, and Southern) in California. There are six Mutual Aid Regions for fire and general mutual aid coordination. Law Enforcement and Coroners have seven Mutual Aid Regions. The State OES Administrative Regions manage and coordinate information and resources among OAs within mutual aid regions, and between the OAs and State agencies for support during emergency mitigation, preparedness, response, and recovery activities.
- *Operational Area (OA):*

California is comprised of 59 OAs for Law Enforcement (derived from the 58 counties and the City of Los Angeles) and 62 for Fire and Rescue services, as delineated above. The OA provides communication and coordination between local jurisdictions and OES Regions. Coordination between the operational area and local government is accomplished through the OA Emergency Operations Center. OAs have an expanded role based on recent legislation (CCR, Title 19 §2409).
- *Local Government:*

Local government includes counties, cities, and special districts within an OA. They operate formal multi-agency Emergency Operations Center (EOC) operations, and have the primary responsibility for the protection of the health, safety, and property/resources of their residents.
- *Field:*

Many emergency response organizations have direct control of resources and response functions at the site of a disaster. These organizations command response personnel and resources to carry out tactical decisions and activities within their jurisdiction. ICS is used at the field level to coordinate response activities. Field coordination occurs at the Incident Command Post (ICP).
- *Private Sector:*

An important part of the emergency organization is the private sector. Business and industry own or have access to substantial response and support resources. Community Based Organizations (CBOs), or Non-Governmental Organizations (NGOs) provide valuable resources before, during, and after a disaster. These resources can be effective assets at any level. California's legislature recognized and declared its commitment to encouraging the collaboration and integration of public and private sector efforts in Government Code §8588.1. The Code asserts that "this state can only truly be prepared for the next disaster if the public and private sector collaborate."

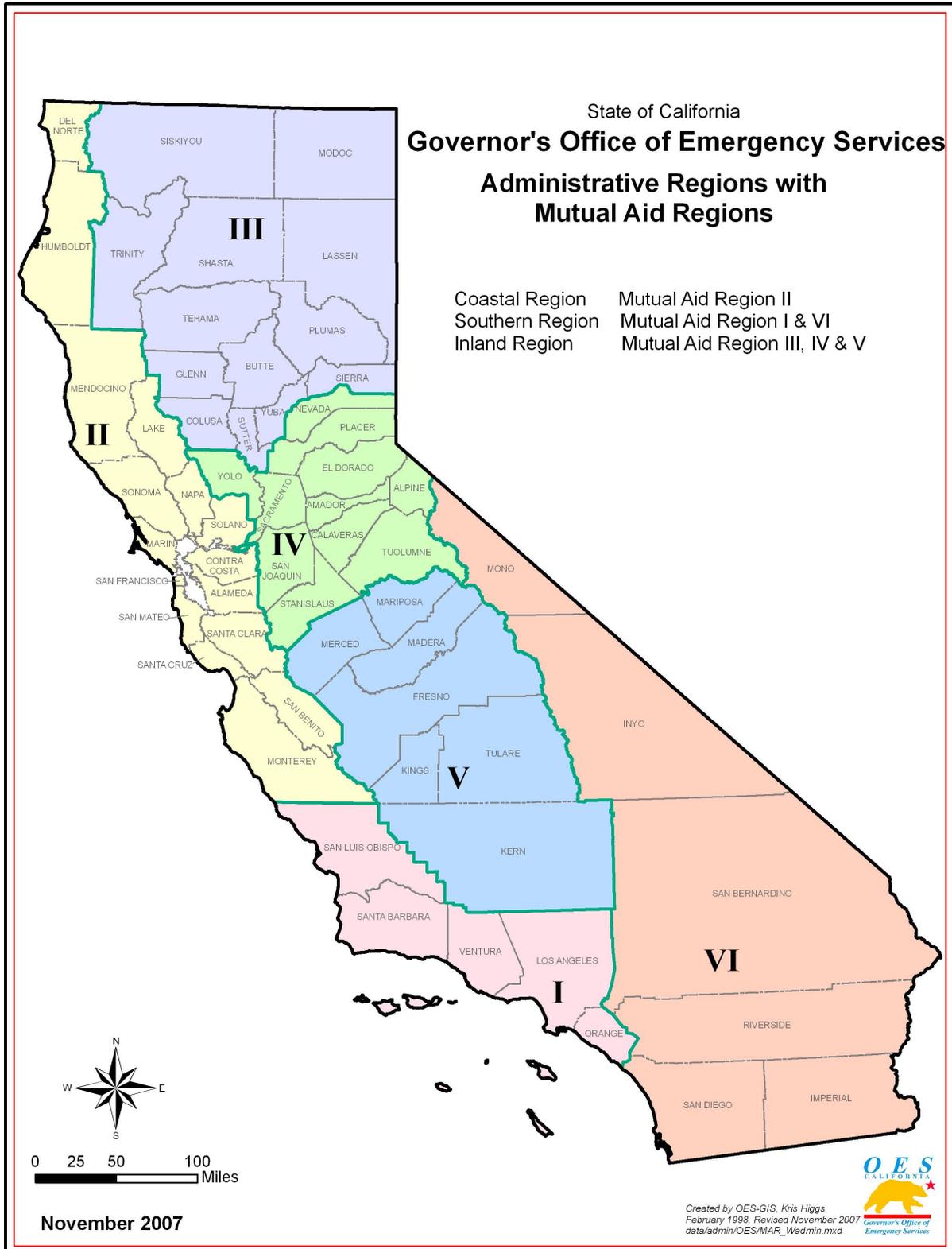


Figure 2: State Administrative Regions and Mutual Aid Planning Regions

CalSIEC Regions

Due to the needs and constraints emanating from California's geography and radio frequency coverage, CalSIEC formed a Planning Areas concept from which they currently operate. The Planning Areas were designed around radio propagation boundaries and are for interoperability focused planning, management, policy development, and regional system build out. Established in 2004, the Planning Area framework helps address the requirements of regional communications interoperability and collects local agency and practitioner input, while maintaining a statewide framework.¹⁷ Though the CalSIEC Planning Areas boundaries generally include one or more OES Mutual Aid regions, other all-hazards strategic planning as well as incident response will continue to be managed, as has historically been the case, through the OES Mutual Aid System.

2.4 UASIs and Tactical Interoperable Communication Plans

Following September 11, 2001, the US Department of Homeland Security created the Urban Area Security Initiative (UASI) and designated UASI cities throughout the country to receive additional Homeland Security funding to address critical issues. During the life of the UASI program, 10 California cities were designated and received UASI funding.

California requires that by the end of 2008 all 59 operational areas must participate in at least one TICP in order to qualify for State Homeland Security Funding. Through the collective efforts of the PSRSPC and CalSIEC, California will be interoperable at the tactical, incident level by the end of 2008. Throughout 2007, much emphasis was placed on the completion of TICPs that address SOPs, governance, technology, and other important communications components. The TICPs document the available interoperable communications resources within the urban area, control points for each resource, and rules of use or operational procedures that exist for the activation and deactivation of each resource.

To date, 30 have been developed and can be found listed below. However, for purposes of keeping the CalSCIP useable and high level, detailed information of existing processes and procedures can be found in the available TICPs that can be accessed by contacting the point of contacts listed below in Figure 3 of this plan. To help the remaining OAs complete the 2008 mandate, the CalSCIP strategy recommends the state working with regional representatives and OAs to provide guidance and document and refine existing tactical interoperable practices to fit with California's adopted template¹⁸. Additionally, to facilitate the overall current state of statewide tactical interoperable communications, the Strategy recommends the use of the Communications Asset Survey and Mapping (CASM) tool to leverage each operational area TICP and serve as a tool to depict a statewide tactical interoperable communications snapshot. While not the end state of interoperable communications in California, it demonstrates the hard work that has been done already by state and local practitioners to ensure California remains a leader in incident management.

The following UASI areas currently have Tactical Interoperable Communications Plans:

¹⁷<http://rimsinland.oes.ca.gov/CalSIECCalSIEC.nsf/Content/49B97A6D3CB5A17D882571BC007E1E76?OpenDocument>

¹⁸<http://rimsinland.oes.ca.gov/calsiec.nsf/Content/51528F8F2D4D9583882571BD006117F3?OpenDocument>

<i>UASI Area</i>	<i>Regions / Jurisdictions</i>	<i>TICP Completion Date</i>	<i>POC Name</i>
Anaheim/Santa Ana	Anaheim Santa Ana Orange County	February 2006	Robert Stoffel
Fresno	City of Clovis City of Coalinga City of Firebaugh City of Fowler City of Fresno City of Huron City of Kerman City of Kingsburg City of Mendota City of Orange Cove City of Reedley City of San Joaquin City of Sanger City of Selma CSU Fresno Fresno County	Draft-July 2005	Ron Grimm
Los Angeles/Long Beach	Bellflower Beverly Hills Carson Compton Culver City Glendale Hawaiian Gardens Hawthorne Inglewood Lakewood Long Beach Los Angeles Monterey Park Paramount Pasadena San Fernando Santa Monica Signal Hill South Pasadena Torrance Vernon West Hollywood	Draft-March 2006	Casey Chel
Oakland	Alameda Contra Costa Oakland	April 25, 2006	Susan F. Newton
Sacramento	Citrus Heights Elk Grove Folsom Rancho Cordova	March 2006	Lt. Robert Stevens (Ret)

	Rocklin Roseville Sacramento West Sacramento (Yolo County)		
San Diego	City of San Diego San Diego County Imperial County	February 2006	Chief Darrell Jobes
San Francisco	City of San Francisco Marin County San Francisco County San Mateo	April 26, 2006	Laura Phillips
San Jose	Campbell Cupertino Gilroy Los Altos Milpitas Monte Sereno Morgan Hill Mountain View Palo Alto San Jose Santa Clara Saratoga	September 2006	Sheryl Contois

Figure 3: UASI TICPs and Points of Contacts

Currently, California is receiving funding for two Tier 1 “Super UASI (SUASI)” Cities, and three Tier 2 UASI Cities, shown below.

Tier 1 SUASI	Tier 2 UASI
Bay Area: San Francisco, San Jose, Oakland	Anaheim/Santa Ana Area
Los Angeles/Long Beach	Sacramento Area
	San Diego Area

The following non-UASI Operational Areas also have developed local TICPs that informed the creation of the CalSCIP:

- Glen
- Humboldt
- Inyo
- Mono
- Monterey
- Plumas
- Riverside
- San Bernardino
- San Luis Obispo
- Santa Barbara
- Shasta
- Sutter
- Tehama
- Ventura
- Yolo

2.5 Participating Agencies

Multiple agencies from various disciplines and jurisdictions participated in the development of the CalSCIP. All told, the effort involved 210 practitioners from 137 agencies located throughout the state. For a complete listing of the agencies, please refer to Appendix C. These stakeholders will not only benefit from knowing they contributed to the development of California's first-ever statewide plan for communications interoperability, but also from the knowledge that their voices were heard in the process. Furthermore, CalSCIP participants now understand that there is a strategy in place to propel the state toward a common vision with a common mission for communications interoperability as they continue to incorporate the plan into their own.

2.6 Statewide Plan Point of Contact

California's points of contact for the CalSCIP are Mr. Samuel Williams and Ms. Sue Plantz. They are currently responsible for coordinating the statewide communications interoperability effort until such time that a designated interoperability coordinator can be appointed.

Mr. Samuel Williams (Primary)
Communications Coordinator for Interoperability
Office of Emergency Services
samuel.williams@oes.ca.gov
(916) 845-8602 (office)
(916) 845-8606 (fax)

Ms. Sue Plantz
Chief Technology Officer
Office of Emergency Services
sue.plantz@oes.ca.gov
(916) 845-8552 (office)
(916) 845-8606 (fax)

2.7 Scope and Timeframe

The CalSCIP's vision is to ensure all local, regional, tribal, state and Federal public safety first emergency responders and designated public service organizations operating within California will be able to communicate in real time, across disciplines and jurisdictions, to respond more effectively during day-to-day operations and major incidents by 2017. While the 2017 vision is statewide, most major cities and UASIs will achieve interoperability within their regions well before 2017 as funding and planning efforts are already well underway. However, the CalSCIP focuses on *statewide* interoperable communications and will pursue efforts until full interoperability is achieved.

As demonstrated in the Action Plan and Implementation section, California intends to use a biennial planning lifecycle to update, implement, institutionalize, and measure the success of the CalSCIP throughout its 10-year lifecycle. This plan applies not only to those organizations developing the CalSCIP, but also to all public safety emergency responders and designated public service organizations operating within California.

Furthermore, communications interoperability is one component of California's Emergency Plan addressing mitigation, preparedness, response, and recovery activities. The Emergency Plan can be found at:

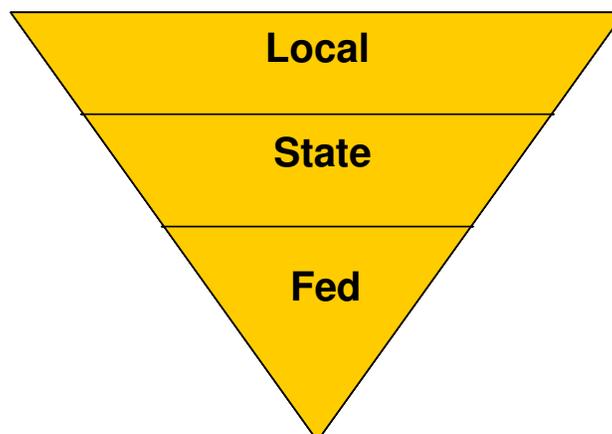
[http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/California%20Emergency%20Plan/\\$file/CEP-05.pdf](http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/California%20Emergency%20Plan/$file/CEP-05.pdf).

3.0 Methodology

The purpose of the Methodology section is to summarize the process used to develop the CalSCIP. This section highlights the ways California leveraged governance groups in developing the CalSCIP to ensure cross-jurisdictional and cross-disciplinary participation. In addition, this section reviews the process established to incorporate data from California's existing TICPs and outlines the effort to sustain practitioner participation in the development and future revisions of the plan.

3.1 California's Approach to Statewide Interoperability Planning

California's leaders have long understood the need to build consensus among officials from all levels of government, starting with local emergency responders in the towns, cities, and rural areas across California. Over the last 20 to 25 years, this approach has been identified by numerous Federal programs and Advisory Committees, including the US Department of Homeland Security's SAFECOM Program, as a best practice. Figure 4 demonstrates this locally driven, practitioner based approach used by California for interoperability planning, coordination, and CalSCIP development.



California's Approach to Interoperability Planning

Figure 4: Locally Driven Policy Development Process

The CalSCIP is seen as the primary guiding document for statewide communications interoperability planning within California. The document serves as the *glue* holding together and guiding California's various communications interoperability efforts. OES will leverage and continue to engage these efforts to obtain input for the development and implementation of the CalSCIP.

Figure 5 provides a high-level view of how the various practitioner-driven governance bodies and efforts across California collaborate to achieve statewide communications interoperability. As the UASIs typically lead the way in regional technology investments and integration, they

must be part of any ongoing CalSCIP implementation. In this case, the Urban Area Security Initiative regions provided input on systems, standard operating procedures, exercises, and initiatives actively pursued in California's high-threat urban areas through their TICPs. The CalSIEC provided local and regional input from multiple disciplines and jurisdictions across the State. The PSRSPC also played a key role by providing historical communications documents and the state agency perspective.

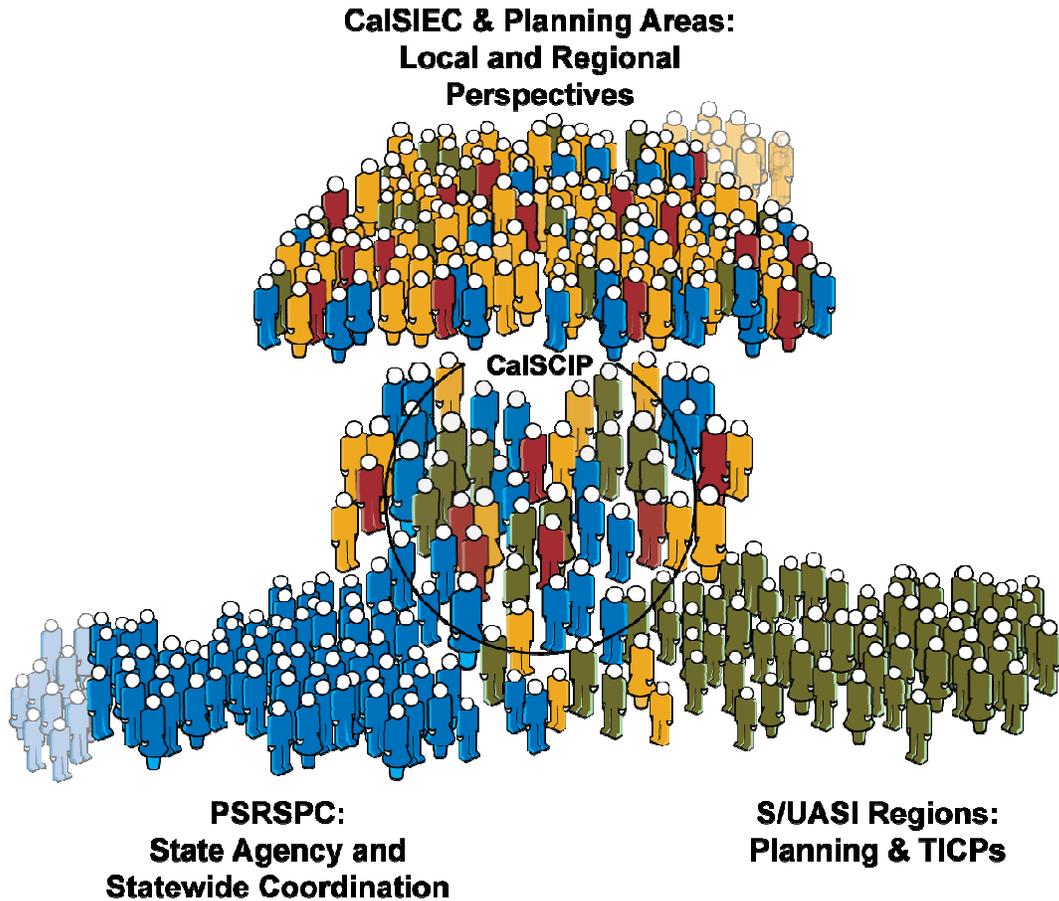


Figure 5: Statewide Planning Coordination in California

Direction is a key responsibility area for the Governor's OES, as defined in the Government Code §8550, Chapter 7 (Appendix D). This direction includes, but is not limited to:

Oversight and coordination of all statewide emergency preparedness, and post emergency mitigation efforts, and development, review, approval, and integration of Federal emergency response plans. This responsibility also includes integration of volunteers from the private sector, direction and oversight of all drills, training, and exercising of emergency plans.¹⁹

As the coordinating body responsible for statewide interoperability planning and implementation, OES undertook a rigorous local practitioner driven, locally driven approach for developing this document. OES committed to pooling insights and recommendations from the UASI groups, the CalSIEC, and the PSRSPC. Furthermore, OES and California's legislature recognized and declared their commitment to encouraging the collaboration and integration of public and private sector efforts in Government Code §8588.1. The Code states, "... [California] can only truly be prepared for the next disaster if the public and private sector collaborate."²⁰ As a result, OES includes private businesses and nonprofit organizations when preparing the state for disasters, as appropriate. Notably, participation by businesses and nonprofit associations is voluntary, and OES may do any of the following to ensure non-governmental, private sector, and non-profit groups are involved in interoperability planning:

- Provide guidance to businesses and nonprofit organizations representing business interests on how to integrate private sector emergency preparedness measures into governmental disaster planning programs
- Conduct outreach programs to encourage businesses to work with governments and community associations in preparing the community and their employees to survive and recover from disasters
- Develop systems so that government, businesses, and employees can exchange information during disasters to protect themselves and their families
- Develop programs so that businesses and government can work cooperatively to advance technology that will protect the public during disasters

As previously noted, within California there are two primary groups contributing to the successful planning for Statewide Communications Interoperability – the *California Statewide Interoperability Executive Committee* (CalSIEC) and the *Public Safety Radio Strategic Planning Committee* (PSRSPC). The CalSIEC provides local, regional, state (state agencies are individually represented on CalSIEC), Federal, and tribal input and recommendations to OES. The PSRSPC provides consolidated state agency input and recommendations to OES while working to coordinate with local governments. Each of these bodies is explained in general below, and in detail within the Governance section of the CalSCIP. The coordination and collaboration between these two groups acknowledges and builds upon the shared understanding that communication interoperability planning requires input from a plethora of stakeholders that cross-cut public safety disciplines, agencies, and localities, as well as the private sector and public service organizations.

¹⁹ The California OES website lists duties and responsibilities of the Director of the Office of Emergency Services (OES) in the following link, under the heading, "1970: California Emergency Council and Office of Emergency Services":

<http://www.oes.ca.gov/Operational/OESHome.nsf/Content/DE011AC74CA7B73A88256B7B0026B5F3?OpenDocuments>

²⁰ <http://caselaw.lp.findlaw.com/cacodes/gov/8585-8589.7.html>

While the CalSIEC and PSRSPC have distinguishing mission and vision statements specific to their constituencies and origins, the groups collaborate through joint meetings and initiative working groups in order to advance towards a common goal of statewide interoperable communications. Through the CalSIEC, OES collects data and input from local agencies and governments, public safety practitioners from all disciplines, and non-governmental organizations (NGOs). The CalSIEC meetings are open to the public and are announced 30 days in advance; feedback and involvement on key issues is highly encouraged of any interested constituent. Meanwhile, state agency information is obtained through the PSRSPC, as depicted in the governance structure in Figure 11 in the Governance section. The development of the CalSCIP has strengthened the working relationship of the CalSIEC and PSRSPC and ensured the involvement of agencies throughout the state, as listed in Appendix C. Moving forward, implementing the initiatives described in the Strategy will require the governance body constructed by these two organizations to assemble local and state public safety practitioners in cross-discipline working groups. These working groups will ensure that a statewide perspective influences not only the planning, but also the execution of the CalSCIP each year as California moves towards the 2017 vision.

In addition, the CalSCIP leveraged the DHS' UASI funding program and its requirement for TICPs. The TICPs developed by UASI program participants were considered during the development of this SCIP and data from the plans is interspersed in appropriate sections, such as Governance, SOPs, Training and Exercises, Technology, and Usage.

3.2 CalSCIP Development

The CalSCIP development process, as depicted in Figure 6, illustrates how input from a variety of resources was leveraged to achieve this milestone. To develop California's first Statewide Communications Interoperability Plan, the work products of various governance groups across the state, such as the annual PSRSPC Report to the Legislature, existing and draft charters, and existing interoperability and mutual aid communications plans, have been leveraged. Additionally, guidance, recommendations, and revisions were obtained from OES, PSRSPC, and the CalSIEC.

The Governor's OES facilitated one strategy meeting in each CalSIEC Planning Area as well as with the PSRSPC Technical Working Groups (TWG). The purpose of each meeting was to:

- Solicit a current state understanding from each UASI, region, and state agency along the lanes of the Interoperability Continuum
- Obtain specific input addressing the criteria set forth within the SAFECOM SCIP guidebook
- Document the regions' Public Safety Interoperable Communications (PSIC) grant investment justifications aimed at driving the region towards its desired future state
- Provide all stakeholders with a shared understanding of the CalSCIP process and SAFECOM requirements

As previously mentioned, the CalSCIP development team sought information and expertise from agencies and disciplines referenced in the diagram noted previously in Figure 5. To achieve such cross-disciplinary, cross-jurisdictional participation from all levels of government, OES leveraged input from the following communications interoperability focused sessions across California:

- California Statewide Interoperability Executive Committee (CalSIEC)
 - This governance body provided local, regional, UASI, tribal, NGO, and state practitioner input from multiple disciplines.
 - The CalSIEC members convened statewide meetings to provide input for the CalSCIP development on August 16, September 24, and November 15
 - The meetings were open to the public and feedback and involvement on key issues was highly encouraged
- Public Safety Radio Strategic Planning Committee (PSRSPC) and PSRSPC-TWG
 - Comprised of 15 key state public safety agencies, this governance body provided the state practitioners' input
 - The PSRSPC and TWG held meetings for CalSCIP and development on August 16, September 5, September 24, September 29, November 1, and November 15
- Subject Matter Expert Working Groups
- CalSCIP Communications Interpretability SME Working Groups
 - Comprised of members from both the CalSIEC and PSRSPC, these Working Groups provided expert reviews of CalSCIP drafts specific to each lane of the Interoperability Continuum (Governance, Technology, Training, Standard Operating Procedures and Usage)
 - SME Working Groups were convened prior to the delivery of the first Draft of the CalSCIP during the time period from September 3 – 7. These Working Groups were again called to action prior to the November 15th CalSIEC/PSRSPC joint meeting from October 15 – 26. See Appendix 2 for the agencies represented on the SME Working Groups for each lane of the Continuum.

To accommodate busy schedules and encourage the participation of practitioners from across California, the CalSCIP team leveraged the National Interoperability Information Exchange (NIIX), an interactive and web-based collaborative technology provide by SAFECOM in partnership with the National Public Safety Telecommunications Council (NPSTC), to ensure widespread participation and accessibility during review periods.

In total, over 210 stakeholders from 137 local, regional, tribal, and State agencies participated in the CalSCIP process. A listing of the participating agencies can be found in Appendix C. Figure 6 depicts the practitioner driven CalSCIP development methodology used.

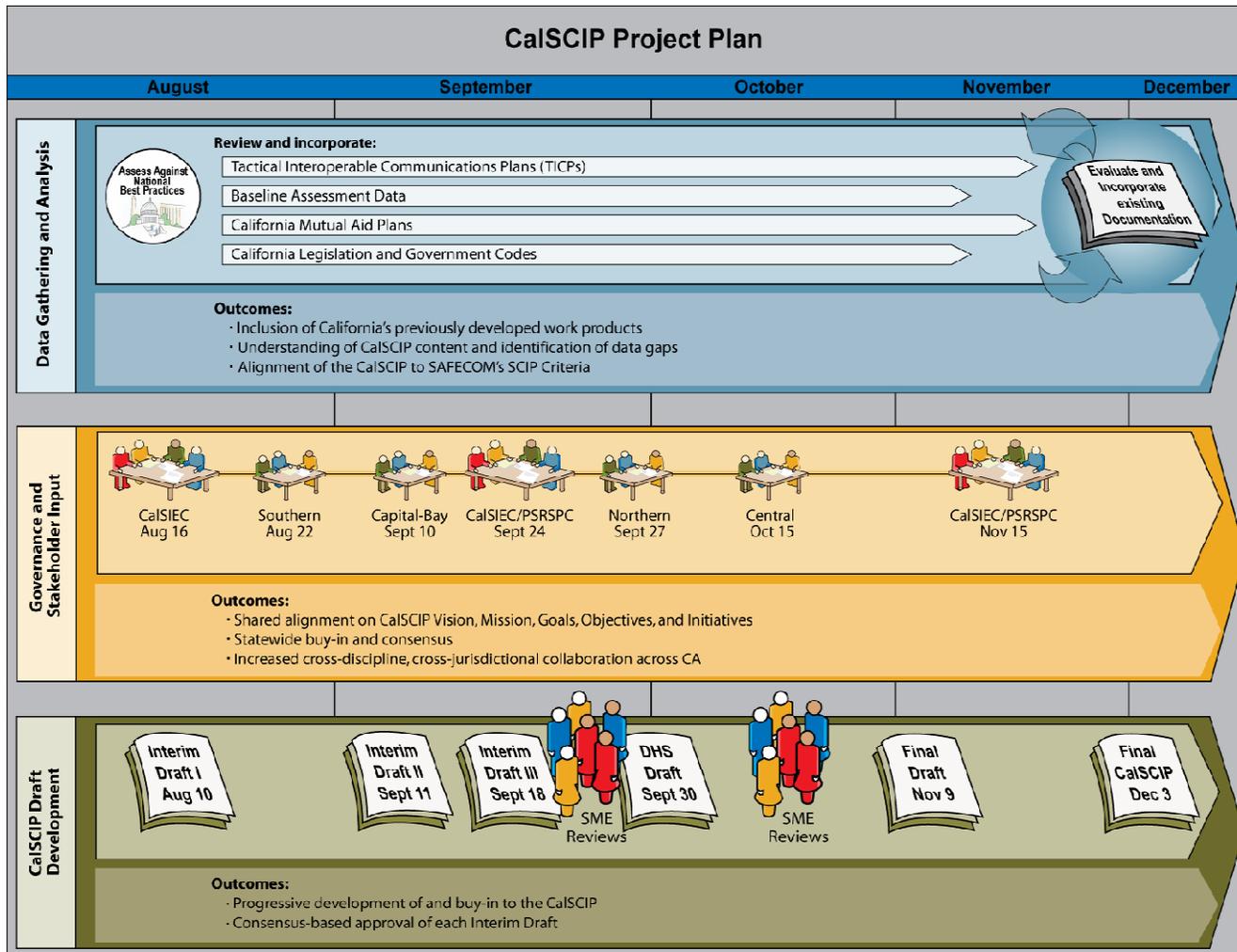


Figure 6: CalSCIP Development Process

➤ **Regional Input**

Due to the needs and constraints emanating from California's geography and radio frequency coverage, CalSIEC formed a Planning Areas concept from which they currently operate. The Planning Areas were designed around radio propagation boundaries and are for interoperability focused planning, management, policy development, and regional system build out. Established in 2004, the Planning Area framework helps address the requirements of regional communications interoperability and collects local agency and practitioner input, while maintaining a statewide framework.²¹ Though the CalSIEC Planning Areas boundaries generally include one or more OES Mutual Aid regions, other all-hazards strategic planning as well as incident response will continue to be managed, as has historically been the case, through the OES Mutual Aid System.

The CalSIEC Planning Areas, in conjunction with OES's All-Hazard Mutual Aid Regions, provide a governance process for continuing local input and support for the CalSCIP. Figure 7 identifies which counties belong in which CalSIEC Planning Areas and the following figure maps the Planning Areas with OES's Mutual Aid Regions.

²¹<http://rimsinland.oes.ca.gov/CalSIECCalSIEC.nsf/Content/49B97A6D3CB5A17D882571BC007E1E76?OpenDocument>

State of California
Governor's Office of Emergency Services
Mutual Aid Regions mapped
onto CalSIEC Planning Areas

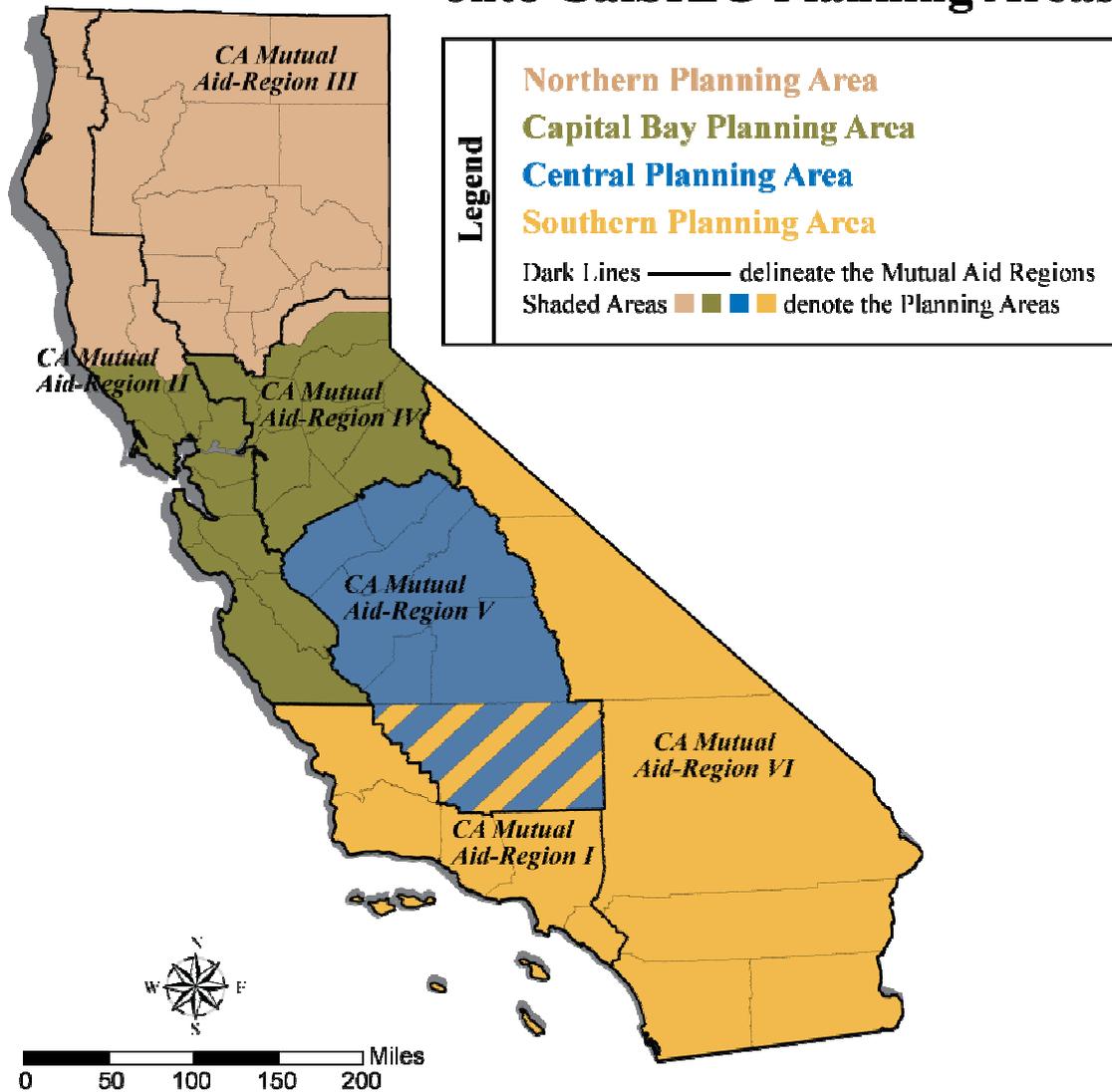


Figure 7: Map of CalSIEC Planning Area and Mutual Aid Regions

The Planning Areas are designed to work in collaboration with and as a part of the CalSIEC. Unlike OES's existing Mutual Aid Regions, the four CalSIEC Planning Areas evolved over time and are based on geographic areas mutually affected by radio signal coverage and/or areas that routinely assist each other due to long standing agreements. However, emergency resource management, including communications interoperability resources, will continue to follow Mutual Aid regional boundaries and standard operating procedures. The governance section of this report provides a graphical depiction for how the organizational structure of the Planning Areas and OES's Mutual Aid Regions interact to ensure regional input is obtained (see

Figure 10). In addition, OES recognizes that the overlapping frameworks require ongoing review to ensure clearly cut boundaries across Planning Areas and Mutual Aid Regions to assure efficient and effective planning, operations, and management of interoperability resources.

CalSIEC Planning Areas			
<u>Northern</u>	<u>Capital-Bay Area</u>	<u>Central</u>	<u>Southern</u>
<ul style="list-style-type: none"> • Butte • Colusa • Del Norte • Glenn • Humboldt • Lake • Lassen • Mendocino • Modoc • Nevada • Plumas • Shasta • Sierra • Siskiyou • Sutter • Tehama • Trinity • Yuba 	<ul style="list-style-type: none"> • Amador • Alameda • Alpine • Calaveras • Contra Costa • El Dorado • Marin • Monterey • Napa • Placer • Plumas • Sacramento • San Benito • San Francisco • San Joaquin • San Mateo • Santa Clara • Santa Cruz • Solano • Sonoma • Stanislaus • Tuolumne • Yolo 	<ul style="list-style-type: none"> • Fresno • Kern* • Kings • Madera • Mariposa • Merced • Tulare 	<ul style="list-style-type: none"> • Kern* • Imperial • Inyo • Los Angeles • Mono • Orange • Riverside • San Bernardino • San Diego • San Luis Obispo • Santa Barbara • Ventura
		<p>* Because it encompasses both sides of the mountain range that separates the Central Valley and Southern California, Kern participates in both Central and Southern Planning Areas</p>	

Figure 8: CalSIEC Planning Areas

➤ **TICPs and the UASI in California**

As previously mentioned, each of California's UASI jurisdictions was required to develop and submit a TICP in 2006. Though not a DHS-designated UASI in 2006, the Fresno Urban Area also completed a TICP. These plans identified the capabilities of California's urban areas and the resources available to provide on-scene, incident-based, mission critical voice communications among all emergency responder agencies (e.g., EMS, fire and law enforcement), as appropriate for the incident; the plans also addressed California's efforts to support an incident command system as defined in the NIMS. The TICPs developed and the jurisdictions covered are shown in Figure 3 within the background section of the CalSCIP.

California recognized the value and utility of the TICPs and is working to ensure that each county in the State develops its own TICP. By policy, the State is requiring that by the end of 2008 all OES-defined operational areas must participate in and be covered by at least one TICP in order to qualify for State Homeland Security funding. To facilitate the statewide TICP roll-out, CalSIEC developed a simplified template to ensure consistency and operational compatibility across the state. At the completion of the CalSCIP, 30 TICPs had been compiled and can be referenced in the Background section. The high-level information from the TICPs has been leveraged for the completion of the Governance, Technology, Training and Exercise, SOP, and Usage components of this plan. More information can be obtained by contacting the POCs listed in Figure 3 for the respective TICPs.

CalSIEC continues to work collaboratively with its regional representatives to document and refine existing tactical interoperable practices. Notably, in the recent October 2007 wildfire devastation, OES leaders encouraged emergency responders to actively reflect on their successes and challenges; these thoughts will be included in future planning processes, TICP updates, and SOP enhancements. Further detail on California's TICP process is documented within the SOP section of this plan.

➤ **Statewide Communications Interoperability Baseline Assessment Input**

In addition to leveraging TICP's and stakeholder strategy meetings, the CalSCIP report includes data provided by California's Communications Interoperability Baseline Assessment. Described in detail within the Technology section of this report, the PSRSPC and CalSIEC jointly administered a statewide baseline assessment. The CalSCIP leverages data captured from 13 State agencies and 223 local respondents, including city, county, and regional representatives; joint powers authorities; colleges; and regional systems. Some responses may also represent regional systems or multiple agencies within a locality. To increase the number of survey respondents, OHS will require survey completion for 2008 grant receipt. This will give the CALSIEC and PSRSPC better data to utilize for planning purposes and will allow for an update to the analysis.

Key to statewide communications interoperability strategic planning, the assessment asks each respondent to identify their agency or organization's current state in relation to the Communications Interoperability Continuum provided by SAFECOM. The Interoperability Continuum, shown below in Figure 9a, demonstrates California's perceived communications interoperability statewide snapshot as provided by the statewide baseline assessment. This information shows only 223 local respondents out of more than 2000, therefore revealing only a small percentage of California's actual baseline. The list of local respondents can be found in Appendix T. An initiative in the Strategy section aims at completing the assessment utilizing the

CASM tool. Additional regional and state agency specific responses along each Continuum lane are provided within the Governance, Technology, SOP, Training, and Usage sections of the CalSCIP.



Homeland Security

Interoperability Continuum

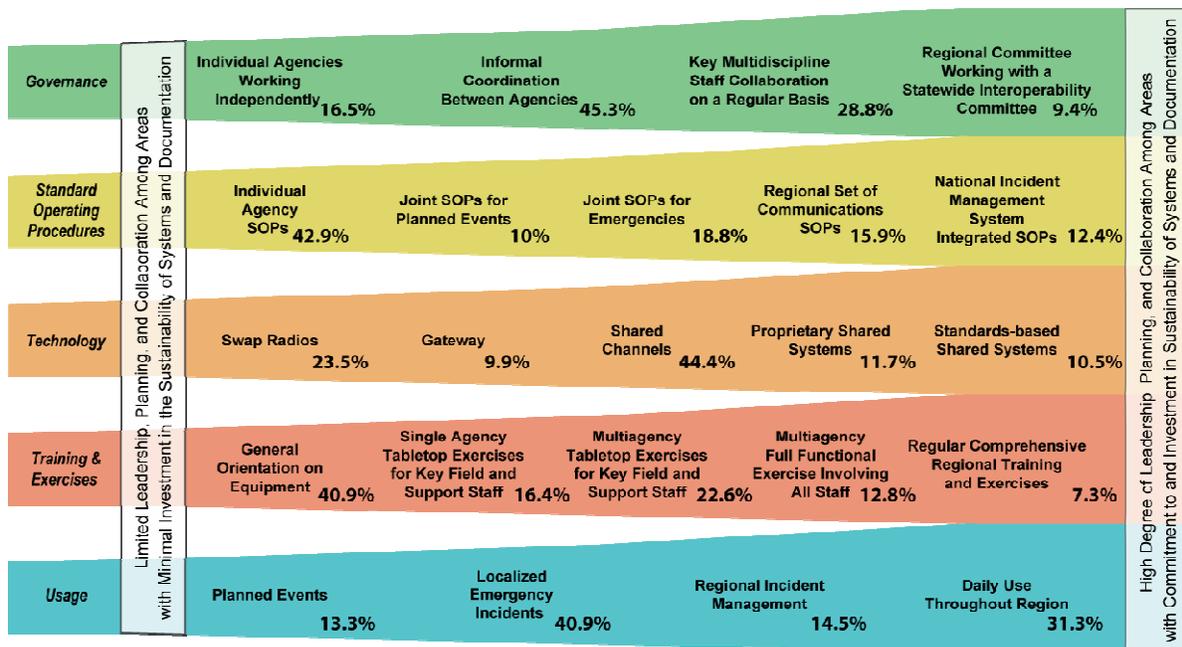


Figure 9a: California's Current Statewide Assessment

SAFECOM, in partnership with the National Governance Association (NGA), helped launch the CalSCIP development process by convening a subgroup of leaders from the State of California. After the SCIP criteria were introduced to the group they were asked to develop an initial current state picture. The California representatives discussed, and then mapped, where they believed statewide interoperability capabilities stood along each lane of the Continuum. The leaders used their historical knowledge of past projects and insights into ongoing interoperability projects to develop the Baseline Interoperability Continuum depicted in Figure 9b below. The experience-based perception of key leaders from California did not exactly map up to the current baseline assessment data. This insight proved invaluable in the process for developing the CalSCIP and helped increase awareness about the importance of methodically conducting a statewide baseline. To address this notable gap, CalSCIP strategy includes an initiative task to leverage CASM as a tool for conducting baseline assessments and for housing data on interoperability capabilities. Completing a full baseline assessment will help identify and better prioritize the most critical initiatives for improving statewide interoperability and will also provide an accessible, easily updated database solution for compiling capability information.

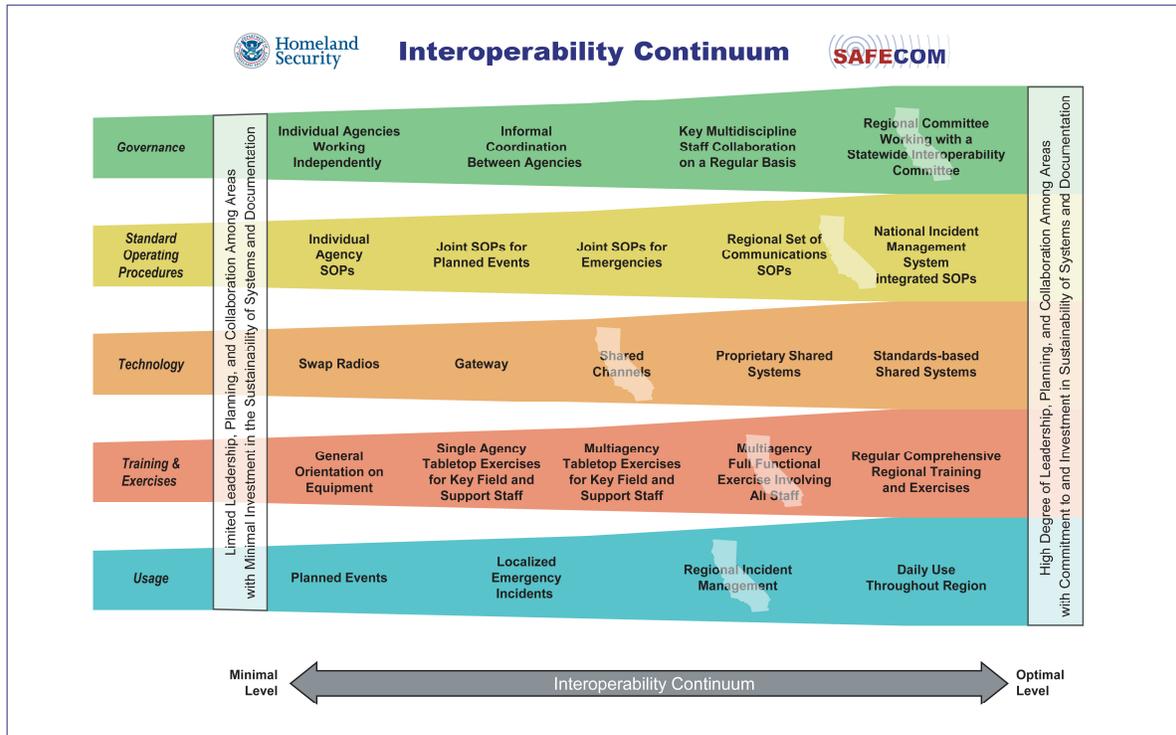


Figure 9b: California's Notional Understanding of Current State

3.3 PSIC Methodology

As California's State Administrative Agent (SAA), the Office of Homeland Security (OHS) is responsible for administering the state's PSIC Grant. On October 1, 2007, OHS published the PSIC state supplement outlining California's regional approach and methodology for distributing the grant funds.

Mirroring the CalSCIP planning approach, OHS leveraged California's PSRSPC for the state's Investment Justification, and CalSIEC and its four Planning Areas for local Investment Justification development, as demonstrated in Figure 5, to ensure multi-discipline, cross jurisdictional and regional collaboration across California. To this end, CalSCIP and PSIC planning efforts occurred concurrently, with lessons learned exchanged between OES and OHS personnel following each regional meeting. To ensure PSIC investment justification (IJ) alignment with the CalSCIP, each Planning Area was introduced to the statewide communications interoperability vision, mission, goals and objectives developed during the CalSCIP planning process. Each Planning Area community was asked to consider the statewide goals and objectives as they collaborated across disciplines, jurisdictions, and agencies to design and implement their PSIC-supported projects. The regional and state PSIC IJs are documented within the CalSCIP.

OHS awarded a total of \$75,227,608 from California's entire PSIC Grant of \$94,034,510 to the regions.

PSIC Allocation	
Northern	\$2,444,897.26
Central	\$5,431,433.30
Capitol-Bay	\$22,793,965.22
Southern	\$44,557,312.22
State	\$18,806,902.00
Total	\$94,034,510.00

California's PSIC Grant Allocation

The regional amounts were divided and allocated based on a statewide risk assessment. Each Planning Area organized its resources and collaborated to ensure the needs of the region's public safety emergency responders were met in its respective IJ. For the state's portion of PSIC funding, the PSRSPC collaborated and submitted one IJ to OHS on behalf of all state agency projects. The IJs were submitted to OHS on November 21, 2007 for final review and to ensure alignment with the PSIC grant guidance and the CalSCIP initiatives.

Current Statewide Assessment:

Governance
Technology
Standard Operating Procedures
Training & Exercises
Usage
Funding

4.0 Current Statewide Assessment

4.1 Governance

According to SAFECOM Statewide Planning guidance, Governance refers to establishing a shared vision and collaborative decision-making process across disciplines and jurisdictions to support progress towards improved public safety communications interoperability. To achieve a shared statewide vision and an agreed-to set of objectives, California understands the essential need for a unified governing body. This group would be responsible for coordinating, cooperating, and unifying the development and implementation of communications interoperability efforts across the state. Such a body ensures that focus and direction are maintained and provides assistance when efforts are slowed or stalled.

As detailed in this section, California's statewide communications interoperability effort is coordinated and implemented by OES with recommendations and guidance collectively obtained from the CalSIEC and PSRSPC. Under the overarching umbrella of the CalSCIP effort, these groups add significant value and represent stakeholders from multiple public safety disciplines and jurisdictions, various public service and private sector groups, and all levels of government. Collaborating across all levels of government, disciplines, and jurisdictions to improve interoperability is a standard practice in California. While challenges emerge due to the size, diverse geography, historical issues, and even legislative interpretation, participants in the statewide governance bodies recognize the importance of building consensus and working towards achieving shared goals such as implementation of shared channels, development of statewide SOPs, improved coordination of training and exercises, and coordination of system build-outs. With an eye towards continued process improvement, the following section presents California's current statewide governance structure and outlines key components that will be revisited in the future for enhancement.

To mitigate possible "turf battles," OES plans to not only designate a single point of contact for the CalSCIP, but also to request that the legislature create a Statewide Communications Interoperability Coordinator's Office with clearly defined responsibilities.

➤ **Statewide Assessment: Governance-at-a-Glance**

Initial data from California’s baseline assessment revealed that the degree of governance varies across California on a local and regional level; however, statewide governance is strong and provides representation for all of California’s emergency responders. The specifics of California’s baseline assessment are discussed in the Technology section of this report.



Interoperability Continuum



	Number of Respondents				Totals
Capital Bay	3	18	15	2	38
Northern	3	9	6	0	18
Central	4	9	4	0	17
Southern	14	38	22	11	85
State Agencies	4	3	2	3	12

Governance	Individual Agencies Working Independently	Informal Coordination Between Agencies	Key Multidiscipline Staff Collaboration on a Regular Basis	Regional Committee Working with a Statewide Interoperability Committee	
Statewide Response	28 16.5%	77 45.3%	49 28.8%	16 9.4%	170

Figure 10: Governance Baseline Assessment

Governance Highlights from Across California

- ◆ In northern California, the *Butte Operational Area Interoperability Committee* serves as the cross-disciplinary, multi-jurisdictional body established to share information and collaboratively work on an Interoperability Plan. Members include police and fire representatives from the cities of Chico, Gridley, Oroville and Paradise; the County Sheriff; County Communication staff; and the local OES representative. The committee has adopted a charter that will govern the work of the committee and oversee the Butte Emergency Services Council. In addition, sub-committee working groups have been formed to address Policies, Frequency Agreements/Operational plans, and technical issues within SOPs and Technology. The committee has agreed to expand membership and include California Highway Patrol, Chico State, Caltrans, Butte College and tribal representatives. The next goal is to further expand interoperability efforts by collaborating with neighboring counties.

- ◆ In southern California, the Los Angeles Regional Tactical Communications System (LARTCS) has been leveraging its regional governance body since 2000. Originally championed by the Los Angeles County Sheriff's Department, eventually other agencies expressed interest and helped form the LARTC Executive Committee. This is an open committee with nine voting members. The voting members include the following:
 - Los Angeles County Sheriff's Department, serving as the Chair
 - Los Angeles Area Fire Chiefs Association, serving as the Vice Chair
 - Los Angeles County Chiefs of Police Association
 - Los Angeles County Fire Department
 - Los Angeles Police Department
 - Los Angeles City Fire Department
 - United States Secret Service, representing all Federal agencies
 - California Highway Patrol, representing all State agencies
 - Los Angeles County Health Department

The committee produced a concept of gateways and shared channels to solve interoperability problems in the Los Angeles urban area. These solutions are serving as an interim solution and will be replaced if a standards-based single platform system is built. Upon the completion of a single platform, the LARTC concept will connect non-participating agencies, as well as State and Federal responders.

➤ **Legislative Authorities and Gaps**

Under authority of the California Emergency Services Act (California Government Code §8550, as listed in Appendix D), OES coordinates and facilitates interoperability among the state's public safety departments in consultation with other local, regional, tribal, state, and Federal entities.

Excerpt from the OES Mission Statement

OES seeks to ensure that the State of California is ready and able to mitigate against, prepare for, respond to, and recover from the effects of emergencies that threaten lives, property, and the environment.

In alignment with the responsibility for emergency preparedness and planning, OES plays a critical coordination, facilitation, advocacy, and oversight role in the area of statewide communications interoperability planning. With regard to interoperability, OES activities include the management of mutual aid radio frequencies and systems to facilitate operations under California's Master Mutual Aid Agreement and subordinate Mutual Aid plans. Additionally, OES coordinates and supports local, regional, tribal, and state communications interoperability planning efforts through its oversight of the CalSIEC and involvement in the PSRSPC, as authorized by the California Emergency Services Act.

The CalSIEC was formally established by the Director of OES under general authorities in state law to provide for statewide interoperable communications planning. The PSRSPC is specifically codified under California state law in the Public Safety Communications Act of 2002 in Appendix A. To remedy what some may see as a lack of authority, CalSIEC and OES leadership are aggressively working with the California Legislature to specifically codify the CalSIEC in order to provide it with legal recognition, authority, and expanded powers. Pending the advancement of legislation, the operations of the CalSIEC and PSRSPC will continue as in the current state – voluntarily collaborative, inclusive, and per the authority of the OES Memorandum for the Record provided in Appendix G. Notably, the current state of Governance needs some minor improvements, as discussed in the Strategy section, and there is also a statewide need to provide additional funding to allow for face-to-face practitioner interaction under the CalSCIP governance components. Such critical funding will help OES provide the CalSIEC and PSRSPC with sustained funding and staffing to advance recommendation and decisions, and implement strategic initiatives.

The California Legislature recognized that, although the primary focus of the PSRSPC's work relates to State agencies' communications abilities, effective development and application of an interoperable communications network must reflect and take into account the day-to-day organizational structure and protocols across all of California's public safety agencies. Therefore, operations and collaborations between the PSRSPC and CalSIEC are quite strong and proactive. For instance, the CalSIEC and PSRSPC jointly administered a statewide communications interoperability baseline assessment based on the Interoperability Continuum. CalSIEC membership also overlaps with the PSRSPC. As a foundational step to align strategic goals and ensure cohesive planning and implementation, the PSRSPC's annually mandated Legislative Reports are validated and upgraded by CalSIEC, whose members represent local, regional, tribal, state, Federal, and non-governmental entities, through a joint meeting process.²² These joint meetings of the PSRSPC and CalSIEC and their collaborative activities allow for a comprehensive statewide viewpoint in the annual Legislative Reports and the CalSCIP.

²² For purposes of this document, references to coordination and collaboration with CalSIEC denote working with all categories of CalSIEC membership, as well as the committee itself.

Taking into account the historical progress and successes of past efforts to achieve interoperability across California, the State uniquely leveraged the authority, powers, and cross-disciplinary membership of the CalSIEC and PSRSPC to form a statewide governance structure. Each organization retained its own mission and vision, as described in the following sections. The combined efforts of the CalSIEC and PSRSPC, unified by the OES, fulfill the role of statewide communications interoperability governance. Under the auspices of California's OES, the CalSIEC and PSRSPC agreed to jointly undertake implementation of the CalSCIP Strategy via their ongoing collaborative process. This approach maximizes and integrates the practitioner-focused, cross-disciplinary, and multi-jurisdictional perspectives stressed by SAFECOM guidance and the Interoperability Continuum.

➤ **CalSCIP Statewide Interoperability Bodies**

OES currently chairs the PSRSPC and supports the coordination of the CalSIEC. Based on collaborative meetings held on August 16, 2007, September 24, 2007, and November 15, 2007, the CalSIEC and PSRSPC members jointly took ownership and accountability for attaining the statewide communications interoperability mission, vision, goals, and objectives described in the Strategy section of the CalSCIP. These two bodies are committed to coordinating and cooperating to achieve rightward progress along each lane of the Interoperability Continuum. Figure 11 depicts how these two interoperability governance groups will collaborate across their respective organizations and leverage the input of local practitioners through a combination of the California Mutual Aid Regions and Planning Areas as well as other chartered working groups to achieve the strategy outlined in this report.

The depiction shows the high-level interaction between the PSRSPC and the CalSIEC during the development and implementation of the CalSCIP. Despite this collaboration, the CalSIEC and PSRSPC will retain their distinctive characteristics and specific missions, visions, and charters. During implementation of the CalSCIP, the two groups will join in collaborative strategy and decision making sessions or will charter cross-organizational CalSCIP Working Groups to address statewide communication interoperability planning issues. Currently, the joint CalSIEC and PSRSPC decision-making process is voluntarily implemented. Going forward, California plans to formalize an agreement between these two bodies that addresses formal decision-making processes, membership criteria and meeting schedules, among other components. This agreement will help streamline the CalSCIP implementation over the long-term and proactively avoid potential turf battles. A set of specific governance initiatives have been outlined to address this in the Strategy section.

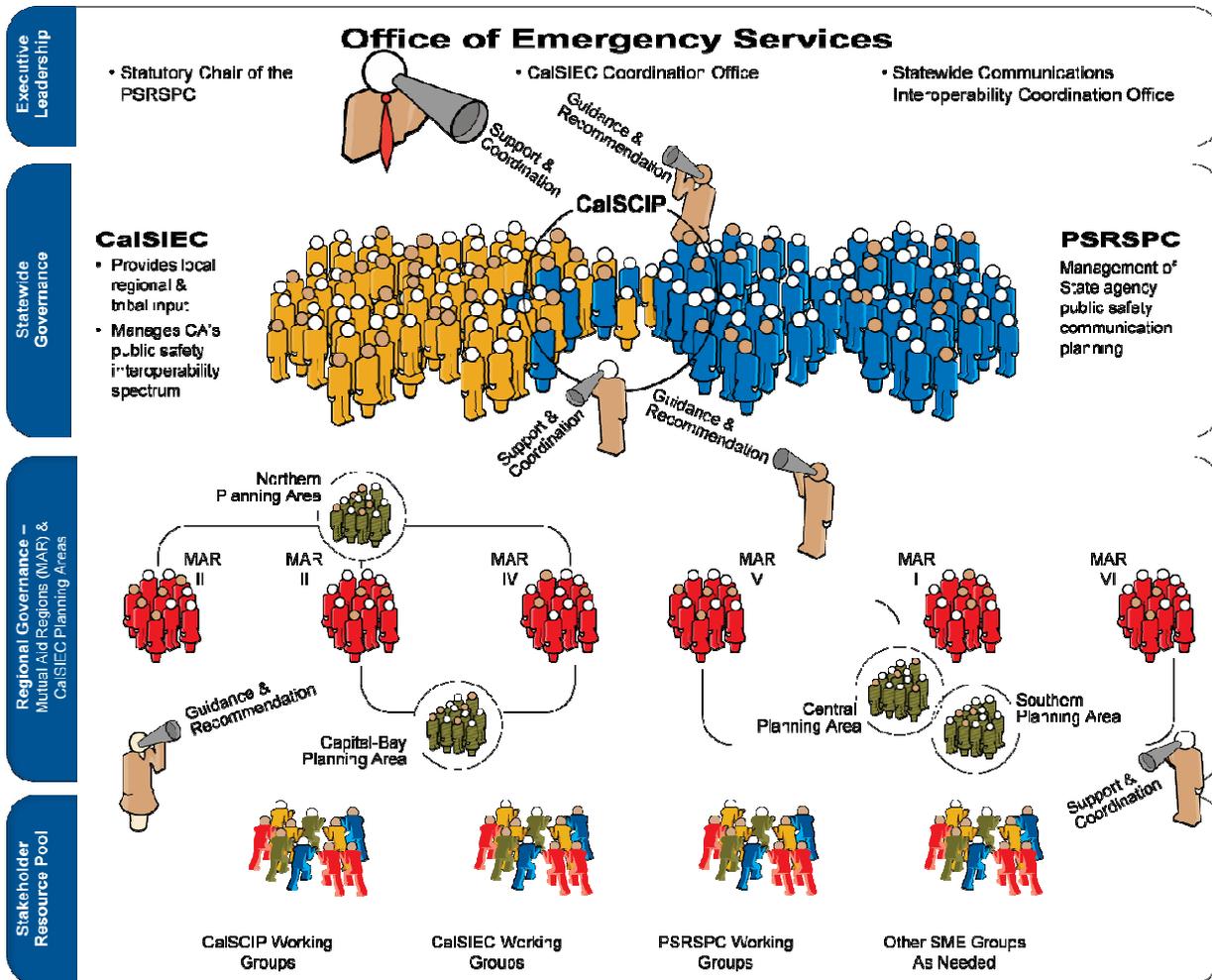


Figure 11: High-Level Governance Model for California's Statewide Interoperability Planning Efforts

The following sections highlight the distinct nature of the CalSIEC and PSRSPC to denote their differences in membership, scope, and mission while also demonstrating how the two bodies form a logical partnership for the CalSCIP implementation. California continues to support each group in its individual missions while encouraging collaboration for the statewide plan. Fact sheets regarding each body are provided in Appendices H and I.

➤ The Distinct Role of the CalSIEC

In 2003, under the authority provided in §8591 of the Government Code, the Director of OES established CalSIEC as a successor committee to the CLEMARS Executive Committee and informal committees managing other statewide interoperability resources (such as CALCORD), in response to a Federal Communications Commission (FCC) tasking to the states to manage the federally-designated interoperability spectrum in the new 700 MHz band. OES additionally implemented the FCC's optional tasking for SIECs to manage all interoperability spectrum by expanding the CalSIEC responsibilities to include the management of all state and federally-designated interoperability spectrum in California on behalf of all public safety users. The CalSIEC plays a critical role in the CalSCIP effort as the local and regional advisory body for statewide interoperability planning and implementation.

The CalSIEC is a public safety driven (local, tribal, state, and Federal) group working to encourage interoperability through regional spectrum management, policy, and operational practices, as well as consensus-driven decision-making among all public safety users in California. The CalSIEC governance structure is comprised of several interacting layers, including Planning Areas, Working Groups, and subcommittees. The CalSIEC meets quarterly to develop, adopt, and maintain the elements of a comprehensive Statewide Interoperability Communications Plan, as an annex of the California Emergency Plan. Subcommittees comprised of knowledgeable individuals in the particular aspect of interoperability are formed to complete an assigned work product. Significant work products developed by the CalSIEC include, but are not limited to: an interoperability channels authorization process form, a TICP template for promoting consistency across the state, and the California On-Scene Emergency Coordination (CALCORD) Plan.

The CalSIEC's specific responsibilities include improving local and regional communications interoperability planning and managing California's Mutual Aid Radio frequencies, as mandated by the FCC and directed by OES. Notably, CalSIEC undertakes the following initiatives:

- Establishing the technical and operational policies for all current State Mutual Aid Radio frequencies now administered by OES, those within the new 700 MHz public safety band, and any other spectrum recognized as being allocated for interoperability use by the FCC or the public safety community in California.
- Developing, evolving, and maintaining the structure and membership of the CalSIEC following guidelines for SIECs established by the FCC, the NCC, and the National Public Safety Telecommunications Council.
- Developing an integrated statewide interoperability communications plan covering all mutual aid and interoperability channels in order to reduce the number of separate communications plans issued by OES.
- Collaborating with other entities in the public safety communications field (e.g., PSRSPC).

- **CalSIEC Vision and Mission**

In pursuit of its goals and objectives, the overarching CalSIEC vision and mission are presented in this section.

The CalSIEC Vision reads as follows:

To provide the framework for an innovative, inclusive, scalable, sustainable, and well-managed interoperability infrastructure that reflects national standards and is effective in addressing the unique urban and rural requirements of the public safety agencies and public service organizations serving the citizens of California.

The CalSIEC Mission states:

To manage the public safety interoperability spectrum on behalf of all emergency responders (local, tribal, state, and Federal organizations) in California by improving public safety response through more effective and efficient interoperable communications.

- **CalSIEC Membership**

In establishing the CalSIEC, OES Telecommunications followed SIEC guidelines that were developed by the FCC's Public Safety National Coordination Committee and the National Public Safety Telecommunications Council. To aid in structuring the Committee, OES Telecommunications assembled a team of Californians involved in the NCC and NPSTC efforts.

The SIEC guidelines encouraged the following:

- Representation of all disciplines within public safety and public service
- Representation of all geographic areas within the state
- Representation of all levels of government – local, county, regional, tribal, state, and Federal
- Representation from agencies of all sizes (i.e., small and large departments)
- Representation of all state level disciplines
- Representation of all Federal level disciplines

OES contacted groups that represented these public safety interests in California and invited them to nominate individuals for appointment. Today, CalSIEC consists of more than 40 members who represent local, state and Federal law enforcement, fire services, emergency management, and homeland security agencies. The following table lists the cross-discipline representation found on the CalSIEC from local, state, and Federal levels of government as of September 2007.

Disciplines Represented on the CalSIEC
Local and Regional Members:
Urban Fire (North) – CA Fire Chiefs Association
Urban Fire (South) – CA Fire Chiefs Association
Rural Fire (North) – FIRESCOPE
Rural Fire (South) – FIRESCOPE
City Police (North) – CA Police Chief's Association
City Police (South) – CA Police Chief's Association
County Sheriff (North) – CA State Sheriffs Association
County Sheriff (South) – CA State Sheriffs Association
Tribal Fire Protection (North)
Tribal Fire Protection (South)
Tribal Law Enforcement (North)
Tribal Law Enforcement (South)
City Government – League of California Cities
County Government – CA State Association of Counties
APCO Frequency Advisor (North)
APCO Frequency Advisor (South)
FCC Region 5, 700 MHz Regional Planning Committee
FCC Region 5, 800 MHz Regional Planning Committee
FCC Region 6, 700 MHz Regional Planning Committee
FCC Region 6, 800 MHz Regional Planning Committee
Member at Large (Trinity County)
Member at Large (CalSIEC Chair)
Member at Large (San Diego County – Imperial County Regional Communications System)
Member at Large (Interagency Communications Interoperability System)
Capitol/Bay Area Planning Area
Central Planning Area

Disciplines Represented on the CalSIEC
Northern Planning Area
Southern Planning Area
State and Non-Governmental Organization Members:
State Corrections (CDCR)
State Homeland Security (OHS)
State Emergency Medical (EMSA)
State Fire & Rescue Coordinator (OES Fire & Rescue)
State Law Enforcement Coordinator (OES Law Enforcement)
State Emergency Management (OES Telecommunications)
State Forestry (CAL-FIRE)
State Telecommunications [FCC Licensing & compliance] (DGS Telecommunications)
State Patrol (CHP)
State Investigations (DOJ)
State Transportation and Public Works (Caltrans)
State Public Health (CDPH)
State Military Support to Civil Authority (National Guard)
State Resources (DFG)
State College & Universities
American Red Cross
FEDERAL Members:
Federal Fire Protection
Federal Homeland Security
Federal Law Enforcement
Federal Ports and Transportation

Figure 12: Discipline Representation on the CalSIEC²³

- **CalSIEC Structure, Work Groups, and Planning Areas**

Since its inception, CalSIEC continues to evolve and take on the responsibility of specifically managing the strategic planning, coordination, and implementation of local, regional, and tribal interoperable communications. CalSIEC recognizes that there are many components and perspectives to consider in the development and administration of an integrated interoperability plan in a state the size of California; therefore, CalSIEC is working to address as many of these aspects as possible and has devised a layered governance approach that includes planning areas, subcommittees, and working groups.

CalSIEC Working Groups

The CalSIEC established Working Groups as a mechanism for local and regional level public safety officials to provide input, offer advice on issues, and participate in decision-making processes; these Working Groups have helped ensure statewide interoperability communications efforts are successful. The following information lists the CalSIEC Working Groups:

- WG-1: Law Enforcement Working Group

²³ The most up-to-date list of current members of the CalSIEC can be found at: <http://rimsinland.oes.ca.gov/calsiec.nsf/Content/49B97A6D3CB5A17D882571BC007E1E76?OpenDocument>

- WG-2: Fire and Rescue (FIREScope Communications Specialist Group)
- WG-3: Emergency Medical Services Working Group
- WG-4: Inter-Discipline Interoperability Working Group
- WG-5: Tactical Audio Switching (Audio Gateways)
- WG-6: Mobile Data Interoperability
- WG-7: Allied Organizations
- WG-8: Database Management
- WG-9: Education and Training Development
- WG-10: Plan Development Working Group²⁴
- WG-12: Technical Review Subcommittee

For more information and description on these working groups, visit the CalSIEC website at: <http://rimsinland.oes.ca.gov/CalSIEC.nsf/home?OpenForm>.

CalSIEC Planning Areas

CalSIEC's Northern, Central, Capital-Bay, and Southern Planning Areas are a vital part of the CalSIEC governance structure. The four CalSIEC Planning Areas were designated based on their spectrum pathways and signal coverage as well as on geographically influenced interoperability partnerships. While each Planning Area is encouraged to develop a governance structure that best fits their regional needs, CalSIEC recommends that the structure ensure adequate representation between law enforcement, fire, and "general government" agencies from each county within the planning area. The Planning Area framework allows the CalSIEC to ensure that statewide communication interoperability strategic planning, coordination and collaboration, and build-out occur on a spectrum based level while still encouraging operational and response planning and implementation at the mutual aid regional level.

Through the development of the CalSCIP, OES recognized that the spectrum-based organization of the Planning Areas is useful for interoperability planning, management, and build-out. However, given that incident response and other all-hazards situations remain subject to the Mutual Aid Region framework, concerns arise regarding the additional layer of complexity, especially during incident response. As a result, an initiative has been identified to review the Planning Areas and the Mutual Aid Region delineations and clarify any potential issues. This will be addressed in the Strategy section of the plan to ensure consistency and success during the implementation of the CalSCIP.

CalSIEC Charter

Currently, the CalSIEC charter is being updated and refined for the decision-making process. When OES moved the management of communication plans, such as CALCORD, FIREMARS, and CLEMARS to CalSIEC, it moved more responsibility than spectrum planning and management. The move denoted responsibilities for policy development, technical planning, statewide coordination, and other related success factors. As a result, an initiative within the strategy section identifies the need for CalSIEC to update its mission to reflect these additional responsibilities and clarify its role in the CalSCIP development and implementation efforts.

A draft charter exists that identifies the CalSIEC Steering Committee as the subset of leaders from within the CalSIEC that evaluates the guidance and recommendations developed by the larger Executive Committee. As currently drafted, the CalSIEC Steering Committee is

²⁴ Note that WG-11: Los Angeles Basin UHF-TV Advisory Group has a Southern Planning Area focus, so it was omitted from this statewide listing.

comprised of the CalSIEC Chair, the four Planning Area Chairs, key state agency partners and selected others. A critical first step in the Strategy section is the finalization and adoption of the CalSIEC charter.

➤ **The Distinct Role of the PSRSPC**

The California Public Safety Communications Act of 2002 (Government Code Section §8592 – 8592.7), documented in Appendix A, directs the PSRSPC to serve as the state body primarily responsible for the following:

- Developing and implementing a statewide integrated public safety communication system that facilitates interoperability among state public safety departments as well as other first response agencies, as the committee deems appropriate.
- Coordinating other shared uses of the public safety spectrum consistent with decisions and regulations of the Federal Communications Commission.

To achieve these two objectives, the PSRSPC and CalSIEC must collaborate and ensure that input from local, regional, and state level entities informs statewide interoperability efforts.

• **PSRSPC Vision and Mission**

The PSRSPC is responsible for facilitating interoperability among state public safety departments and between State agencies and other first response agencies. As previously referenced, the California Public Safety Communications Act of 2002 established the PSRSPC with explicit responsibilities and objectives in addition to its role in the development of the CalSCIP. The PSRSPC adopted the following vision and mission statements to focus its multi-member body of state agency representatives in their work.

The PSRSPC Vision states:

Develop, implement, and administer an innovative, inclusive, scalable, and sustainable statewide plan that facilitates wireless communications system modernization and interoperability and ultimately provides effective, seamless, and reliable public safety services throughout California.

The PSRSPC Mission reads as follows:

To provide the leadership needed that allows California to effectively leverage existing investments in communications infrastructures while moving rapidly and decisively to meet targeted goals for improved interoperability, universal statewide access, enhanced modernization, increased functionality, and adequate channel availability throughout California in support of public safety.

• **PSRSPC Membership**

The following multi-discipline public safety State agencies are Executive Members of the PSRSPC and have been involved in preparation of the CalSCIP:

- Governor's Office of Emergency Services (OES) (Statutory chair effective January 1, 2007)
- California Highway Patrol (CHP)
- Department of Transportation (Caltrans)
- Department of Corrections and Rehabilitation (CDCR)
- Department of Parks and Recreation (DPR)

- Department of Fish and Game (DFG)
- Department of Forestry and Fire Protection (CAL FIRE)
- Department of Justice (DOJ)
- Department of Water Resources (DWR)
- Department of Health Services (CDHS) (Statutory member effective January 1, 2007)
- Emergency Medical Services Authority (EMSA)
- Department of General Services (DGS)
- Governor's Office of Homeland Security (OHS)
- Military Department (Statutory member effective January 1, 2007)

The following multi-discipline public safety State agencies, departments, and associations serve as participating members of the PSRSPC:

- California Coalition of Law Enforcement Associations
- California Correctional Peace Officers Association
- California Fire Chiefs Association
- California Police Chiefs Association
- California Professional Firefighters
- California State Association of Counties
- California State Firefighters Association
- California State Peace Officers Association
- California State Sheriffs' Association
- California Union of Safety Employees
- CDF Firefighters
- League of California Cities

- **The PSRSPC Structure and Technical Work Groups**

The PSRSPC leverages Technical Work Groups as the primary focal point for ongoing technical, research, and option-generation assignments. Executive Members regularly work with their staff representatives on the TWGs and pass them issues that need attention and study. The TWGs meet regularly throughout the year to complete key initiatives in their areas of focus. For instance, the PSRSPC-TWGs developed an initial draft of California's vision for public safety communications and launched technical initiatives, such as the state's baseline assessment and needs analysis; system development; spectrum management; governance; gateway bridging technology; fiscal issues; collaboration between the PSRSPC and its primary affiliate – the CalSIEC; and development of the Annual Report.

Figure 13 depicts the PSRSPC-TWGs and their cross-discipline membership, including areas of integration with the CalSIEC to ensure local and county-level representation. Additionally, the figure denotes the elements of PSRSPC-TWGs' mini-charters, such as focus areas and issues, dependencies, milestones, timelines, resources, and executive-level guidance and support.

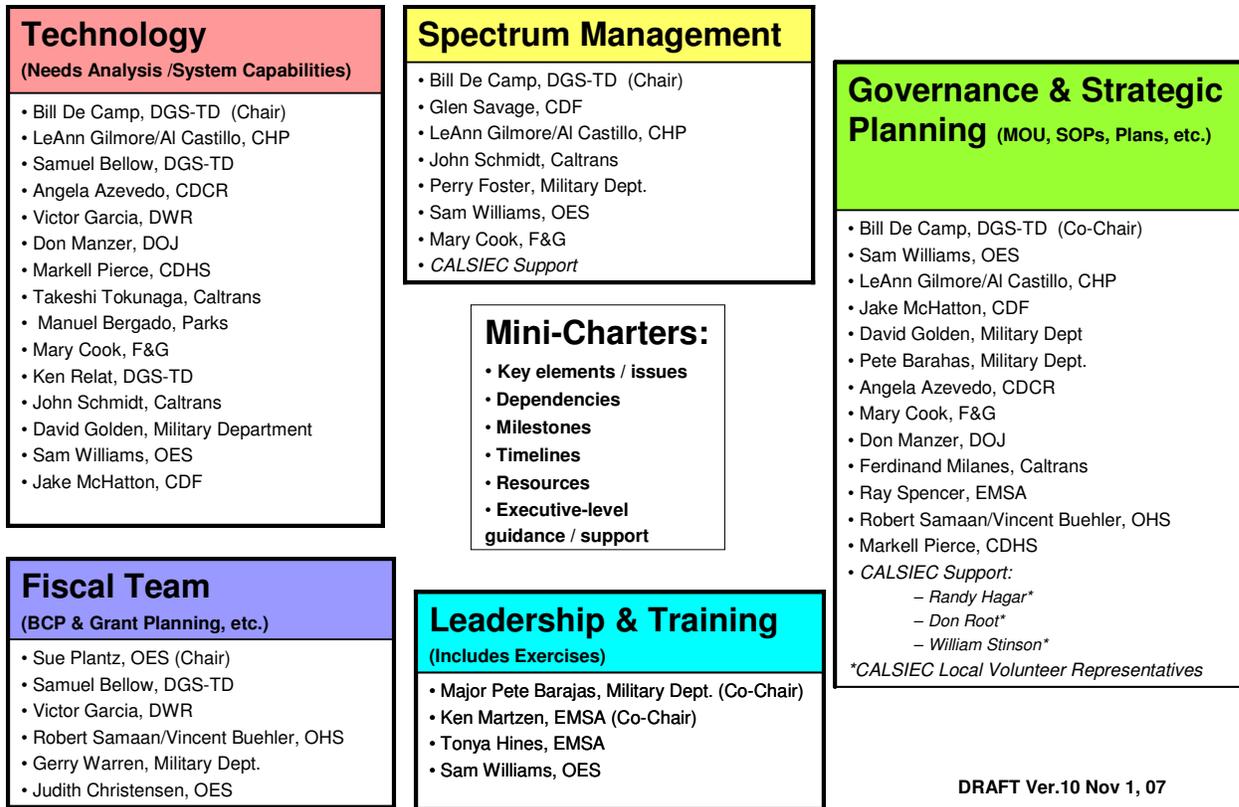


Figure 13: PSRSPC Work Teams

• **PSRSPC Coordination Guidelines**²⁵

The PSRSPC operates under the following guiding principles and ground rules:

- Partnerships allow for a stronger voice than one department or agency alone
- All member agencies and departments have an equal voice at the table
- The Committee will seek common ground, even if some desires must be postponed, for the collective advancement of the PSRSPC mission
- Education is the key to understanding; when a challenging issue appears, explanation is encouraged—even if takes some time
- All issues raised by members are valid and will be given attention; respecting all departmental perspectives will be paramount

The PSRSPC strives for all decisions to be consensus-based; however, when this is not feasible, decision-making is conducted based on a majority vote process with objections noted in the record upon request.

➤ **Statewide Interoperability Processes in Practice**

²⁵ The PSRSPC membership has specifically chosen to use the term, “Coordination Guidelines,” rather than “Charter.” Essentially, the Coordination Guidelines serve the same purpose and denote the PSRSPC-specific decision-making process.

There are many facets to developing and administering an integrated interoperability plan in a state the size of California. Jointly, the CalSIEC and PSRSPC form the statewide governance body and use their multi-jurisdictional and multi-disciplinary input to address as many of these facets as possible. In doing so, CalSIEC leverages the Planning Areas and Working Groups (referenced above) for cross-discipline, cross-jurisdictional input. Furthermore, the PSRSPC and its TWGs incorporate data in the development of the CalSCIP to ensure alignment with California's State agencies. Figure 10 depicts OES, CalSIEC, and PSRSPC, each having specific roles and responsibilities, which cumulatively address all lanes of the Interoperability Continuum. The following information articulates the various roles and responsibilities:

- OES
 - Serves as the Statewide Communications Interoperability Point of Contact
 - Serves as the CalSIEC Program Office, where its responsibilities include oversight and support for the CalSIEC body and advocacy for CalSIEC policies and recommendations, as well as the statutory Chair of the PSRSPC
 - Facilitates statewide training and exercises opportunities
 - Facilitates CalSCIP development and joint implementation of the CalSCIP strategy

- CalSIEC
 - Manages California's public safety interoperability program
 - Participates in the statewide governance process and develops statewide SOPs.
 - Develops interoperability spectrum usage policy
 - Coordinates to provide statewide (local, regional, tribal, and Federal) input to the PSRSPC efforts
 - Provides local stakeholder input, guidance, and recommendations for the CalSCIP development and maintenance process

- PSRSPC
 - Manages California's state agency public safety communications planning.
 - Collaborates with the CalSIEC on state agency interoperability planning efforts as well as on the annual Legislative Reports
 - Provides state agency stakeholder input, guidance, and recommendations for the CalSCIP development and maintenance process

As previously stated, the two groups undertaking the responsibility to enhance interoperability across the State of California include the PSRSPC and the CalSIEC along with their respective subcommittees and working groups. Jointly, their interaction and collaboration form the *statewide* governance for this effort under the auspices of the California's OES.

This rationale makes sense for California for two key reasons. First, in terms of legislative mandate and authority, the PSRSPC was tasked with the responsibility to build the statewide interoperability system with input from State agencies and other first responders. However, as the statewide system concept has evolved into a System of Systems approach, the PSRSPC must increasingly rely on the participation and cooperation of the robust, locally and regionally owned systems. CalSIEC offers the expertise and participation needed to build a statewide interoperability plan in terms of membership, geographical representation, and locally-driven interoperability principles. As a result, statewide interoperability planning must build upon and formalize the strengths and authorities of both the CalSIEC and the PSRSPC.

Second, the CalSIEC and PSRSPC are required by law to convene joint meetings at least once a year to focus on statewide planning and implement the CalSCIP. While only mandated to meet once each year, realistically the governance bodies are in constant collaboration and meet multiple times a year to advance statewide communications interoperability. Meeting schedules for the CalSIEC and PSRSPC are provided in Appendix F. The Strategy section of the CalSCIP discusses a key initiative to formalize the collaboration between the CalSIEC and PSRSPC as the statewide body via an official agreement with an official charter.

4.2 Technology

Technology refers to equipment, infrastructure, networks, and applications that public safety disciplines use to exchange critical information as they respond to emergency incidents. Technology is just one piece of the interoperability puzzle; it has value only when it supports the needs of the emergency responders. Technology, coupled with proper training, consistent operating procedures, and protocol, enables seamless emergency response communications.

California is on its way to achieving a vision of seamless communications using real time compatible systems that respond effectively during day-to-day operations and major incidents. The envisioned statewide System of Systems (SoS) will facilitate communications regardless of technologies, infrastructures, or frequency bands. It will allow first responders to transparently communicate. The near-term SoS vision will be the interconnection of existing legacy architectures with standards-based networks until some point in the future when all radio systems in California become standards-based. Interoperable communications will increase as proprietary fixed, mobile, and portable equipment is replaced with standards-based equipment (observing the P25 suite of standards).

A current critical priority for California's public safety agencies is to ensure the operability of their existing systems. Operability cannot be overlooked, as many existing communications systems have reached or gone well beyond their life expectancy. A significant number of equipment components are in need of upgrades and replacement within current systems. This can only be accomplished over an extended period of time with coordinated planning and funding. Coordination will ensure that by providing operability to needed agencies and/or localities, interoperability will also occur with newly procured technologies.

➤ **Needs Analysis & Assessing System Capabilities Survey**

In 2006, the CalSIEC and PSRSPC collaborated on a statewide Internet-based survey (referenced in Appendix J) to address radio systems at all levels of government and to analyze their interoperability. The survey covered radio systems; system radio frequencies; radio facilities and equipment; survivable communications systems (i.e., cache or reserves); audio gateway systems; dispatch operations; advanced capabilities (e.g., microwave or satellite systems); current needs and requirements of radio systems; future system directions and initiatives; and interoperability progress in governance, standard operating procedures, technology, training and exercises, and usage.

Respondents to the survey included 13 State agencies and, currently, approximately 220 (see Appendix T) local agencies (city, county, regional, joint powers authorities, colleges, etc.). Other data, specifically mapping localities to the SAFECOM Interoperability Continuum, is listed throughout the CalSCIP.

The survey data indicated the following local agency information and capabilities:

- Frequency bands used by local agencies range from 2 MHz to 800 MHz (see Figure 15)
- Local agencies in 17 counties report having either mobile or fixed gateways
- Over 100 local agencies report being part of a Tactical Interoperable Communications Plan
- Local agencies have prioritized the current top three needs and requirements of the radios systems as funding, additional channels, and modernization

Emerging Trends and Themes

Several trends emerged from the statewide survey, which helped in identifying work that needs to be done by the CalSIEC and PSRSPC.

Obsolescence

As part of the survey, agencies were asked what portion of their radio system equipment was not considered operable, by meeting one or more of the following conditions for obsolescence:

- The radio equipment is older than the useful life expectancy for radio system equipment as determined by the Department of General Services, Telecommunications Division
- The radio equipment is no longer supported by the radio equipment manufacturer or repair parts are no longer available
- The radio equipment does not meet current FCC narrowbanding²⁶ technical requirements²⁷

The issue of obsolescence does not appear to be a high concern for SUASI and UASI areas. It is uncertain, due to the lack of sufficient local input, but expected that obsolescence is an issue for California's smaller and rural communities. Operability is of higher concern for State agencies, and therefore, newer technologies are funded more regularly.

Funding for Sustained Communications Systems

Both state and local agencies listed funding as the foremost and most challenging requirement standing between them and radio system modernization. Again, California emphasizes that radio system *operability* must be solved in conjunction with any movement towards accommodating interoperability.

Operability

Investment is needed to develop a new approach to improve public safety radio and wireless components. Similarly, investment is needed to ensure the ongoing modernization of local systems in order to guarantee that future radio systems serving California achieve robust interoperability. A portion of the PSIC funding will address a 10-year Strategic Plan for state agency modernization and interoperability. Local agencies are at varying levels of operability but new purchases of P25 equipment will help them become interoperable.

Spectrum

The survey results also underscore the need for more radio frequencies across all spectrum bands. In many popular public safety bands, the spectrum is virtually exhausted. Narrowbanding²⁸ will help to some degree in the foreseeable future. Practically speaking, however, the only spectrum local and State agencies will have available for systems expansions or large-systems development falls within the 700 MHz (contiguous with 800 MHz) realm. This could prove to be a significant problem as this

²⁶ FCC Narrowbanding Requirements from NIJ Bulletin 217865 (May 07)

²⁷ Deadlines from NIJ Bulletin 217865 (May 07)

²⁸ January 1, 2013 is the deadline by which Public Safety Radio Pool licensees operating within the 150-174 MHz [VHF High Band] and 421-512 MHz [also known as UHF band] realms must migrate completely to 12.5 kHz "narrowband" technology.

spectrum will not be available throughout most of California until February 2009 and many of California's State agencies currently employ spectrum in other radio frequency bands. The Strategy section explains how the State plans to address the spectrum management.

Figure 14 below is a snapshot of where California's agencies fall within the radio frequency bands.

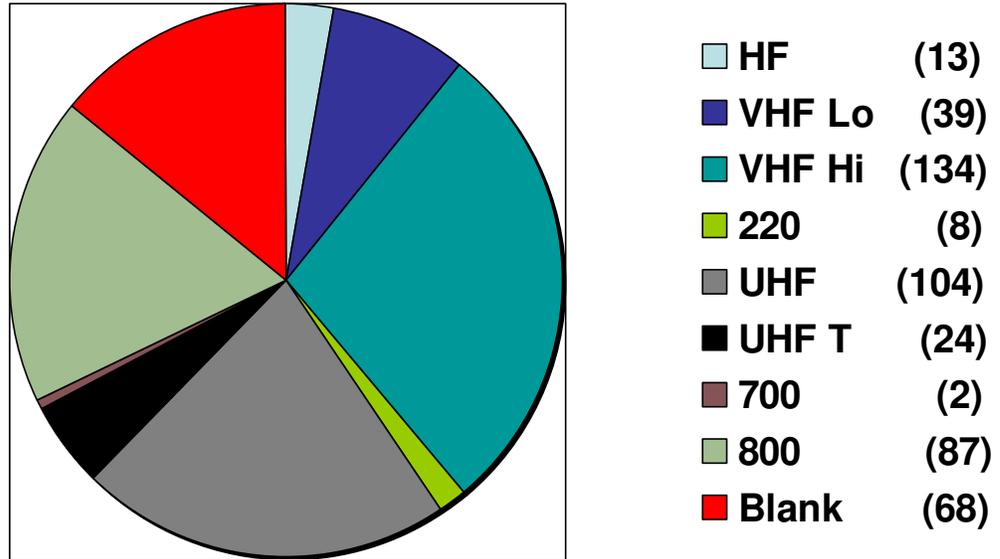


Figure 14: Frequencies Used by Agencies

Sample Statistics Based on Exported User Survey Information

As documented within the Strategy section of the CalSCIP, California's baseline assessment and the Interoperability Continuum, used in conjunction with CASM, will be used to measure long-term statewide interoperability planning performance. Every few years, localities and State agencies will be surveyed against the Interoperability Continuum. The level of rightward progression along the Continuum will demonstrate California's overall performance.

Communications Asset Survey and Mapping (CASM)

CASM was developed as a tool for collecting and analyzing information for planning and assessing the interoperability capabilities between various public safety two-way voice radio communications systems. It is an online database and visual display that provides information on communications equipment and identifies both existing and interoperable pathways and where the gaps fall among local, state and Federal emergency responders. The tool is sufficiently designed to serve as California's inventory database.

CASM can be used at an individual agency level for assessment of radio interoperability requirements with another specific agency, through to interoperability evaluation and planning across multiple agencies throughout a local area, a region, or statewide. The utilization of CASM can greatly assist localities with their mandated TICP development.

CASM was developed by, and is maintained by the Department of Homeland Security (DHS); the tool is exclusively for use by authorized public safety agencies in the US. CASM is based on the SAFECOM Interoperability Guide requirements. The application runs on a secure server housed at SPAWAR – San Diego and is built on the open-source LAMP stack (consisting of Linux, Apache, MySQL and PHP scripting). OHS has already requested and been granted access to the CASM tool from DHS. A draft conops document has been developed and is currently under review by PSRSPC and CalSEC for the use of the tool

An example of the technology continuum is depicted in Figure 15 below. The data represents a small portion of California's local agencies' (e.g., city, county, regional, joint powers authorities, colleges, etc.) individual responses.



Interoperability Continuum



	Number of Respondents					Totals
Capital Bay	5	1	19	7	4	39
Northern	3	4	9	0	2	18
Central	4	1	5	2	3	15
Southern	20	5	35	10	8	78
State Agencies	6	2	4	0	0	12

Technology	Swap Radios	Gateway	Shared Channels	Proprietary Shared Systems	Standards-based Shared Systems	Totals
Statewide Response	38 23.5%	16 9.9%	72 44.4%	19 11.7%	17 10.5%	162

Figure 15: Technology Baseline Assessment

➤ **Spectrum in California**

The CalSIEC and PSRSPC work together to address the spectrum issues for the state as a whole. The four CalSIEC Planning Areas are based on the spectrum pathways and signal coverage as well as on natural interoperability and mutual aid partnerships due to the coverage capability in the state. This process allows the CalSIEC to ensure that statewide

communication interoperability strategic planning, coordination, and collaboration occur on a spectrum-based level while still encouraging operational and response planning and implementation on a mutual aid regional level. In addition, the PSRSPC-TWG has established a Spectrum Work Team as required in the 2006 PSRSPC strategic plan. The focus of the Spectrum Work Team is to: (1) assess current and future spectrum requirements of the PSRSPC State agencies and determine available spectrum resources; (2) work with the Department of General Services to pursue additional spectrum resources if needed; (3) provide the PSRSPC with public safety spectrum-related legislative information and trends; and (4) advocate the use of spectrally efficient technologies for the benefit of the state public safety agencies.

Currently, the State of California holds a license for 96 12.5 kHz channel pairs in the 700 MHz realm. Two benchmark conditions under which the State may retain the license currently²⁹ apply. The state is required to certify on or before the first benchmark date (currently January 2012), that it is providing or prepared to provide “substantial service” to **one-third** of California’s population or territory, and that on or before the second benchmark date (currently January 2017), it is providing or prepared to provide “substantial service” to **two-thirds** of California’s population or territory.

In addition, the FCC has imposed a January 1, 2013 deadline by which Public Safety Radio Pool licensees operating in the 150-174 MHz and 421-512 MHz bands must migrate completely to 12.5 kHz narrowband technology. This affects all California agencies operating on public safety communications systems in the targeted bands. These agencies must migrate to narrowband communications system equipment by the end of 2012.

Together, the CalSIEC and PSRSPC will work to ensure that California’s public safety first responders have the information necessary to meet these requirements.

➤ **Statewide Technology Reserve**

OES, while not the only state agency with communications interoperability projects, has the mission of coordinating the activities of all State agencies relating to preparation and implementation of the State Emergency Plan. OES also coordinates the response efforts of state and local agencies to ensure maximum effect with minimum overlap and confusion. Additionally, OES coordinates the integration of Federal resources into state and local response and recovery operations. As a result, OES, along with its counterpart State agencies, has invested resources in a wide array of communications equipment capable of re-establishing communications when existing critical infrastructure is damaged or destroyed due to natural or man-made disasters.

The State’s current Strategic Technology Reserve (STR) includes projects and equipment throughout the state from the local and regional levels to the state level. These projects have been developed to pre-position or secure interoperable communications in advance for immediate deployment in an emergency or major disaster. Communications access is also supplemented by the Mutual Aid Plans, which provide emergency responders and appropriate

²⁹ The ruling (circa 2001) was based upon the condition-based assumption incumbent TV broadcasters would vacate the spectrum by 2007. A “date certain” of February 2009 was established more recently, which may make a case for a two-year extension on the current benchmark date requirement if it is deemed necessary.

public service organizations with access to necessary communications technologies and the Statewide Mutual Aid Radio System (SMARS) when needed.

Numerous gateways, radio caches, and command vehicles belonging to individual counties and State agencies can be found statewide. These mobile resources can be deployed throughout the state as necessary and as appropriate. However, for purposes of keeping the CalSCIP useable and high level, detailed information of existing local and regional gateways, radio caches, and command vehicles can be found in the available TICPs; these documents can be accessed by contacting the point of contacts listed in the Background section of this plan. Further information on the State Technology Projects can be found described below in the various technology projects.

Statewide procurement contracts are another way of ensuring rapid delivery of the most current technology available from commercial sources. The State of California's Department of General Services has recently awarded several multi-year contracts for Project 25-compliant portable and mobile radios on behalf of the state public safety agencies it represents. Although each procurement contract was initiated because of a state agency's specific needs, these contracts and their pricing can be utilized by any eligible public safety entity statewide.

Response Information Management Systems

Response Information Management Systems (RIMS) is a redundant and highly scalable Response Information Internet network structure that provides information to public safety agencies. The RIMS structure provides secured access for local, county, regional, and State agencies. The system is used to coordinate and manage resources, including radio caches, gateways, strike teams and command vehicles, as they are deployed during an event or emergency. Agencies are able to dial in directly to their OES Region using regular phone lines or OASIS (OAs as a backup to the preferred internet access).

➤ State Technology Projects Underway

The State has numerous technology projects, snapshots of which are highlighted below.

State Gateway Project

One of California's short-term solutions is to deploy both fixed and mobile audio gateways strategically throughout the state. These gateways supply an interim short-term answer to regions without interoperable communications systems during a disaster event. In addition, the gateways use different radio frequencies to provide a more coordinated response to agencies that cannot readily communicate by any other means. A gateway, also known as a black box, connects disparate telecommunications devices together so first responders are able to talk to one another at the scene of an incident.

California identified "gateway" bridging technology as a high priority tool to increase interoperability "footprints." Mobile gateway equipment allows communications operators to connect several different radios together so first responders can talk to one another when appropriate. In 2006, the PSRSPC-TWG and CalSIEC jointly evaluated existing interoperability capabilities, and planned for the purchase and deployment of mobile gateway units. The intent is to extend the program for "mobile communications translators" outlined in Government Code §8588.7 (et. seq.) to at-risk areas throughout the state. Federal Homeland Security Grant Program (HSGP) funding, allocated by OHS for expenditure from October 17, 2006 to March 31, 2008, will enable the procurement and assembly of six gateway units. Based on the interoperability survey results, and the numerous gateway communication devices available

throughout the state as displayed in Figure 15, it was determined that the best use of these limited resources is deployment through the mission tasking process on an “as needed basis.” These units will be made available to the requesting agencies from California’s six mutual aid regions during emergency events.

The gateway project includes the development of product specifications, purchase, and deployment. It is envisioned that the six mobile gateway units will be procured and deployed in 2008. The gateway units will be included in future operational exercises, when applicable. These mobile communications units will include survivable communications technology that links the scene in with the State satellite system, OASIS.



State of California
Governor's Office of Emergency Services

Preliminary Gateway Numbers Based Upon Survey Report With Mutual Aid Regions as of October 6, 2006



Figure 16: Preliminary Statewide Gateway Numbers in Mutual Aid Regions

In addition to the State Gateway Project, numerous gateways can be found throughout the state belonging to individual counties. These gateways can be deployed throughout the state as appropriate. Based on the interoperability survey results, the numerous gateway communication devices available throughout the state are displayed in Figure 16. While

gateways do not achieve the ultimate SAFECOM goal of standards-based shared systems statewide, they can be used until seamless interoperability can be achieved statewide.

Statewide Radio Cache

Swap Radios are one way to provide interoperability among agencies jointly responding to an incident. During an incident, responders swap their incompatible radios with those from a radio cache. A radio cache consists of a dedicated store of radios ready for immediate use. Maintaining a cache of radios requires controls and procedures for inventory, distribution, and recovery, along with maintenance.

OES's radio cache consists of portable radios referred to as HTs (handheld transceivers) with ancillary support equipment packaged as a Cache (28 radios each) or Kit (14 radios each). Packages contain clam shell battery packs, antennas, and holsters in a pelican case that includes a spare antenna; 'T' cards; maintenance tags; an HT manual; HT programming procedures; a cloning cable; and a paperwork package containing a Kit inventory, an NICAD/AA battery policy, Kit HT serial numbers, a receipt, basic operating instructions, basic trouble shooting procedures, and the frequency load information.

Cache and Kit packages are complete and must be taken with the quantities shown. Example deployment of a request for 35 radios would consist of a cache and a kit for a total of 42 radios. Agencies are responsible for reimbursement due to loss or excessive damage during the loan period.

OES's HT cache can be deployed to any local, state, or Federal government agency. A radio cache is issued pre-programmed with a standard OES load. This load occupies the first several channels and allows the remaining six to eight unused channels to be programmed for specific user needs.

California Highway Patrol Enhanced Radio System

The California Highway Patrol Enhanced Radio System (CHPERS) project is a five-year plan which will provide for the development and implementation of an enhanced statewide radio communications system in support of CHP's mission. The CHPERS project will provide an improved state-of-the-art radio system and employ modern methodologies to enhance and leverage the existing infrastructure and meet future operational and interoperability needs.

The CHPERS project plan has incorporated efficiencies identified in coordination with the Department of General Services. The CHPERS project focuses on the enhancement of the radio system infrastructure as well as continuing the acquisition of 700 MHz frequency spectrum, the acquisition of mobile/portable 700/800 MHz radios, the separation of radio frequencies, and the development of a radio solution for the CHP's motorcycles and specialty vehicles. To ensure there are no radio frequency interference problems, a statewide effort is underway to acquire additional radio rack space and equipment. As a result, the CHP will be able to separate tactical frequencies, enabling each Division to operate emergency radio traffic during critical incidents without interfering with radio traffic for normal operations. The acquisition of 700 MHz frequency spectrum will provide an officer with an increased communications range while they are out of their vehicle, in addition to providing interoperability with other first responders.

The CHP is seeking alternative technology solutions for integrating and enhancing the Patrol Officer Mobile Environment as part of its program to upgrade the existing statewide

communications infrastructure in preparation for future growth. An important part of the plan is to integrate systems and enhance the existing enforcement vehicle communications functions. The Consolidated Patrol Vehicle Environment (CPVE), a vehicle tactical network, will allow the consolidation of various mobile radio equipment to interface with multiple frequency bands. The patching of disparate radio systems will provide temporary links to create interoperable systems anywhere in the state, utilizing a single screen graphical user interface (GUI) system. The vehicle tactical network is software-driven and the operating software will be designed to automatically select the appropriate in-trunk radio unit for the frequency band associated with the operational channel selected. The CPVE is configured for touch screen operation that allows multiple technologies (e.g., radio, video, mobile data, siren, public address, emergency lights, license plate reader, gun locks, and radar) to be readily available to CHP officers for their day-to-day operations.

The CHP is in the process of completing the installation of a statewide/regional radio communications interoperability network utilizing the gateway boxes in each of the CHP 25 communications centers. The goal is to connect each local gateway switch to other gateway switches statewide. Using Voice over Internet Protocol (VoIP) connectivity, the gateway box allows direct voice communication between CHP and any allied agencies responding to both short-term and long-term incidents. The gateway box has the ability to link disparate radio systems (i.e., VHF low band, VHF high band, UHF, UHF-T, and 700/800 MHz) as well as satellite, landline, and cellular phone systems to enhance communications through real time, field unit-to-unit, and direct voice communications. Connectivity can be established to provide remote access for command and control anywhere in the state for remote incident or on-scene command, utilizing the Wide Area Interoperability System (WAIS) software through the internet or existing CHP LAN/WAN.

In January 2006, the Department purchased nine Chevrolet Tahoes through the 11-22 Program, utilizing a Homeland Security grant. The vehicles were equipped and integrated with satellite, airborne video downlink, and interoperable communications equipment, allowing the vehicles to perform as mobile command centers. The vehicles also provide internet access, satellite services, and a command and control system display. Utilizing the gateway box, the vehicles offer incident commanders direct communication between allied agencies and first responders involved in a particular disaster response, even when they are using disparate radio systems. In addition, the gateway boxes provide command and control capabilities in the event of catastrophic damage to the local infrastructure. The Rapid Response Vehicles (RRV) provides CHP with a mobile command where needed. In effect, with remote access to radio communications systems, telephone, internet, email, fax, and satellite television services, an RRV could replace a CHP Area office or communications center. The RRVs are assigned statewide to the eight CHP divisions.

The CHP infrastructure is comprised of radio base station equipment installed at 302 remote radio sites, 102 Area offices, 25 communications centers, and 16 inspection facilities. To ensure minimal downtime of the infrastructure equipment in the event of catastrophic failure, four vault trailers and two antenna trailers have been purchased to provide back-up communications. The self-contained mobile trailers will house over 20 racks of radio base station equipment that can be deployed anywhere in the state and will provide the CHP and its tenants (allied agencies) with immediate relief from disruption of vital equipment used for communication in a wide coverage area. The antenna trailers are self-contained units with a maximum height of over 60 feet that can accommodate numerous antennas, including low band, high band, UHF, 700/800 MHz, and microwave dishes. Once these units reach their

destination they can be activated and operational within an hour without requiring an external power source.

For more information concerning the California Highway Patrol Enhanced Radio System, please contact:

Al Castillo

Telecommunications Systems Manager I

CHP Telecommunications

System of Systems Project

California's public safety stakeholder community envisions the future of communications interoperability as achievable through the development of a System of Systems (SoS) network that will accommodate and build upon California's existing public safety communications networks. The main goal of this initiative is to develop a "network of systems" that: (1) ties existing local and state agency systems together with bridging technology and universal procedures, and (2) ensures that future equipment acquisitions meet the criteria identified for effective interoperability and modernization (e.g., SAFECOM, P25, etc.). The ultimate benefit of an SoS approach will be the development of communications interoperability modernization criteria and achievable standardization of the communications structure for the state.

Regional, local, and state agency-specific communications systems began evolving long before 9/11. Changes to the systems occurred in response to basic communications needs. Alliances developed through a patchwork, ad-hoc approach that was needed to "get the job done." In many cases, exceptionally effective systems that integrate equipment and procedures have developed over time, creating interoperable "pockets" around California. With communications interoperability improving, significant work has been accomplished that has added to the state's capabilities. However, a challenge remains in that most of these local, regional, and agency-specific systems have not been evaluated or developed with a common framework in mind. A common framework would have ensured immediate interoperability, should the need arise. Despite this deficiency, the majority of current systems fit within commonly accepted parameters of interoperability (e.g., P25, SAFECOM, etc.). Possibly even more important than equipment standards are integrated procedural guidelines that govern the linking and integration of these different systems when joined in an emergency; as most of these systems have established procedural guidelines, communications interoperability is still achievable.

California's hidden strength is its evolving infrastructure; the systems currently in place allow for regional emphasis and tailoring, local use, and buy-in. For immediate interoperability, it is necessary to link these systems through bridging technologies and procedural agreements, such as Memorandums of Understanding (MOUs). There is also the need to develop an acceptable and widely-recognized set of criteria for effective interoperability and modernization in order to set the standard for future equipment acquisition. This approach will allow for local ownership and ongoing system development to be integrated into a statewide network according to common protocols.

California recognizes the need to honor the time and money already invested by State agencies and local governments alike. Rather than removing the current systems entirely, the State's goal is to develop a single backbone that allows the integration of standardized equipment specifications and capabilities through coordinated operational protocols. This approach will "grandfather" in legacy systems while concurrently requiring that system upgrades or replacements incorporate standards-based interoperable technologies to the greatest extent. In turn, this will allow for collaborative migration rather than compromising public safety entities for

not using a specific product. This vision also allows for a future state where the focus is on governance and procedure, rather than on equipment alone as the sole answer.

Efforts Underway

A key policy and program challenge revolves around ensuring that these various systems fall within the accepted parameters of what is ultimately defined as “interoperable” – whether referring to equipment or procedural implementations. A defined range of these parameters for California was developed during the Exploratory Market Survey project. As an initial step in developing the SoS, an exploratory market survey was conducted of large-scale public safety wireless voice and data communications systems integrators in May 2006. The goal of the survey was to help formulate the SoS functional requirements. The large-scale integrators interviewed were asked to synopsize how their systems solutions could accommodate the following:

- Forty-one predefined “System Capabilities” criteria (and, generally, other communications trends alluded to in the SAFECOM Program Statement of Requirements [SoR] Version 1.1³⁰)
- Communications trends alluded to in the 2006 PSRSPC Report to the Legislature Action Plan and Compendium of References *with emphasis on* how their systems solutions can allow the state to leverage their existing analog state agency communications systems to the greatest degree feasible while evolving incrementally but expediently towards a standards-based, optimized operable and interoperable SoS

Survey results indicated that there are various approaches for integrating existing infrastructures while allowing for a migration path to modernization. The results also denoted that several large-scale integrators can accommodate the magnitude of effort before the state. As a result, the Functional and Operational Considerations Checklist will be employed to verify all stakeholder requirements are accommodated by the developing SoS solution.

Strategy to Get There

All of the goals outlined in the CalSCIP have the same purpose: to make California’s public safety communications systems interoperable. The most crucial element of establishing interoperability will be to design, procure, and deploy an SoS. The envisioned California SoS will be realized through the amalgamation of disparate communications systems via technologies into a linked infrastructure (or network) capable of supporting interoperable communications.

California SoS development requires that communications equipment purchases by any of the network participants be standards-based, P25 compliant, and forward migrating, to the greatest extent possible. This will ultimately facilitate achieving the SAFECOM technology end goal of all network participants operating on standards-based shared systems. The SoS digital network will be capable of being configured to accommodate a diversity of wireless and wire line communications technologies and connectivity, including satellite, broadband, and internet provider-based. The evolving Statement of Requirements (SoR) will represent a comprehensive integrated public safety solution able to accommodate, as appropriate and necessary, legacy, current, and future public safety wireless voice and data communications systems of those local, state, and Federal government users. The SoR can be referenced in Appendix K.

³⁰ <http://www.safecomprogram.gov/SAFECOM/> for SAFECOM overview and SoR

A standards-based, shared systems approach is the most cost-effective means of obtaining enhanced system functionality and the most effective way of pursuing new spectrum allocations. As the SAFECOM Program Interoperability Continuum states,

“Regional shared systems are the optimal solution to interoperability. While proprietary systems limit the user’s choice of product with regard to manufacturer and competitive procurement, standards-based shared systems promote competitive procurement and a wide selection of products to meet specific user needs. With proper planning of the talkgroup architecture, interoperability is provided as a byproduct of system design, creating an optimal technology solution.”³¹

Migration Plan

Due to recent shortages in critical staffing and cash-flow limitations, California has determined that the state is neither operationally nor fiscally able to accommodate the significant investment of time and annual outlay necessary to evolve directly to a standards-based common infrastructure. What California can do is move towards a standards-based systems incrementally by:

- Maintaining and upgrading its current independent systems to maintain and improve operability
- Linking the independent systems via networking technologies to form an SoS
- Transitioning to common systems via sharing agreements over time
- Considering maintenance, upgrading, linking, and transitioning equipment and systems
- Including the standards-based feature for networking (i.e., P25 ISSI)

As Government Code §8592 (identified in Appendix A) now requires, California will have to posture for the future by incrementally replacing existing equipment with standards-based modern equipment when necessary. The code states that a local or state emergency response agency that purchases public safety radio communication equipment with state funds or Federal funds administered by the state must ensure that the equipment purchased complies with Project 25 Standards for digital public safety radio communications. New purchases must also comply with the operational and functional requirements delineated in the *Statement of Requirements for Public Safety Wireless Communications* and Interoperability developed by the SAFECOM Program. The only exemptions from this rule would be in cases where the purchased equipment is to operate with existing non P-25 compatible local or state communications systems, or in the case where the equipment is for use with existing statewide low-band communications systems.³² To accomplish the mission of the CalSCIP and encourage local and state emergency response agency alignment with the CalSCIP, an initiative has been developed recommending the PSRSPC and the CalSIEC work to modify Government Code §8592 to encourage compliance with the CalSCIP. In another effort to ensure alignment with the CalSCIP, PSIC grant guidance requires that any technology purchased with the funds must comply with the CalSCIP vision, mission, goals, and objectives. This allows agencies to fulfill their respective needs while thinking forward to the SoS vision.

SoS Preliminary Project Plan

The SoS will be an interoperability project that is unmatched in size and scope in the US and possibly the world. Because of its magnitude, the timeline for design, procurement, and

³¹ Excerpt from the SAFECOM Program Interoperability Continuum – A tool for improving emergency response communications and interoperability

³² Government Code §8592.5

deployment is approximately ten years from initial receipt of funding. The following is a summary of the SoS Project phases:

Acquisition Phase	Purpose of Phase
Definition	Characterize PM organization; Establish Inter-agency Reporting Relationships; Develop Chains of Command, etc.
Planning	Develop and Baseline Scope, Schedule, and Cost Set
	Phase 1: Technical Program Planning and Control
	Phase 2: System Engineering Process
Pre-Implementation	Phase 3: Engineering Integration of Design and Test Plans
	Refine Requirements; Conduct Conceptual Studies; Investigate Alternative Solutions
Implementation	Select Concept(s)
	Identify and Analyze Major System Alternatives (Concept Demonstration & Validation)
	Conduct Site Selection, Acquisition, and Development
	Acquire Spectrum
Full Scale Development	Receive Project Approval
	Establish Designs, Standards, and Terms & Conditions for Selected Solution
	Determine Systems Alternatives
	Produce Design Documentation
	Produce RFP(s) and/or RFQ(s)
Production Development	Conduct Production Ratification
	Construct Site and Systems
	Solicit Responses to RFP(s) and/or RFQ(s) through Wait Out Protest Period
	Issue Notice(s) To Proceed (for Radio Systems)
	Construct Sites, then Systems
Operation & Support	Deploy Operating Capability
	Implement User Support Modifications & Product Improvements

Figure 17: System of Systems Project Phases

System of Systems Concept Defined

System of Systems in this context can be defined as a solution that addresses large-scale, multi-jurisdictional and interdisciplinary public safety communications problems due to the existence of incompatibilities between non-standard public safety agency communications systems and equipment (hereafter “dissimilar distributed systems”). Definitions and views may vary, but it is widely agreed that the concept, System of Systems, is a new discipline of which much still has to be learned. The method or process for addressing SoS challenges are being described as System of Systems engineering.

Specifically for The California Statewide Public Radio Interoperability Project, it is a solution that solves a complex public safety communications problem with dissimilar distributed systems using technology, policy, and economics.

California’s Complex Public Safety Radio Communications Problem

Dissimilar distributed systems, policy, and economics combine to form the current state of public safety radio interoperability within California. A System of Systems approach is needed to expose and deliver new ideas. In the context of California’s 2017 Vision for achieving state-wide interoperability, an SoS solution includes a state-wide multi-system network that interconnects emergency responders who are operating on separate agency radio systems. This concept helps address the need to retain a level of local and regional autonomy among individual agencies, jurisdictions, and regions that have already built out communications systems. Ultimately, the goal of the SoS concept is to enable direct interoperable radio communications regardless of an agency’s jurisdiction or discipline, or the location of the emergencies.

Three Levels of the System of Systems concept:

1. Local Response Area system interoperability: interconnection of individual agency systems within a municipality or county.
2. Regional system interoperability: interconnection of individual local response area systems throughout a region. A Region is a defined geographical cluster of individual response areas.
3. Statewide interoperability: interconnection of regions throughout the state.

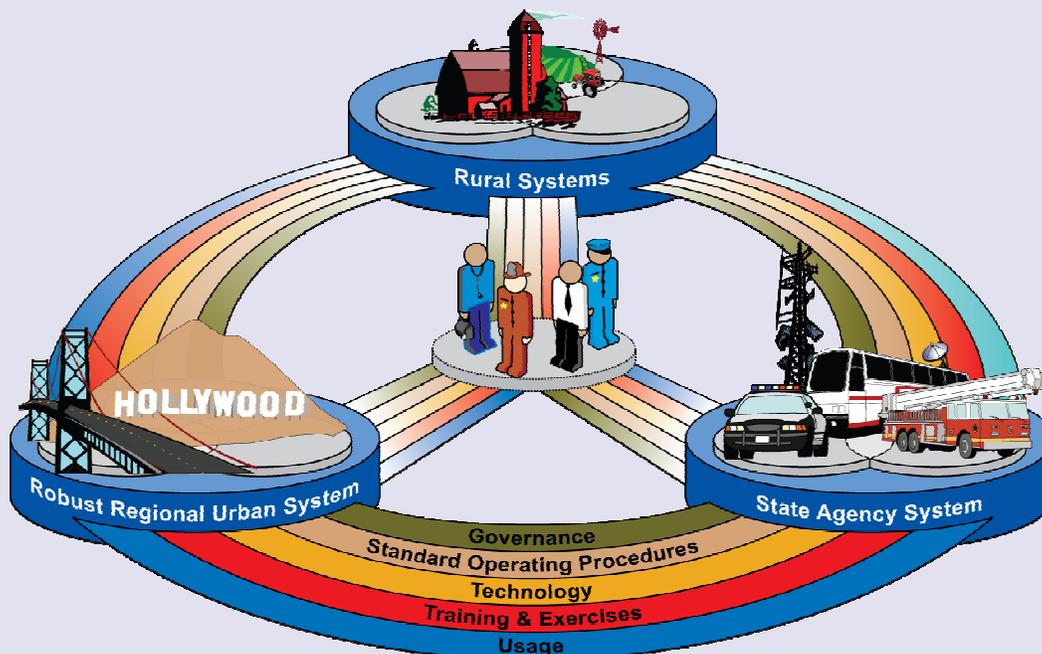


Figure 18: System of Systems Interconnection

The SoS concept of connectivity aligns with the objectives outlined in the CalSCIP strategy section. Contributing technologies to the SoS align with various Federal grant requirements by adopting advanced technological solutions to achieve communications interoperability.

Achieving Interoperability through a System of Systems

The concept for an SoS network architecture is based on technology "hubs," which allow controlled interconnection of individual radio systems; statewide interoperability is achieved by interconnecting hubs. Controlled, shared use of compatible radio systems can be integrated into the hub architecture. As demonstrated by Figure 19, a typical hub concept will include the following:

1. Local Response Area Hub: interconnection of a cluster of individual systems to enable interoperable communications between individual agencies within a Local Response Area, such as a municipality, county, or other local service area boundary.
2. Regional Hub: interconnection of a cluster of Local Response Area hubs within a defined geographic boundary to enable interoperability between emergency responders in different Local Response Areas within a region.
3. State Hub: interconnection of all Regional Hubs to enable statewide interoperability between emergency responders in different regions. The State can work to integrate systems as regional hubs are further developed.

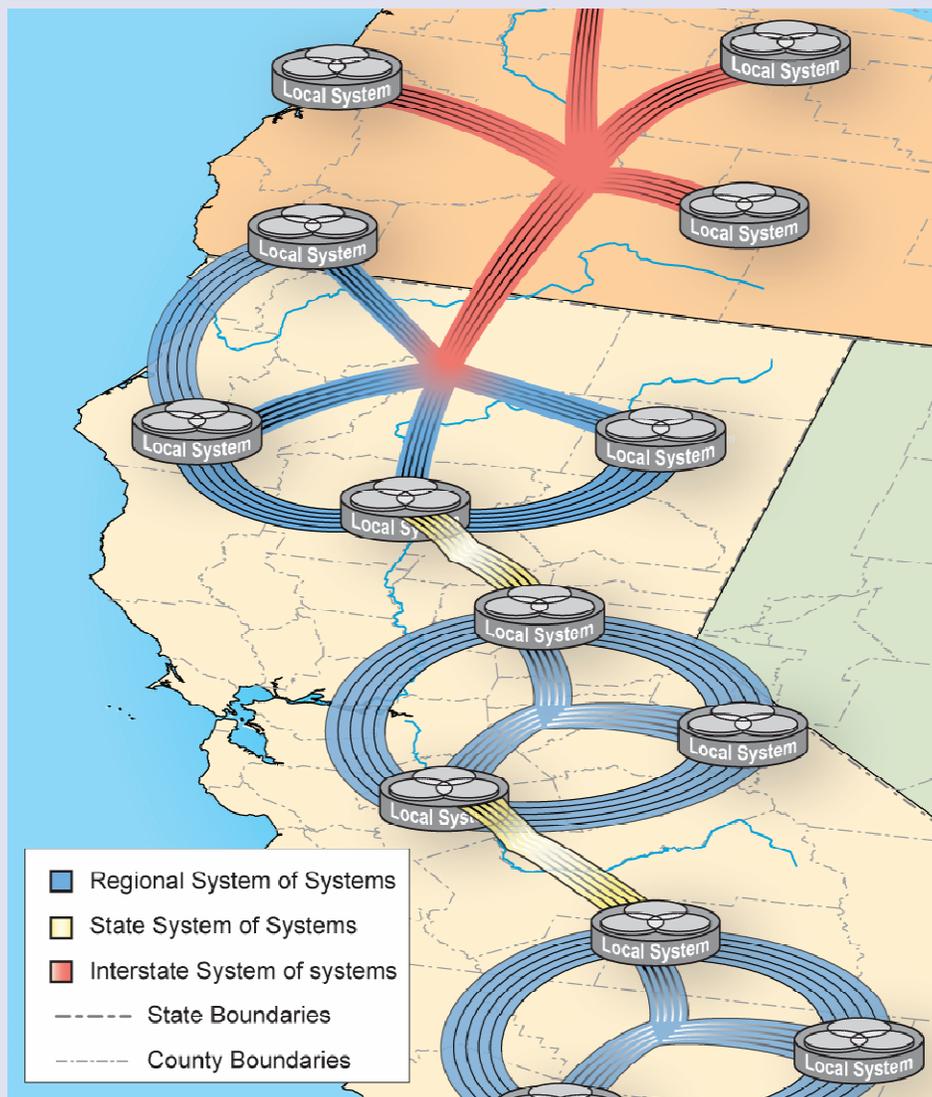


Figure 19: System of Systems Hub Interconnection

Looking into the future, the concept can be expanded to interconnect state hubs between states to enable inter-state interoperability. The specific agency requirements for each individual system are not compromised in the SoS concept, therefore, individual agencies will be able to control their participation in an interoperability connection.

Critical Agency Participation & Next Steps

It is essential that all agencies that operate within the state actively participate in a unified governance structure to ensure the successful implementation of a statewide SoS. The critical first step is conducting a revised survey of all communications capabilities among emergency response agencies within the state. The survey will include all fields required for data analysis using CASM or other accepted databases. Once the current state of communications capabilities is evaluated within California, the next step is to reach out to industry officials as a unified group and request information regarding existing capabilities, services, and technologies that will allow the State to move forward with implementation of the SoS. This can best be achieved through a series of Requests for Information (RFIs).

A standard RFI describes the purpose of the request and outlines the scope of the project or services to be performed. The intent is to allow industry service providers to supply targeted information on a specific topic, in this case, the SoS solutions or technical approaches. This information can help the State's leadership in decision-making and the defining next steps. The format of the RFI should be concise and simple, and should request specific information; this format helps State leaders quickly analyze the responses and leverage the submitted information.

➤ The “Systems” of the System of Systems: State Owned

SMARS (Statewide Mutual Aid Radio System)

In any disaster or large scale incident involving multiple response agencies, there is a definite need for on-scene communications between services. Unfortunately, most systems are designed to serve a single agency and the ability to intercommunicate is severely restricted. There may also be a need for supplementing communication channels between the scene and Control Center. SMARS was developed to alleviate some of these issues. The advent of synthesized, multi-channel mobile and portable units, capable of spanning a wide portion of the spectrum, has enhanced the ability to utilize several channels at very little added expense.³³ Each user must be a signatory of the California Disaster and Civil Defense Master Mutual Aid Agreement and all operations must be strictly in accordance with the relative network plans.

Frequencies used for SMARS are located in the VHF high band. However, the plan's rules allow for any public radio frequency to be installed and used by any public safety unit provided proper procedures and licensing are followed. This plan is designed to do the following:

- Utilize existing mutual aid channels in the most effective manner
- Improve interagency communications by specifying a dedicated channel for on-scene use
- Encourage agencies to prepare for disaster communications by installing SMARS channels in response vehicles
- Provide for the most effective day-to-day and disaster use of designated channels
- Secure and administer caches of mutual aid communications equipment placed at appropriate locations
- Improve mutual aid communications among agencies
- Promote better knowledge, use and control of public safety mutual aid channels
- Prioritize all transmissions on SMARS channels according to the need for communications.

The State's coordinated mutual aid responses are often dependent upon the use of one or more of these systems. The interconnected networks are as follows:

CALCORD (California On-Scene Emergency Coordination)

The California On-Scene Emergency Coordination (CALCORD) System was established to provide common radio frequencies statewide for on-scene interagency coordination by local and state public safety and special emergency agencies. This system allows for a common frequency to be used by police, fire, medical, highway maintenance, and search and rescue agencies during multi-agency incidents.

CALCORD operates in a single VHF high band frequency under the management of the Office of Emergency Services. Applications for agency use of this system are coordinated through the Chief of Telecommunications Division, OES. CALCORD is open to all local government agencies eligible to operate on frequencies for Public Safety Radio Services. In addition, CALCORD channels may be placed in ambulances operating in the Special Emergency Radio

³³ Statewide Mutual Aid Radio System Plan (SMARS). May 1991.

Service. It is intended that this system be used to facilitate communications when the ICS is used.

CMARS (California Multi-Agency Radio System)

CMARS is a statewide LMR repeater system in the NPSPAC band that is licensed and maintained by DGS. It has six repeated channels, two in each region of the State. It is intended for use by any public safety agency in the State that has insufficient requirements to procure its own LMR system.

CESRS (California Emergency Services Radio System)

CESRS is a statewide LMR repeater system in the VHF-Hi band, which is licensed and owned by the State. County and State agencies may operate their own equipment on the system, provided that the equipment and rules of operation are coordinated through the State. The system is intended for coordination between OES staff and Regional OES staff. The California Youth Authority also use CESRS for day-to-day operations.

CLERS (California Law Enforcement Radio System)

CLERS is a statewide fixed repeater system in the VHF-Hi and UHF bands, which is licensed by the State and local governments. CLERS has two functions: (1) it is used to coordinate Mutual Aid among dispatchers, and (2) it serves as the backbone for the California Emergency Alert System (EAS). Some termination points are directly off the CLERS microwave relay. The CLERS backbone is licensed and maintained by DGS. Participating city and county agencies may maintain and license their own equipment after coordination with OES.

CLEMARS (California Law Enforcement Mutual Aid Regional System)

CLEMARS is licensed to the State and administered by the State Office of Emergency Services. The channels used by this system are designed primarily for law enforcement interoperability in different bandwidths. There are priority standards under the CLEMARS Guidelines and some agencies have been granted use of these channels on a daily basis. All agencies that use these channels as such are required to relinquish use upon any declared emergency or mutual aid event. These frequencies are operated under the guidance of OES.

The stated purpose of the system is to enhance the ability for law enforcement agencies to communicate on common frequencies during emergencies and other special operations.

Examples for CLEMARS use include the following:

- An interagency team operation designed to serve search or arrest warrants.
- An emergency call requiring two or more units from the same agency to coordinate response to a crime-in-progress.
- A mutual aid response team assigned to assist a neighboring jurisdiction.
- Law enforcement operations conducted at special events involving one or more law enforcement agencies
- Operations required in response to a major disaster, involving units from several assisting agencies that come from outside the impacted area.
- A transient law enforcement unit en-route to an out-of-town court appearance, which requires assistance upon encountering a public safety issue.

The provision of common mutual aid channels is not just a statewide responsibility. The Federal Communications Commission has designated one VHF high band channel as a National Law

Enforcement Mutual Aid Radio System (NALEMARS) channel. NALEMARS is one of the channels incorporated into the CLEMARS pool of frequencies. There is also a nationwide CALL channel in the 800 MHz spectrum designated as the International Call channel (I-CALL).

OES FIRE

OES Fire is a statewide LMR simulcast repeater system situated in the VHF-Hi band. It is used by Fire Mutual Aid Coordinators at the State, Regional, and Operational Area level. It is also used as a dispatch and travel channel for OES fire apparatus. OES Fire is licensed and maintained by DGS and operated by OES's Fire and Rescue Branch. Individual repeaters on the OES Fire system are selected by the tone of the mobile transmitter

White Fire

The White Fire set of simplex frequencies are licensed, owned, and operated by the local, County, and State governments, but were initially coordinated by OES. The frequencies are assigned by the FCC for multiple-agency fire coordination operations.

OES HF

The HF system is a fixed omni-directional simplex radio system maintained at the Regional Emergency Operation Centers (REOCs) and the State Operations Center (SOC). OES maintains and licenses the HF Radio with authorization from the Nation's Communications System (NCS).

STACOM (State Communications System)

The State Communications (STACOM) System is designed to provide emergency radio communications coverage across the entire state. This system complies with the FCC State Emergency Communications Using Radio Effectively (Operation SECURE) requirements and is operated in accordance with FCC Rules Part 90 and FCC Public Notice 2419.

Operation SECURE frequencies are licensable only to state civil defense and emergency management agencies for direction, coordination, and control communications. The primary users on California's system include:

- OES headquarters and regional offices
- OES mobile units
- Several county emergency services offices
- Department of Transportation headquarters and 12 district offices
- California Department of Forestry and Fire Protection headquarters and Emergency Mobile Communications Centers
- American Red Cross
- US Geological Survey (Menlo Park)
- Inyo National Forest headquarters (to support the Caldera Plan)
- Multi-Service Fire Operations Center in Riverside
- Nevada State Emergency Operations Center in Carson City

STACOM uses 10 assigned frequencies in the High Frequency band between 2 and 8 MHz. A user selects the destination of a call via a digital key pad and the system automatically selects the best channel through Automatic Link Establishment (ALE). As multiple frequencies may be used in completing the call, the system has limited capacity for multiple users. While ALE was originally designed for approximately 10 to 12 users, the system currently accommodates 75 to

120 users. Licenses, management, and operational control are coordinated by the State Communications and Warning Officer. STACOM is not used for routine operations.

OES has two mobile command complexes stored at Los Alamitos and Sacramento, which also utilize STACOM. Each consists of a communications van, an operations van, a command van, and a generator for power. Their primary purpose is to provide initial communications from a disaster area to OES Headquarters, and act as a collection point for damage assessment. OES has established additional caches of mobile and transportable STACOM radios for disaster responses.

FIREMARS (Fire Mutual Aid Radio System)

FIREMARS is used for mutual aid communications between two or more fire agencies involved in controlling a single major fire. There are no fixed stations on this system, but rather, portable repeaters are maintained for deployment on an as-needed basis. A single pair of frequencies has been identified in the VHF high band for this system. The system is managed by OES, Fire and Rescue Division.

HEAR (Hospital Emergency Administrative Radio System)

HEAR is available to any eligible agency for the rendition and delivery of medical services, and may be designated by common consent as an inter-system mutual assistance frequency under an area-wide medical communications plan. Under the basic HEAR system plan, usage of the system is limited to communications between hospitals and ambulances or, in cases of large scale and disaster operations, between hospitals generally intended for emergency traffic. Certain areas of California have established separate operational plans which supersede the basic plan. Use of the system is managed by the EMSA and administered by OES.

OASIS (Operational Area Satellite Information System)

OES owns and operates a VSAT (Very Small Aperture Terminal) satellite communications system known as OASIS (Operational Area Satellite Information System). This system serves as one of the various back-up and redundancy systems for first responder communications across California. The network is scalable in architecture and allows for Star, Mesh, point to point, and hybrid topologies. The OASIS Network consists of three types of satellite ground terminals:

1. Fixed Hubs
2. Fixed Remote Sites
3. Transportable Trailers

OASIS system is a stand-alone primary redundant satellite communications system that leases 7.616Mb of bandwidth from the satellite services vendor, IntelSat General. It allows interoperability between the public safety agencies and is intended for exchanging disaster intelligence and resource request when either the public switched telephone network (PSTN), fails or a secure communications source is needed. In the event of an emergency where the PSTN fails, OASIS is the primary back up, providing voice and internet connectivity to the California State Warning Center (CSWC), OES Regional Emergency Operations Centers (REOCs), 59 OAs, 24 Hour Dispatch Centers and their Emergency Operations Centers (EOCs), and key State agencies through one of two Hubs (Mather or Los Alamitos). Voice circuits have priority over all other services and are scalable as needed.

OASIS provides the following scalable services:

- Two OES Regional Offices - 24 Voice lines and Internet connectivity scalable from 128 kbps up to 1.2 mbps.
- 70 Fixed Remote Sites - Eight Voice lines and Internet connectivity scalable from 128 kbps up to 1.2 mbps, depending on priority.
- Eight Transportable Trailers - 24 Voice lines and Internet connectivity from 256 kbps up to 1.2 mbps each, depending on priority.

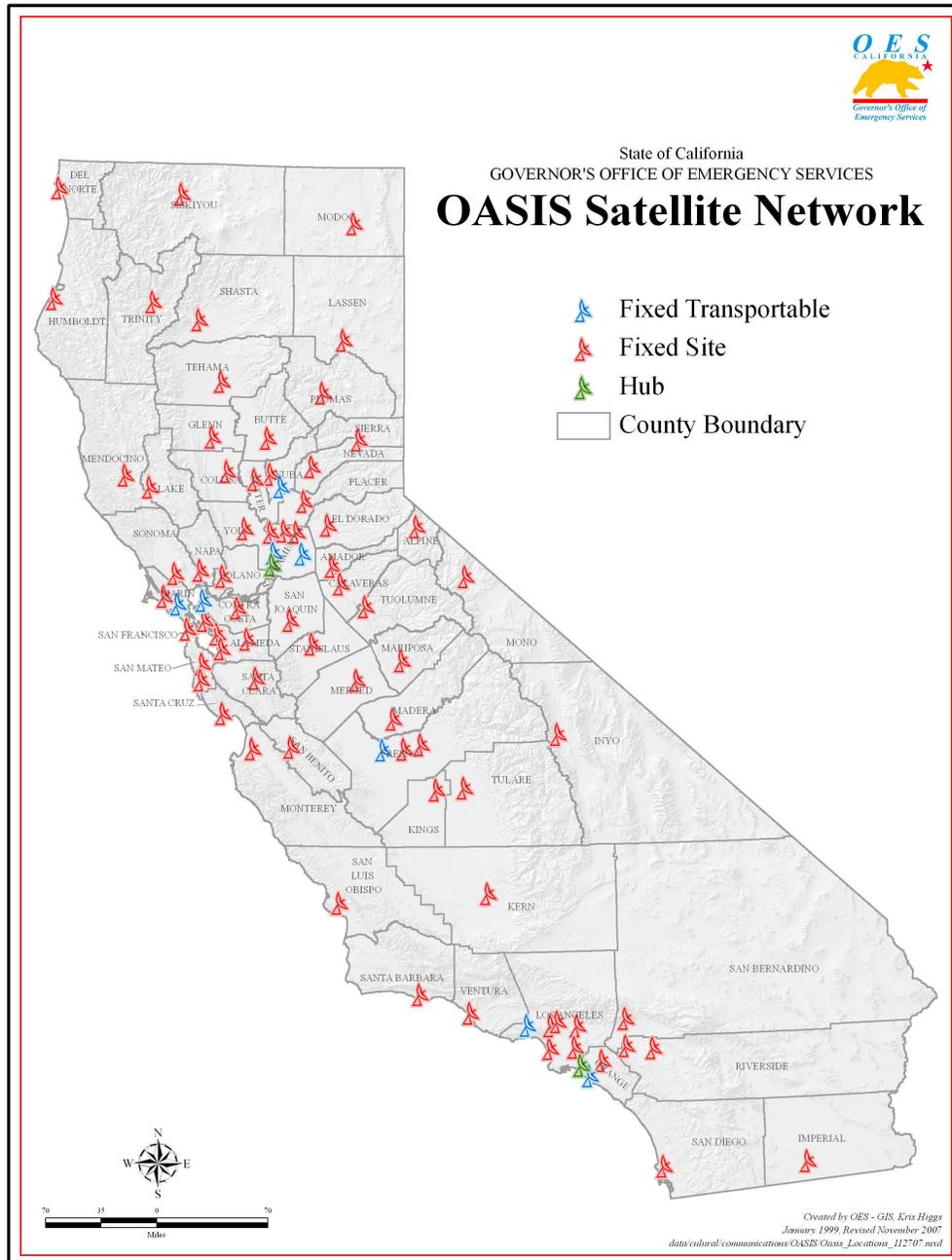


Figure 20: OASIS Satellite Network

Future services will include video services (streaming, VTC), wireless communications services, and extended inter-operable radio communications. The OASIS migration from analog to digital is envisioned as scalable and upgradeable without major equipment replacement. As OASIS was designed to accommodate future technological developments. Additionally, the open architecture system was designed leveraging non-proprietary hardware and software while using commercial-off-the-shelf (COTS) products. OASIS, therefore, is not dependent on vendor software upgrades and market changes.

Statewide Microwave System

The State of California Department of General Services operates and maintains an extensive microwave system. With more than 300 sites, the system provides over 8,400 miles of microwave paths and more than 3,900 terminal points for communications. There are more than 2,300 circuits providing over 100,000 circuit miles of telephone and radio control communications.

This microwave system allows for communications capabilities throughout the state. It is available to all public safety agencies within the state, including law enforcement, fire, special emergency, highway maintenance, forestry, and conservation as well as public services agencies. It is separate from private communications systems and enables controlled usage by public safety agencies with low potential for degraded service during emergencies. Figure 21 documents the Microwave System Route Map.

**Microwave System
Route Map
removed for security
reasons**

Figure 21: Microwave System Route Map

California Highway Patrol (CHP) System

The CHP primary voice radio system is a VHF low band semi-duplex remote base station system. The system was initially designed and built more than 40 years ago. CHP is currently licensed for over 30 frequency pairs within the state. Two of the channel pairs identified as Blue and Blue 1 comprise common channels. Between the two, a common channel pair (Blue or Blue 1 depending on geographic location) is available for use statewide for secondary activities to relieve congestion on primary pairs. This common channel is also used for statewide radio communications by members of other public safety agencies who travel outside their local jurisdictions. Throughout most of California, the system uses a two-frequency simplex system to communicate. Individual control of base stations from dispatch centers is accomplished through a combination of state-owned cable, leased telephone lines, microwave, and VHF or UHF radio links.

A separate VHF high band system is used to provide “extender” access to officer portables. The VHF portable radio signal (154 MHz) is repeated by the officer’s vehicular repeater to the VHF low band system. The portables are power-limited in this application, and are unable to communicate with the low band system if separated from the vehicular repeater by approximately one-half mile. Portables may access CLEMARS, CALCORD, NALEMARS and local agency VHF high band frequencies for mutual aid communications.

CHP also has a radio system in the UHF band used primarily for State Police activities. Three UHF frequency pairs are licensed statewide. The State is divided into three corresponding zones for the coordination of frequency use. Mobile relays are generally established in the major metropolitan areas of the State. Additional receiver sites have also been established to improve talk-in coverage. Remote sites are connected to established control points and dispatch centers via microwave and leased lines. For more information on the system, please see the previously discussed California Highway Patrol Enhanced Radio System on page 63.

Facilities and Equipment

CHP employs over 300 radio transceiver and receive-only sites statewide. Over 100 fixed control points are also established for access to the radio network.

California Department of Corrections and Rehabilitation (CDCR) System

The CDCR uses multiple frequency bands for radio communications, including VHF low and high band, UHF, and 800 MHz frequencies. Each facility has a primary radio band for intra-facility communications. For communications within the facilities, the Institutions Division uses portable and mobile radios and fixed control stations operating in the 800 MHz band. The statewide use of 800 MHz trunking systems was originally proposed in 1986 and has been installed in stages since 1988. Since then, twenty-six 800 MHz trunked systems have been established at CDCR institutions. Coverage for these systems is generally limited to each facility. The systems typically utilize three to five channels, but several are pending upgrades when additional channel licenses are available. All institutions utilize trunking, except for the Northern California Women’s Facility in Stockton, which uses conventional technology.

Transportation Unit vehicles each utilize cellular telephones and/or radios. These radios operate on the California Highway Patrol Blue Channel in the VHF low band. Similarly, each Law Enforcement Investigative Unit (LEIU) agent is assigned to a vehicle equipped with emergency equipment and a two-way mobile radio operating on the California Highway Patrol Blue Channel. Agents are equipped with portable radios operating on VHF high band and UHF

channels through mutual aid agreements with law enforcement agencies in various parts of the State. Cellular telephones are also used extensively.

To accomplish its mission, CDCR relies heavily on the use of other public safety agency radio networks. The CDCR Radio Frequency Usage Agreements with local agencies restrict their use to a secondary basis. Since it is a "secondary usage" basis, appropriate procedures must be used to prevent undue interference with the operations of the host agency. Some of the P&CSD agreements, such as those with San Bernardino, Sacramento and Fresno Counties, also include contracts allowing for the primary use of the host agency systems.

The Department also uses CLEMARS, CMARS, CLERS mutual aid radio systems.

Facilities and Equipment

Since all radio sites are established within CDCR facilities, they are all owned by CDCR and incur no site lease costs.

Special purpose radios are held in reserve for emergencies within institutions such as escape pursuit, the Special Emergency Response Team (SERT), or the Negotiation Management Team (NMT), and are for use when radios are out for repair. A limited cache of portable radios also exists for backup capabilities and for distribution to other agencies when necessary for mutual aid communications.

California Department of Fish and Game (DFG) System

DFG is currently licensed on four frequencies within the State for voice communications in their mobile law enforcement vehicles. The radio communications network is structured in two Area frequency plans. Each Area frequency plan is allocated two VHF high band frequencies, using another frequency pair for mobile relay operations.

The Department operates a number of watercraft for law enforcement, research activities, and inspection of commercial fishery operations. The vessels use AM-Single Sideband (SSB) and VHF-FM marine radio bands for ship-to-ship, ship-to-shore, and portable communications. Radar navigation is also utilized.

DFG also operates seven aircraft which are used for various law enforcement, research, and operational purposes. These planes use aircraft channels as well as VHF air-to-ground and radio navigational communications capabilities.

Facilities and Equipment

The Department's radio system is a network of DFG owned mobile relays. All mobile relays are located at leased sites. The mobile relays can be operated in independent repeat modes or remotely from selected dispatch centers and control points. Over 70 fixed control points are currently established for access to the radio network. Control connection to the mobile relays are currently provided by leased telephone lines, the State microwave system, and direct point to point radio links.

California Department of Forestry and Fire Protection (CAL FIRE) System

The Department primarily uses VHF high band channels in the Forestry Conservation Bands. Additional local and regional frequencies are used for communications with other public safety agencies. To support CAL FIRE's statewide operations, six radio networks are utilized:

1. CAL FIRE-I Mobile Relay System
2. CAL FIRE-II Mobile Relay System
3. Air/Ground System (Initial Attack "Local" Nets)
4. California Travel Net
5. United States Forest Service (USFS) Air Safety Guard Radio System
6. Air/Air System

The CAL FIRE-I and CAL FIRE-II nets are used for radio communications between an Emergency Command Center (ECC) and Incident Commanders or mobile units. These networks can also be used for support purposes on a lower-priority basis.

Air-to-ground frequencies are for radio communications between Incident Commanders and aircraft. The California Travel Net is utilized for mutual aid communications by units responding out of their primary jurisdiction. The USFS Air Safety Guard System is used on a secondary basis when coordinating aircraft operations with the US Forest Service and for mutual aid communications. For communications between aircraft, three additional channels have been allocated to the Air/Air system. Twenty-seven localized radio networks also have been established, primarily for administrative unit emergency response communications.

The CAL FIRE radio network uses either leased telecommunications lines or the State microwave system to link remote base stations with dispatch points. Tactical communications are conducted primarily via simplex or talk-around channels. VHF low band frequencies also are in limited use for Chief Officer communications. Additional channels to develop a logistical Support Net are currently being considered.

Currently, CAL FIRE has radio coverage for approximately 80 percent of the State. Areas not covered include national forests and desert areas. Transportable repeaters are available and used extensively around the State on an as needed basis. CAL FIRE has several mobile communications centers deployed in the State.

The Department is often coordinating assistance with other agencies during emergencies. CAL FIRE has granted permission to the following agencies to use Department channels:

- Department of California Highway Patrol
- Department of Fish and Game
- Department of Water Resources
- US Forest Service

CAL FIRE also has agreements for use of the following agencies' channels:

- Los Angeles City Fire
- Los Angeles County Fire
- US Forest Service
- Ventura County Fire

In addition, CAL FIRE provides portable radios for other agencies to use when coordinating mutual aid emergency responses. The State's CALCORD system is also utilized for multi-agency coordination.

Specialized Systems

The Department utilizes satellite communications for targeted weather reporting. The Remote Automated Weather System (RAWS) measures meteorological conditions and provides data for the calculation of fire danger ratings. There are many data collection platforms statewide that collect and store weather related data. At timed intervals, the data is transmitted to the Geostationary Operational Environmental Satellite (GOES) and then to the Resources Building in Sacramento for processing. This information also assists in the management of forest resource plans and utilization of manpower and firefighting equipment. Satellite operations are coordinated with the National Oceanic and Atmospheric Administration (NOAA).

California Military Department (CMD) Capabilities

Incident Commander's Command, Control, and Communications Unit (IC4U). The California Military Department mutual aid missions required the department to find and deploy a new and emerging technology solution to support complex interoperability voice communications within or outside the borders of CA. To support this response, the CMD has fielded state of the art communications units referred to as the Incident Commander's Command, Control, and Communications Unit (IC4U). The IC4Us are strategically pre-positioned throughout CA to assist in rapid mutual aid response that enhances the CMD command and control and provides clear vision of the common operational picture while deployed supporting State and Federal missions.

The IC4U provides high capacity data, voice, and video operations. (During the LA and San Diego fires as well as Golden Guardian, the IC4U successfully tested Full Motion Video in support of Firefighters on scene). The IC4U is a mobile platform that is self-sufficient, mounted on the back of a military High Mobility Multipurpose Wheeled Vehicle (HMMWV) or commercial truck. It can be rapidly deployed by military air, and can be fully operational within 15 minutes upon arrival at the scene. It is self sufficient for up to 48 hours without re-fueling. The ability to have positive communication at the scene, communications back to CMD Headquarters, transmit e-mail, receive reports from news agencies, and populate Web Portals with situation reports and live video feeds provide leadership and staff a better operational picture as everyone views the same information. This is accomplished with the onboard computer and support systems through a Satellite Internet Service Provider from anywhere in the U.S. and back to the CMD Headquarters. The performance of this unit was validated at both Hurricanes Katrina and Rita as well as the 2007 LA and San Diego Fires. The IC4Us provided full voice, data, and video 24/7 for up to 60 and 45 days, respectively.

Joint Incident Site Communications Capability (JISCC). (The CMD will receive this capability in 2008.) The platform — which consists of four separate modules — was developed in response to a request for proposals from the National Guard, which was seeking a system that would provide a rapid-deploy communications infrastructure to support onsite command-and-control communications and — more important — local first responders whose own communications systems had been rendered inoperable.

The system delivers a self contained, mobile global communication capability to incident areas. The JISCC has satellite "Reachback" using a 1.2 meter auto-acquire Ku Band antenna integrated into an IT system. The IT system provides Video Tele-Conferencing, Voice Over IP telephony, internet and email access. The IT system has both a LAN and a Wireless LAN. Local communications are provided using a radio network. The radio network has VHF, UHF and 800 MHz land mobile radios, UHF portable radios, antenna masts and a repeater.

Fly-away Satellite Kits. The CMD recently purchased four portable satellite units (PACSTAR 3500) to be used by a 1-2 man team for immediate on-scene communications. This unit provides voice and data connectivity and can be carried on and loaded in a commercial airline overhead bin.

Joint Network Node (JNN); Army National Guard Signal Units. Tactical communications which provides enhanced voice and data capabilities. Uses COTs switching routing interfaces with X, Ku, and Q military and commercial satellite bands. It can support both NIPRNET (unclassified network) and SIPRNET (classified network) simultaneously.

Theater Deployable Communications Integrated Communication Access Packages (TDC-ICAP); Air National Guard Combat Communications Units. Tactical communications State of the art ground to ground communications infrastructure designed to transmit and receive voice, data and video communications (secure) to or from wireless, satellite or hard-wired sources. Modular packages that can provide both NIPRNET and SIPRNET and can be expanded to support additional people based on event.

Civil Support Teams Unified Communications Suite. Provides communications interoperability with Federal, State, and Local Emergency Response elements at a WMD event. Provides reachback capability which allows incident Commanders the ability to assess and incident scene. Features prime mover (able to fit on military aircraft), power system, communications circuit, voice and data, external interface/patching, digital voice/data over satellite. Required to go through military satellite.

Future Projects. The CMD is using existing grant money to build out its HF network throughout the state. Currently there are thirty-three HF radios available and the end state is to have a state of the art HF-ALE radio for each of its armories (total of 120) and its three training sites. The CMD is also looking to increase its number of land mobile radios (LMRs) throughout the state so that units that have already been identified to mobilize in the event in a state emergency will be able to have command and control on scene. Currently the Army and Air National Guard have very few LMRs that are narrow-band compliant that can be used in an emergency. Lastly, future grant funding would be used for life-cycle replacement on current state equipment (i.e. IC4U).

*For more information, please contact:
MAJOR Pete Barajas
Emergency Communications Manager
Joint Forces Headquarters- J6
Pete.Barajas@us.army.mil*

California Department of Justice (DOJ) System

The DOJ radio system was established in the 1970s. The system is a network of mobile relays which operate primarily in independent repeater modes. The Department uses approximately 50 radio transceiver sites statewide, including repeaters and base stations. CTCSS tones are used to control access to repeater sites. There are minimal leased line circuits supporting the remote sites.

The DOJ holds licenses for one VHF high band frequency pair and one simplex channel statewide. The primary radio channel is routinely used to support covert operations.

The Medical Fraud Unit operates on the CHP's UHF radio system. Extensive use is also made of other statewide radio networks, including CLEMARS.

Interagency agreements have been granted to numerous agencies for operations on DOJ channels. The Department has established interagency agreements to operate on other public safety agency radio systems, including numerous Sheriff's offices and local police departments.

Facilities and Equipment

The Department makes frequent use of mobile and transportable ("suitcase") repeaters and radio frequency amplifiers to extend radio coverage and operational capabilities. Short-hop microwave links for wireless video transmission are in limited use. In addition, a number of dual-band radios are being obtained to meet near-term interoperability requirements.

California Department of Parks and Recreation (DPR) System

Beginning in 1981, the Department embarked on a conversion of its existing VHF low band radio system to an 800 MHz conventional radio system. Due to the complexity of establishing this frequency band in the north coastal area of the State, two VHF high band frequency pairs are used in this area in lieu of the 800 MHz channels.

The Department is currently licensed for twenty-one 800 MHz frequency pairs within the state. Nine 800 MHz channels are used statewide, with an additional four "border zone" channels licensed adjacent to the Mexican border. Seven National Public Safety Planning and Advisory Committee 800 MHz channels also are licensed in the Southern California region. Two VHF high band frequency pairs are licensed for the north coast area.

San Diego County Lifeguards are permitted to operate on the Department's channels. DPR is permitted to operate on other public safety agency radio systems including CHP, DFG, CAL FIRE, and OES as well as numerous Sheriff's offices and local police and fire departments.

Scanners are used extensively in vehicles to monitor additional public safety frequencies.

Facilities and Equipment

The radio system is a network of mobile relays which operate in independent repeat modes or are operated from dispatch centers and control points. Connectivity to the remote sites is provided by leased telephone lines and the State microwave system. Digital signaling (continuous digital coded squelch system) is used for repeater access.

Statewide, remote sites include over 100 mountaintop relays and several receive-only sites which have been established to improve reception. Numerous sites are leased from site owners. Over 500 fixed control points have been established for access to the radio network.

California Department of Transportation (Caltrans) System

Caltrans uses VHF low and high band, UHF, and 800 MHz (trunked and conventional) frequencies. In limited instances, Specialized Mobile Radio (SMR) networks and equipment are utilized when working with contract construction companies. Freeway Service Patrol vehicles also utilize SMR provided radio systems for voice communications.

The VHF low band frequencies are in the 47 MHz band designated for highway maintenance. Caltrans uses this system for construction, maintenance, and traffic operations in Districts 1, 2, 5 and 11. These systems are operated in simplex, non-repeated modes. In addition, one frequency is used as a statewide channel for construction purposes.

UHF frequencies are used for various purposes. These include base station control links throughout the State, snow and avalanche control communications, highway loop detection sensors, irrigation control systems, and communications with a weather station in Eureka.

Facilities and Equipment

Caltrans utilizes over 250 transceiver sites statewide. About a quarter of them are owned by the Department; Caltrans leases the remaining sites.

California Department of Water Resources (DWR) System

The Department uses a mobile relay system which is divided into five geographic areas. Connectivity to remote sites is provided by leased telephone lines and the State microwave system. The radio system utilizes five VHF high band frequencies in the Forestry Conservation Radio Service band. Three frequencies are used as mobile relay inputs, and two are used as mobile relay outputs and for car-to-car operations. All repeaters, mobiles, portables, and stations contain CTCSS encoding and decoding capabilities to reduce interference.

The Department also operates an external telemetry system which measures rainfall, stream flow, snow depth, and other parameters. This system operates in the VHF high band spectrum with some stations utilizing the Geostationary Operational Environment Satellite (GOES).

A co-usage agreement between the Department and the Mid-peninsula Regional Open Space District has been established for the repeater on Black Mountain (Santa Clara County). In addition, DWR has been granted permission to use the Department of Fish and Game and OES's channels. Other agencies operating on DWR frequencies include OES, the California Conservation Corps, and the CHP.

Facilities and Equipment

The Department has established 25 repeater sites and over 20 additional base station locations statewide. More than 30 fixed control points also have access to the radio network. Primary coverage areas support activities in and around the areas of California's water projects. All transceiver sites are leased from site owners.

Public University Systems

The University of California (UC) system is a world-class educational and research institution consisting of ten campuses and five major medical centers with 210,000 students and 170,000 faculty and staff. UC campuses are generally clustered in both the greater San Francisco Bay Area (and adjacent Central) and in Southern California. All UC campuses have fully sworn Police Departments, with two additional full-time Fire Departments at Davis and Santa Cruz.

The UC systemwide radio system is an 800 MHz trunked Motorola SmartNet system shared and used by all campuses except for two: UC San Francisco is integrated into the City & County of San Francisco's 800 MHz trunked radio system and UC Merced operates on conventional 800 MHz frequencies. Nearly all UC public safety departments use the system-wide 800 MHz trunked system for primary operations, except for UC Santa Cruz, which operates on conventional VHF frequencies.

UC public safety communications interoperability varies from campus to campus. Some campuses are fully interoperable and share common frequencies or trunked system talkgroups with neighboring agencies. More commonly, campuses have access to regional or county

mutual aid frequencies and statewide CLEMARS and/or FIREMARS frequencies. Very few campuses have CALCORD frequency capability or cross-band interoperability radio equipment.

The California State University (CSU) system is the nation's largest, with 23 campuses covering the entire state from Humboldt County to San Diego County. CSU has 417,000 students and 46,000 faculty and staff. All CSU campuses have fully sworn Police Departments, some including as many as 38 sworn personnel, along with sizeable civilian professional and student employee staffs; at such a large size, these departments are able to deliver a full range of public safety services to their campuses. Unlike CU, CSU no longer operates any of their own fire departments. Over 700 base, mobile, and portable radios support CSU public safety operations.

In contrast to the UC system-wide approach, individual CSU Police Departments manage their own communications with licensed frequencies most often on the band used by neighboring law enforcement agencies (ten campuses operate on VHF, eight campuses in the 800 MHz band, and five on UHF). The exceptions would be those campuses geographically situated within areas covered by large regional systems (e.g., City & County of San Francisco, Orange County, San Diego RCS, etc.) where they have chosen to become subscribers on those systems. All CSU campuses have repeated radio capability, and many are continuing to bolster their interoperability with new consoles that will enable frequency patching with adjacent agencies.

Most CSU campuses have at least one of California's CLEMARS channels; some have several channels in different bands. Some campuses also have statewide CALCORD and FIRE WHITE. Almost all CSU campuses have other regional or county mutual aid channels as well (i.e., San Luis Obispo/Santa Barbara Regional, LA County Sheriff/LARTCS).

Lastly, as an added means for CSU internal interoperability, many campuses have installed Mobile Satellite Ventures, which are compatible satellite terminals for instant voice capability on a dedicated CSU talkgroup. These terminals will enable inter-campus communication among and between campus EOCs and Police Dispatch Centers during major emergencies.

➤ **The “Systems” of the System of Systems: Regional**

Over the last several years, many sophisticated regional programs have emerged as true examples of interoperability within California. These systems reflect a trend towards a local- and regional-centered focus for communications modernization and interoperability. With these regional collaborations now in existence, California's challenge becomes a need to “tie together” these existing regional programs while supporting their ongoing development according to consistent standards. At the same time, state agency modernization to assist interfacing between local and state programs is a priority. The figure in Appendix L highlights many of California's current or planned major regional systems, including participating agencies, points of contact, TICP information, and URLs, if available.

Southern Planning Area (Mutual Aid Regions I & VI)

The Southern Planning Area contains several military installations and bases as well as thriving economic and tourism centers along the Pacific Coast. There are also several locations of national significance that represent California. Los Angeles is the nation's second-largest city, followed by San Diego (8th) and Long Beach (34th). The San Diego area has a thriving naval port and booming economy in support of the defense industrial base in that area. This area is

also home to the Los Angeles Airport, an iconic national and international gateway, and the nearby Port of Los Angeles.

The SUASI for Los Angeles/Long Beach and San Diego UASI within this planning area have helped build out some of California's most extensive regional systems, and helped lead the way for communications across the entire region. Key systems in the CalSIEC's Southern Planning Area are listed below.

The Los Angeles Regional Tactical Communications System (LARTCS)

Like most other areas of the nation, Los Angeles County lacked sufficient spectrum, had disparate independent radio systems, and was spread across four different radio bands. In 2000, it appeared technically impossible for public safety agencies to talk in real time; however, today LARTCS helps mitigate the lack of interoperability by building upon a concept of gateways and shared channels. These solutions serve as an interim solution that will be replaced if, and when, a standards-based single platform system is built. Upon the completion of a single platform, the LARTCS concept will serve to connect non-participating agencies, as well as State and Federal responders.

The LARTCS concept is evolving system ideas and concepts meant to solve tactical interoperability for public safety responders in the Los Angeles/Long Beach combined urban area. LARTCS, as currently operated, has a single UHF "hailing" or "calling" channel and five regional repeated channels. Three regional VHF channels, one low-band CHP, and one low-band California National Guard channel are connected via a JPS ACU-1000 at the Los Angeles Sheriff's communication center in East Los Angeles. This site has coverage that serves the San Fernando Valley, San Gabriel Valley, Los Angeles Basin, Ports and coastal waters, and most of Orange County. Virtually any agency operating in these areas can be connected to any other agency. System checks occur every Tuesday morning and Thursday evening.

The Los Angeles County Sheriff's Department spearheaded the LARTCS system in late 2000. Slowly, other agencies expressed interest and eventually the LARTCS Executive Committee was formed. This is an open committee with nine voting members and can be referenced in Appendix L.

Los Angeles County has 52 law enforcement agencies and 35 fire departments or districts. In addition to these agencies, state, Federal, and other public safety agencies often have the responsibility and compulsion to respond to an emergency or disaster in these areas. Consideration was given to the National Guard, Coast Guard, and other military branches. Unfortunately, all of these agencies were spread across the UHF, VHF, 800 MHz, and HF bands. No single radio or system could speak to all of the agencies.

Hard wire connections currently exist between the Los Angeles County Sheriff's Communications Center, Ventura County Sheriff's Department, and Orange County Sheriff's Department. A similar link exists with the San Bernardino Sheriff's Department through the Claremont Police Department. These links permit console patching for interagency communications at the portable radio end user.

The LARTCs plan provides for an infrastructure build-out to provide five repeated channels in each of the UHF, VHF, Low Band, and 800 MHz bands. Funding has been provided by the Los Angeles County Board of Supervisors for this construction. These frequencies will be repeated

countywide. Construction is scheduled to conclude by the fall of 2008. These channels will always be operating and available. They will permit instant communications between agencies on different frequency bands as they will all be linked. These links may be removed or modified by the Sheriff's Communications Center to meet specific incident needs.

For more information, please contact:
Lt. Stephen Webb
Technical Services Division
County of Los Angeles Sheriff's Department
www.lartcs.org/html/lartcs.html

Interagency Communications Interoperability System (ICIS)

The Interagency Communications Interoperability System (ICIS) currently provides interoperable communications for six separate cities in the Los Angeles Urban Area. The ICIS radio system is a UHF, trunked radio system operating in the UHF (450-512 MHz) band. It is a shared system with components purchased and constructed by individual cities and linked together through a microwave network in order to provide regional coverage. The concept of the ICIS was born out of the need for its current member agencies to replace their aging infrastructure. In discussions among the technical staff, it was determined that each was considering very similar system requirements and performance when planning for the future. A little research showed how the systems could be interconnected to create a regional footprint that would allow agencies to enjoy wide area coverage for the cost of a small municipal system.

In order to govern the system, a joint powers authority was formed consisting of the following participating agencies: Beverly Hills, Burbank, Culver City, Glendale, Montebello, and Pomona. Each city maintains its own network components. The entire network is monitored to assure that the system is operating to its optimum level and any reported problems are quickly dealt with by technicians.

ICIS governance includes four standing committees comprised of representatives from each of the owner agencies. The Governance Board oversees the activities of several committees to assure that their interests are kept in focus. The Operations Committee is comprised of emergency response personnel who develop recommendations for policy regarding the day-to-day use and emergency operations of the System. The Technical Committee is represented by radio communications personnel and is concerned with system functionality, maintenance, and growth. They are continuously looking at the network for issues related to reliability and growth. The Legislative Committee works with the state and Federal advocates on issues related to funding. They assist the Governance Board in maximizing the funding and outreach opportunities to expand and reinforce the operations.

For more information, please contact:
The ICIS Joint Powers Authority
Don Wright
Executive Director
<http://www.icisradio.org/correspondence.asp>

Orange County - Countywide Coordinated Communications System (CCCS)

Orange County and its 34 incorporated cities comprise just less than 800 square miles. Orange County is bordered by Los Angeles County on the north, San Diego County on the south, Riverside and San Bernardino Counties on the east and the Pacific Ocean on the west. It has a population of just over three million permanent residents and over 12,000 emergency responders. The County also draws an annual transient population of 38 million visitors to its many business, industrial areas, shopping spots, convention centers, beaches, and popular destinations such as John Wayne Airport, Knott's Berry Farm, Angel Stadium, Arrowhead Pond and the Disneyland Theme Parks and Resort. It houses two military operations at the Joint Forces Training Center and Naval Weapons Station, and the San Onofre Nuclear Generating Station is one mile outside the southern border.

The 800 MHz CCCS enables interoperability among all participating City and County law, fire, public works, and lifeguard/marine safety departments. The 800 MHz CCCS was designed for complete interoperability among all public safety agencies in Orange County while providing agency-specific communications for day-to-day operations. Every dispatch center and mobile/portable radio has access to all department and discipline-specific mutual aid/common talkgroups and conventional channels. The County has also implemented various radio systems in VHF Low Band, VHF High Band, UHF, and 800 MHz that may be used by any authorized non-CCCS public safety agency for coordination with any Orange County public safety agency. These channels may be patched to any 800 MHz CCCS talkgroup for interoperable communications. The 800 MHz CCCS is utilized for all public safety and general government operations in all of Orange County's 34 cities.

For more information, please contact:

Robert Stoffel

<http://www.ocsd.org/>

San Diego-Imperial Regional Communications System (SDRCS)

The San Diego-Imperial County Regional Communications System (SDRCS) provides public safety voice and data communications to more than 200 local, state, and Federal agencies in San Diego and Imperial counties. These are two of California's largest counties, spanning an area of over 9,000 square miles and over 185 miles of the U. S. - Mexico Border. The terrain covered by the RCS ranges from 100 feet below sea level at its lowest point to over 6,500 feet at its highest.

Agencies began using the Regional Communications System (RCS) in May 1998. To date, over 18,000 radios currently operate on the voice system with voice and data coverage acceptance tests at 97%. Notably, an independent consultant's management assessment study of the RCS validated the system's design, goals, and project management.

The RCS vision is to provide users with seamless communication internally and with external public safety/service agencies. The San Diego County Sheriffs Department's Wireless Services Division oversees the operation and maintenance of the RCS.

The vision for RCS is to:

- Provide seamless wireless communications for public safety/service agencies serving 3,000,000 people in San Diego County and Imperial County.
- Provide RCS users with wireless interoperability with other local systems.

- Ensure no one loses their life or property because public safety personnel cannot communicate with each other.

The RCS design strives to improve compatibility with existing 800 MHz systems and to provide highly reliable wireless voice and data networks, a minimum of 95% wireless coverage for the roadway network, and wireless data access for computer applications.

For more information, please contact:

RCS Management Office Wireless Services Division (WSD)

rcs800mhz@sdsheriff.org

<http://www.rcs800mhz.org>

Riverside County Public Safety Enterprise Communications (PSEC)

In order to launch the PSEC development effort, representatives from the Fire Department, Sheriff's Department, and Riverside County Information Technology (RCIT) Department collaborated to determine requirements and begin the system procurement process. The PSEC construction and implementation is a three-year process scheduled from March 2007 through December 2010 that will improve coverage, capacity, and functionality. PSEC seeks to address challenges in Riverside County that include voice and data share infrastructure, radio coverage gaps, accommodation of population growth, increased radio usage, and alleviating peaks in traffic. The procurement evaluation team involved a multi-discipline team consisting of nine evaluators; three evaluators each from the Sheriff's Department, the Riverside County Fire Department, and RCIT worked together to incorporate advice from subject matter experts.

In addition to a technical solution, the PSEC will design and implement a talkgroup plan, continuous radio operation training, and radio policies and procedures on operations, functionality, and interoperability.

For more information, please contact:

Alex Harris

www.riversidesheriff.org

Riverside County Public Safety Intercom

The Riverside County Public Safety Intercom is a multi-agency public safety intercom for use by all public safety communications centers. The primary purpose of the microwave/wired system is to assist in critical public safety communications and to augment other means of communications, such as radio or telephone.

The Intercom may serve as a valuable resource in the following scenarios:

- Reporting incidents/events to appropriate dispatch centers
- Requesting resources and/or assistance from cooperating agencies
- Notifying/requesting the status of mutual aid resources
- Announcing special interest conference calls
- Coordinating between the various dispatch centers
- Broadcasting messages which are intended for a broad public safety audience

- Coordinating with agencies area-wide during major events

For more information, please contact:

Dan Nila

<http://www.riversidecountyit.org>

San Bernardino Emergency Communications Services (ECS)

The San Bernardino County Emergency Communications Service, otherwise known as ECS, is a volunteer program under the San Bernardino County Fire Department Office of Emergency Services that supplements existing emergency communications. The ECS is comprised of a group of volunteers who hold an FCC-issued HAM Radio license; the ECS represents organizations which employ public-private partnerships as mechanisms for involving citizens in homeland security related issues. In this case, the ECS members volunteer their time to provide Auxiliary Emergency Communications for the County and Cities of the San Bernardino Operational Area.

The ECS's mission is to serve the San Bernardino County Office of Emergency Services and the San Bernardino Operational Area and support any possible needs relative to emergency communications. As a result, the ECS is included in day-to-day affairs of agencies. In effect, the ECS becomes an integrated aspect of the sponsoring agency staff, albeit unpaid.

For more information, please contact:

Tim Trager

<http://www.sbcecs.org/>

Ventura County System

Ventura County has a population of approximately 800,000 people, the majority of which reside in the southern half of the county. The County measures 1,845 square miles and contains small mountains and numerous valleys that are well known for their produce. The county's six-site microwave system is the backbone for all the mountaintop communications sites. The county's Information Technology Department supports all county agencies that utilize two-way radio systems, including the Sheriff's and Fire Departments. In addition, the county has numerous mutual aid agreements with agencies, including the CHP, CDCR, CAL FIRE to provide support with radio channels and caches of portable VHF radios.

Currently, the Ventura County Sheriff's Department has access to the Los Angeles Regional Tactical Communications System (LARTCS) and tests with other southern California agencies on a monthly basis. The LARTCS allows the Sheriff's Department to maintain direct communication, via a third party radio patch, with their radio dispatcher and units from other agencies during large scale, multi-agency incidents. In addition, the county currently has an interoperability trailer that can be deployed along with its ACU-1000 interoperability equipment.

Ventura County is in the process of upgrading its six-site microwave backbone to an 18-site microwave backbone with increased capacity for both voice and data. The project is on schedule and will be fully operational in July of 2008. Once the microwave and additional sites are completed, the current plan includes simulcasting capabilities to provide better coverage for the Sheriff's and Fire Departments over the difficult terrain. The county will also have additional capacity to provide surrounding counties and cities voice and data for emergency operations centers during mutual aid events.

A number of public and private organizations have been authorized to purchase 800 MHz radios that are programmed with specific CCCS talkgroups for interoperability with CCCS participants. There are designated "mutual aid users" who are allowed to use the CCCS radios for coordination with an Orange County agency, but not for their own internal communications. These potential users may include private ambulance services, military installations, private company security, Federal agencies, and local area universities.

For more information, please contact:

*Scott Allison
Wireless Chief
Ventura County*

Los Angeles Regional Interoperable Communications System (LA-RICS)

The public safety community within the Los Angeles region has begun the process of developing the LA-RICS, a model with an integrated wireless voice and data communications system that will support more than 34,000 emergency responders and mission-critical personnel within the region. The LA-RICS is proposed as a way to achieve interoperability between disparate public safety communications systems in a cost-effective and suitable manner. LA-RICS will allow for interagency coordination and response to routine, emergency, and catastrophic events. By pooling frequencies and using existing infrastructure where practical, the City of Los Angeles, the County of Los Angeles, ICIS, Long Beach and others will benefit from LA-RICS. At this point in time, LA-RICS remains in the conceptual and early implementation phase as it is awaiting a Joint Powers Authority (JPA).

Upon completion, the LA-RICS will:

- Provide unified voice and data communications platforms for all emergency responders in the region
- Eliminate duplication of costs and efforts involved in maintaining separate systems
- Provide instantaneous communications among agencies in the event of a man-made or natural disaster
- Support the day-to-day communications needs within individual public safety agencies

The governance for the LA-RICS stems from the Los Angeles Area's Regional Interoperable Steering Committee (RISC). The RISC was formed to explore the development of a single shared communications system for all public safety agencies within the Los Angeles region. Initial feasibility studies indicated that by leveraging the various agency efforts currently underway, a shared regional radio system would not only be possible, but would best meet the needs of the entire regional public safety community. The RISC is currently finalizing an agreement that creates a JPA responsible for constructing and managing the regional system.

Leaders supporting and continuing the progress for LA-RICS have planned out a multi-year high-level implementation plan, pending the approval of a JPA and receipt of funds. The five-year projection for this effort includes the following phases:

1. System Engineering and Design
2. System Build-Out
3. System Build-out and Acceptance Testing

4. System Migration and User Training
5. Migration Completion and Training.

An important preliminary investment is the use of UASI grant funds to complete the requirements identification phase inclusive of all public safety agencies within the region and develop a single, comprehensive RFP.

For more information, please contact:
Frederick W. Latham
www.la-rics.org

Central Planning Area (Mutual Aid Region V)

The Central is a large, flat valley that dominates the central portion of the state. It is home to many of California's most productive agricultural efforts and the city of Fresno. The DHS initial risk analysis process designated Fresno, the nation's 36th largest city, as a high threat area due to its critical role as the primary source for a number of food products throughout the United States. As a result, Fresno received UASI funding for a single year.

The following information captures the key communications system in the Central Planning Area.

Voice Interoperability in the Fresno Urban Area

Background & Governance

The plan for voice interoperability for the Fresno Urban Area is based on the work of the Interoperability Sub-Committee of the Fresno Operational Area Approval Authority. This pre-existing group was utilized by the Fresno Urban Area Work Group to draft the region's plan to create voice interoperability for emergency responders in the event of a Weapons of Mass Destruction incident in the Fresno Urban Area.

In planning for the current system, the Fresno Urban Area used a multidiscipline and multi-jurisdictional planning process. There are 18 agencies involved in the planning and usage of the Fresno Interoperability system, which can be referenced in Appendix L.

Methods of Voice Interoperability

The Fresno Urban area acknowledges that without prior knowledge of the specific type of event or the specific agencies to be involved, plans for interoperability must remain flexible. The following four methods for interoperability have been prepared to include the above listed agencies in the Fresno Urban Area. The four methods can be used independently or in concert to create communications interoperability within the Fresno Urban Area. The methods of communication include:

Method 1: Agreements with allied agencies to share frequencies for interoperability purposes. This method includes the following elements:

Frequency Sharing Agreements

Many agencies have official letters on file allowing them to use allied agency frequencies for communications interoperability purposes. These files are being kept up-to-date and the terms of each FCC license are observed. A regional plan that includes protocols for use of allied agencies' channels is still in development.

City/County Dispatch Centers

Both City and County dispatch centers have access to the channels of other agencies. This can also act as a dispatch center backup in emergencies.

Cache of portable radios

A radio cache of 100 radios is available to be issued to allied agencies in the event that they are not equipped with portable radios of the proper band. This cache may be necessary in the event that an assisting agency from outside the region is needed during a major event.

Method 2: A command channel available to all agencies

Command Channel

The Command Channel can be used by incident command to coordinate with all agencies and direct units to individual working channels. The Command Channel is available to all law, fire, and EMS agencies, as well as other agencies within the region. Link Channel can also be used, however, it is limited to law enforcement.

The Command Channel is instantly available on the VHF, UHF, and 800 MHz frequency bands for all agencies. After initial coordination on the Command Channel, agencies migrate by discipline to individual working channels. This Channel can be used as the sole interoperability channel for small, short duration events.

Method 3: A County-wide UHF channel available for Fresno and Clovis City Police units

County-wide UHF channel for Fresno and Clovis Police

Prior to 2005, Fresno and Clovis police departments did not have county-wide coverage with their radio systems. Neither agency was qualified to be licensed for a county-wide channel based on its normal area of operation. In response, a channel similar in structure to the County Med12 channel was developed for county-wide police interoperability usage during emergencies. This channel is also available to patch to other channels if necessary.

Method 4: An ability to patch channels of allied agencies to meet the needs of the event

The ability to patch channels of allied agencies

The ability to patch channels across bands is necessary to configure channel combinations based on the needs of the specific event. This system initially includes core agencies and then expands to include other agencies. Channels to be patched for a number of event types are planned in advance.

Through these four interoperability methods, the joint technology, governance, operational procedures and training provides both city and county dispatch centers with access to the channels of other agencies as well as the ability to act as a dispatch center backup in emergencies. These methods allow for a command channel to be used by incident command to coordinate with all agencies and direct units to individual working channels. The Command Channel is cross disciplinary and all inclusive. It allows for the ability to patch the channels of allied agencies to meet the needs of the event.

Support & Future Needs

In order to put the above four methods into practice, the Fresno Urban Area Working Group enlisted the assistance of the US Department of Homeland Security, Office of Domestic Preparedness Interoperable Communications Technical Assistance Program (ICTAP).

Due to the lengthy process required to bring this plan to fruition, the County of Fresno has reached a critical stage in providing voice communications for the Fresno County Sheriff's Department. For the past couple of years, the County's current system has experienced spontaneous system reset problems, the cause of which could not be diagnosed by the manufacturer, design engineer, or others brought in for consultation. After lengthy testing and analysis, the manufacturer recommended replacing the system. While still considered a UASI region, the County intended to utilize UASI funds to replace the system with another

manufacturer in order to enable the implementation of the interoperable communications plan approved by the FUAWG.

*For more information, please contact:
Lt. Phil Caporale
Fresno County Sheriff's Dept.*

Madera County Sheriff

The Madera County Sheriff's Department has two operational gateways at its disposal—one fixed base and one mobile gateway. The fixed base is an ACU 1000 and the mobile is an ACU M. The Department invested in the cables and antennas to integrate all the major manufacturers' portable and mobile radios. Spectrum coverage is in the 150 MHz, 400 MHz, and 800 MHz bands.

Currently, the department has an MOU with eight area agencies, including city, county, Federal and school districts. The MOU specifies how the equipment is activated and under what circumstances. There are also rules regarding testing. The mobile ACU is available at the request of any Region 5 OES agency or OES itself in the event of statewide emergency. The ACU is portable enough to be deployed independent of the mobile command post and is able to link up to four agencies in a network environment.

*For more information, please contact:
Michael Salvador
Madera County Sheriff*

Merced County Sheriff's Department

The Merced County Sheriff's Department installed an Incident Commander's Radio Interface (ICRI) in their mobile command post and attached it to five mobile radios and a Nextel cellular phone. The mobiles are programmed for all neighboring frequencies and shared channels such as CALCORD and CLEMARS in both high band and 800 MHz. The command post allows emergency responders to communicate with other systems by replacing one or more of the mobile radios with portable units when used in another region or city of the state.

*For more information, please contact:
Mike Harris
Merced County Sheriff's Department*

Capital/Bay Area Planning Area (Mutual Aid Regions II & IV)

The Capital/Bay Area Planning Area consists of the SUASI, comprising Oakland, San Jose, and San Francisco and the Sacramento UASI, in addition to other popular California destinations. The Planning Area reaches from the Pacific Ocean to Lake Tahoe and the Nevada border. While it contains some of the most populous and wealthy OAs in the state, it also has some of the most rural, mountainous, and disadvantaged counties. More detailed information about the OAs can be found in the respective TICPs.

The systems highlighted below represent some of the major communications systems in the Capital/Bay Area Planning Area. More information about the systems can be obtained by contacting the individuals named below.

Bay Area Regional Tactical Emergency Communications System (BARTECS)

The Metropolitan Transportation Commission Service Authority for Freeways and Expressways (MTC SAFE), in conjunction with the CHP has undertaken the BARTECS project to improve communications interoperability for public safety agencies. Phase 1, which was completed in February 2006, evaluated the feasibility of BARTECS as a solution for the nine Bay Area counties by deploying a certain number of ACU1000 units to fill interoperability gaps between existing systems owned by other agencies. Phase 1 concluded with several recommendations, including a suggestion that CHP and MTC work with local agencies to deploy and evaluate a pilot project in Marin, Napa, and Sonoma Counties. Phase 2 involves planning, deploying and testing BARTECS.

BARTECS is a regional communications gateway that is intended to improve radio interoperability among local, county, and state emergency responder agencies. The gateway connects existing radio communications channels together, either on an always-on basis, or on demand, to enable communications between agencies using different radio channels or technologies. The proposed gateway system will utilize existing mutual-aid channels when possible, or existing agency channels when practical. BARTECS differs from other types of interoperability solutions that are typically deployed in mobile command posts. Unlike most, BARTECS pre-establishes connections to specific regional public safety channels, activating these connections as needed to provide a dependable and robust gateway between these systems. BARTECS will utilize the ACU100 to link mutual aid channels and will upgrade or install microwave links between the dispatch centers of the participating counties.

*For more information, please contact:
Jeff Georgevich
Senior Program Coordinator
Metropolitan Transportation Commission*

Bay Area Digital Microwave System (BAM)

Project Description

The BAM provides a highly reliable digital microwave network connecting key communication sites and Public Safety Answering Points (PSAPs) throughout the 10-county Bay Area SUASI region. When completed, the BAM will form a microwave communications loop around the San Francisco Bay.

Objectives

The BAM will provide the microwave links necessary to connect the West Bay Regional Communications System (WBRCS), the East Bay Regional Communications System (EBRCS) and Silicon Valley Regional Communications System (SVRCS) to allow interoperability and seamless roaming for emergency responders throughout the Bay Area. The BAM will also provide fully redundant communication paths between the PSAPS in the 10-County SUASI area and provide the communication paths necessary to integrate Regional Tactical Communications Systems and implement data sharing solutions. The BAM will utilize highly reliable OC3 looped topology to provide seamless failover to backup links, should a disruption occur.

Project Overview

The first phase (West Bay), which includes nine hops and four PSAPS, is complete. The second phase (completion of the loop) will occur in 2008. When completed, the BAM is anticipated to have a total of 21 hops.

For more information, please contact:

Mitch Sutton

City of San Francisco

IT Manager, Department of Emergency Management

East Bay Regional Communications System (EBRCS)

EBRCS will provide interoperability between emergency services radio system users in Alameda and Contra Costa Counties. The counties of Alameda and Contra Costa face the same challenges as other metropolitan areas with communications systems that have developed over time utilizing different spectrum and proprietary technologies. The disparity of systems make seamless communications extremely difficult, and in many cases not possible, without incorporating technology patches that are extremely inefficient and complicated to set up and operate. The situation is compounded by the fact that most of the systems in use today are nearing the end of their useful lives and need replacing.

The two counties have been working together over the last three years as part of the federally sponsored UASI to establish priorities for homeland security funding. Through the assistance of the federally funded UASI, a group of technical advisors from the Interoperable Communications Technical Assistance Program (ICTAP) worked to evaluate the status of the communications systems and develop different alternatives to achieve the goal of interoperability for the two counties. It is clear from the work ICTAP completed that the most cost effective and technically superior solution for both counties is a shared two-county regional communications system. Interoperability and funding the build-out of a two-county communications system is now the highest priority for the UASI.

Committees with representatives from both counties have been working over the last two years to develop the technical parameters for the system, establish a governance model, and obtain political support from the jurisdictions within the two counties. A preliminary system design has been completed. As envisioned, the system will cover both counties from 31 sites strategically located throughout the region, with an estimated infrastructure cost of around \$60 million. The system will be a Project 25 system providing interoperable communications between all the agencies that subscribe to the system. Federal Homeland Security funding has been allocated over the past three years to begin to build out the system. Significant progress has been made in regards to the system build-out, including the completion of a digital microwave system linking

sites in counties, the purchase of the master site controller which will operate the system, and finally the purchase of equipment to build out 10 of the proposed sites. Work continues to secure Federal grants to support the build-out of the infrastructure and stakeholders are optimistic that they will continue to receive support in the future.

A governance model was also established to manage the overall system implementation and operations while providing all users a voice in the management of the system. There are several working models throughout the United States where large regional areas have formed regional communications systems with shared governance. A task force of elected officials and public safety representatives from both counties has developed the EBRCS Joint Powers Authority, which consists of a board of directors of 23 members in Contra Costa and Alameda counties.

*For more information, please contact:
Bill McCammon
Project Coordinator*

Tri-County Mutual Aid Committee (TRIMAC) Project

Since 2001, the counties of Santa Cruz, Monterey, and San Benito have been involved in a collaborative effort to coordinate and mitigate the shared all-hazards emergency management issues that exist between the law enforcement, fire, public health, emergency medical services and emergency services within their three counties. The Tri-County Mutual Aid Committee (TRIMAC) continues its ongoing efforts of addressing a wide range of emergency planning and response issues that are common to the Monterey Bay area.

In 2004, as an included county in the Federal Homeland Security Grant Program administered by the City of San Jose and the County of Santa Clara, the County of Santa Cruz called the UASI, requested, and was granted approval of \$1.8 million of UASI program funding to develop and implement a secure regional (four-county) digital microwave radio communications system. This system will address the region's public health needs, as well as provide the platform they need to make further improvements in communications interoperability solutions for law enforcement, fire, EMS and other essential services within and between the four-county operational areas.

In 2006, in an effort to expedite the completion of the TRIMAC Digital Microwave Communications Project and meet the time-limited grant funding requirement. The County of Santa Clara agreed to assist the City of San Jose and TRIMAC group by providing the direct project management and fiscal oversight needed to complete this mutually beneficial project.

Following the successful completion of the TRIMAC project in March 2007, the four participating counties have been actively involved in working with their respective public health officials to identify and address their diverse needs, as well as work towards the development of an ongoing four-county MOU that will formalize the operation, technical oversight, maintenance, and governance of the TRIMAC Digital Microwave System, which will now be formally referred to as the Monterey Bay Area Microwave System (MBAMS).

The MBAMS is also working with its other regional partners, the Silicon Valley Regional Interoperability Project (SVRIP), San Jose UASI, and the Bay Area Super UASI groups to

combine microwave networks. In addition, the MBAMS is looking to work with these regions in developing and implementing new measures aimed at improving regional voice and data communications interoperability capabilities and geared towards enhancing their regional mutual response to natural disasters and acts of terrorism.

*For more information, please contact:
Bert Hildebrand
Santa Clara County Communications Department*

San Francisco DOJ “25 Cities” Project

Project Description:

The project will develop a five-channel "always on" multi-node Regional Tactical Communications System. This system will provide on-street coverage in the San Francisco area with dispatch points at the San Francisco PSAP and the Federal building in San Francisco.

Objectives

The Regional Tactical Communications System will provide a SAFECOM Level 2 interoperable communications solution that allows emergency responders to communicate with each other over disparate radio devices on different bands. The system will provide instantaneous, secure, and reliable communications across local, county, and Federal agencies. This project is intended to be the pilot project for the Bay Area Regional Tactical Communications system.

Project Overview

The System consists of one radio site, Twin Peaks, located in San Francisco, and two dispatch points, one at the San Francisco PSAP (911 center) and the other at the Federal building in San Francisco. Network control will be accomplished by SmartLink Advanced Network Processor (ANP), a technology that is capable of patching any of the five channels together in any combination. Consoles will be installed at both dispatch points. Two new high reliability microwave links will be constructed from Twin Peaks to the Federal Building and from Twin Peaks to the San Francisco PSAP. The system will be constructed to be simulcast-ready and will support additional RF sites to increase coverage (as a potential future phase).

The radio system consists of a five-channel repeater group for interoperability consisting of a low band pair (CLEMARS), a 150 MHz, a 406-420 MHz, a 490 MHz, and an 800 MHz channel. Of the five channels located across five bands, two are licensed to the State of California; two are Federal frequencies, and the last is a San Francisco channel.

The System will be fully operational in December 2007.

*For more information, please contact:
Mitch Sutton
City of San Francisco
IT Manager, Department of Emergency Management*

San Francisco P25 Voice/Data Communications Project

Project Description:

This project is intended to update San Francisco's existing 800 MHz, eight-site, 23-channel Motorola Smartzone 3.0 public safety voice/data radio infrastructure to a standards-based 700/800 MHz P25-compliant system.

Objectives:

This project will provide 700/800 MHz SAFECOM level 5 interoperability for all local, state, and Federal agencies that adhere to the APCO Project 25 Common Air Interface standard. The San Francisco P25 System will also expand the system capacity to accommodate transportation agencies and other local, state, and Federal agencies which have executed Memorandums of Understanding for usage of the system.

Project Overview:

The project will leverage San Francisco's existing 800 MHz infrastructure, increase the over-the-air bandwidth for data at 800 MHz (replacing the existing RD-LAP system), provide seamless P25 communications for San Francisco's public safety agencies, provide voice roaming capability with other Bay Area public safety agencies, increase bandwidth through the addition of 700 MHz channels, and integrate the communications systems of San Francisco's Transit Agency (MUNI) and the San Francisco International Airport (SFO).

This San Francisco P25 System will interface to systems in Marin and San Mateo counties to form the West Bay Regional Communications System (WBRCS).

For more information, please contact:

Mitch Sutton

City of San Francisco

IT Manager, Department of Emergency Management

San Jose Urban Area – Silicon Valley Regional Interoperability Project (SVRIP)

In 1998, eighteen Santa Clara County jurisdictions, representing some 30 law enforcement, fire and emergency medical services agencies, partnered together to enhance inter-agency coordination and communication between their public safety agencies and to exchange critical information and resources in real time during an emergency. Operating under the general direction of the Santa Clara County/Cities Managers' Association and having established a Joint Agreement executed by the governing bodies for each of the participating jurisdictions, the Silicon Valley Regional Interoperability Project (SVRIP) was formed. An executive level Steering Committee now acts as the governance body providing oversight of the Project.

Over the last several years, the SVRIP participating agencies have collaborated to address the needs of the first responder community and develop solutions to improve voice radio and data system interoperability between and amongst public safety agencies in Santa Clara County, regardless of jurisdiction or discipline. These projects are key to supporting the various voice and data integration projects already underway and those envisioned for the future. These projects include:

- BayMACS - provides for a single countywide voice radio connection between agencies.
- Emergency Communications (E-Comm) Systems Network - the countywide development of a shared robust digital microwave network which is designed to

effectuate the exchange of real-time voice and data communication between all public safety agencies.

- Regional Interoperability Information Broker (RIIB) - interconnects disparate Computer Aided Dispatch (CAD) and Records Management Systems (RMS) and provides an intra-county Informational Exchange Broker that is both extensible, in that it can handle many disparate messaging formats, and expandable, in that it can accommodate multiple using groups (or regions) with minimal architectural modifications or end user impacts.
- Secure Mobile Broadband Data System - builds upon and integrates with these and other agency-specific efforts to deliver DSL-like speeds to the field.
- Regional Solution for Voice over Internet Protocol (RSViP) - a networked based solution that seeks to allow for a flexible integration of existing legacy Silicon Valley radio transmission systems by converting all interoperability radio traffic into IP packets on regional networked backbone architecture.
- Silicon Valley Regional Communications System (SVRCS) - a phased implementation of a grant funded 150 MHz/700 MHz hybrid trunked P25 radio system for Santa Clara County's local governments and public safety agencies. This system will provide coverage equal to existing local radio systems, but with enhanced roaming capability.

The proposed SVRIP Investments will provide an uninterrupted flow of critical information among responding multi-jurisdictional agencies at all levels of government and support the following DHS Target Capabilities:

- Interoperable Communications
- Information Sharing and Collaboration
- Expand Regional Collaboration

For more information, please contact:

Sheryl A. Contois

Director, Police Technical Services

Palo Alto Police Department

The Sacramento Regional Radio Communications System (SRRCS)

System Overview

The Sacramento Regional Communications System is an 800 MHz trunked Motorola 4.1 hybrid analog/digital system that has been operational since 1995. It provides governmental entities in the greater Sacramento Region with voice radio services. It serves all levels of government including city, county, state, Federal, and service districts. There are currently over 14,000 radios operating on the system. Approximately 12,500 radios belong to primary users, while the remaining 1,500 are assigned to secondary users.

As mentioned, users are classified as primary and secondary users. Simply stated, primary users are those entities that utilize the system for primary dispatch services and communications. Secondary users have their own radio system for dispatch, but have SRRCS radios for mutual aid and interoperability purposes. See the attached list for current primary and secondary users.

Virtually all public safety first responders (i.e., fire, law enforcement, EMS) within the physical boundary of Sacramento County use the system for primary dispatch, with the exception of Galt Police Department and Isleton Police Department. It is expected that the City of Galt will become a primary user when a radio site is constructed within the city limits. The Isleton City

Police Department, because of its location, is dispatched by the Solano County Sheriff's Department (E911 services). However, Isleton Police Department has 800 MHz. radios purchased with a Federal grant allowing interoperability with other surrounding public safety agencies. In addition, the City of West Sacramento (Yolo County) is a primary member of SRRCS. The Sacramento Metropolitan Fire District also serves portions of southern Placer County.

The Sacramento Regional Radio Communications System (SRRCS) currently uses seven physical sites to provide public safety radio communications throughout over 1,100 square miles in Sacramento County and parts of Placer and Yolo Counties, including the following regions:

- Main Jail – Downtown
- Gibson Ranch – North
- Carpenter Peak – Northeast
- Sheriff's South Station – Southeast
- Walnut Grove – South
- Brighton Heights – Central (prime site)
- Freeport Water Tower – West

In addition, four new sites are now in the planning stages:

1. City of Citrus Heights – North Central
2. City of Galt – South Central
3. Community of Rancho Murietta – East
4. Sacramento North Corp Yard – Northwest

Public safety agencies within SRRCS share talkgroups with other public safety agencies within SRRCS. For example, a Sacramento Sheriff's Department radio has, in addition to its own talkgroups, the talkgroups of other law enforcement, fire, and EMS agencies in SRRCS. Hence, a sheriff's unit can communicate directly with any other police, fire, or EMS agency or unit within the system by simply changing to the proper talkgroup. Talkgroup exchanges have also been established with 800 MHz agencies outside of SRRCS (i.e., Davis P.D./Fire – Yolo County, Roseville P.D./Fire – Placer County, Cal-Expo P.D. – State of California).

For added interoperability, all radios operational on the SRRCS system must have the eight county and the eight city tactical talkgroups known as COTAC1-COTAC8 and CYTAC1-CYTAC8. These talkgroups allow for agencies that may not have each other's talkgroups to communicate in times of need, for example, when Regional Transit and the Sheriff's Department are coordinating an evacuation using buses.

SRRCS currently has four 800 MHz conventional repeaters programmed for the State of California mutual aid channels and one repeater programmed for a Federal mutual aid channel. The state FIREMARS 1 and CLEMARS 9 channels are located at the Carpenter Peak site along with the federal I-CALL channel. FIREMARS 2 and CLEMARS 21 are at the Brighton Heights site. Under the 2007 COPS grant, SRRCS was granted funding to add eight additional conventional repeaters to support other interoperable/mutual aid conventional 800 MHz ITAC channels.

There are currently three mobile gateways and two fixed gateways available in the Sacramento region that are programmed for SRRCS public safety talkgroups.

The City of Folsom, an SRRCS member, maintains a mobile communications unit obtained through a Federal grant. It has four dispatch positions and 32 radios (low-VHF, high-VHF, UHF, T-Band, 800 MHz) that utilize a Sytec Rios gateway. The Yolo County Sheriff's Department has a smaller version also utilizing a Sytec Rios gateway. The Placer County Sheriffs Department deploys a Raytheon ACU-1000 mobile gateway on its Search and Rescue vehicle.

A fixed gateway owned by CHP is installed at the Resources Building and uses a Raytheon ACU-1000. This gateway ties the CHP VHF-low and UHF channels used at the Capitol with the talkgroups. The second fixed gateway is at the City of Galt Police Department. Since the Galt Police Department is currently the only local law enforcement entity employing the UHF band in Sacramento County, a small gateway was installed utilizing UASI funds to allow interoperability with SRRCS public safety agencies until such time as the Department can move to the 800 MHz SRRCS.

In addition to the eight 800 MHz conventional mutual aid repeaters funded under the 2007 COPS grant, funding was granted for other interoperability projects that should be installed and operational by the second quarter 2008. These projects include the following:

- Two COWS (Cellular-on-Wheels) 800 MHz transportable trunked sites
- VHF Low-band CLEMARS Repeater / CHPInterface to 800 MHz

Participants on the SRRCS include 30 primary and 53 secondary participants, totaling 83 member agencies and can be referenced in Appendix L.

For more information, please contact:

Kent Eldridge

County of Sacramento

Office of Communications & Information Technology, Radio & Electronic Services

Solano Emergency Communications Activities (SECA)

Program Description

The SECA project is a combined effort of all public safety agencies of Solano County designed to provide interoperable communications between the disparate communications systems in use throughout the county. Within the county, both conventional and trunked radio systems are in use and operate on frequencies in all public safety frequency bands from low band to 800 MHz. The intent of the SECA radio system is to provide an intelligent simulcast radio network with countywide coverage, provide new mutual aid radio spectrum to offload mutual aid traffic from local emergency channels, and provide a fixed intelligent gateway to connect users from disparate systems together on common channels.

Phase 1, with an expected completion date of December 2007, includes a countywide network of 12 channels. Four of these channels will be existing conventional VHF police and fire channels that are used by a majority of agencies in the county. The remaining eight channels will consist of mutual aid interoperability frequencies covering the VHF, UHF, UHF-T, and 800 MHz bands utilizing a CALL and single TAC channel in each band. The CALL channel will be monitored by a centralized dispatch center that will be equipped to respond to any unit calling in for support on any of the four bands. In the event of a major incident requiring multiple agencies, the TAC channel will be assigned to all responding units. The commonly named TAC

channel from each band will be tied together via an intelligent switch for communications between all responders.

Future phases of the project will provide additional TAC channels in each band, the addition of low band to the network, the interconnection of local public safety channels to the intelligent switch for extended patching capabilities between agencies, and the expansion of the simulcast network to other counties in the region for wide area use of the mutual aid channels.

The intelligent simulcast and voting platform with interoperability gateways is provided by SmartLink Radio Networks. At the core of SmartLink's products is an innovative and highly flexible, software-defined switch that supports real-time, multi-band, multi-protocol, and multi-site communications across conventional and trunked network environments. The SmartLink platform has been designed from the ground up to support the unique requirements of the mobile communications environment. The platform encodes and decodes multiple communication protocols to support real-time wide-area networking and interoperability, not just an incident based black box with its notoriously simplistic static audio patching. Architecturally, the SmartLink platform takes an open, building-block approach that supports choice in the technologies and vendor selection process to provide greater functionality, flexibility and scalability at a lower cost than other available options. This approach also allows suitable existing communication resources to be leveraged, often with increased functionality, and taken to a planned "end of life." As a result, public safety agencies will experience easier and more cost effective migration from old to new technologies, at a price that is affordable.

For more information, please contact:

*Ross Cardno
Solano County*

Marin Emergency Radio Authority (MERA)

MERA is a joint exercise of powers authority duly organized and operating pursuant to Article 1 of Chapter 5, Division 7, Title 1 of the California Government Code, and pursuant to the Joint Powers Agreement, dated February 28, 1998. The Authority's purpose is to plan, finance, implement, manage, own, and operate a multi-jurisdictional and countywide public safety, public service and emergency radio system. The project cost is in excess of \$21 million. The Authority is governed by the Board, which exercises all powers and authority.

MERA Network

The MERA network consists of 25 member agencies (referenced in Appendix X) and employs unique advancements in technology to meet the demanding needs of the MERA agencies. The key technology advancements include digital transmissions, trunking, and same frequency simulcast.

The MERA voice radio communications network consists of a state of the art, Motorola Digital SmartZone, UHF T-Band (485 MHz) trunked and simulcast communications network. The network supports public safety and public service voice communications on a countywide basis along with fire station alerting. The RF backbone is coupled together into a seamless network through the use of digital microwave and SmartZone technology. The backbone consists of a nine-channel simulcast network for the 101 corridor, a six-channel simulcast network for the West County, and three, five-channel Intelli-repeater sites for the Southwest, Northwest, and Northeast portions of the County. Fifteen sites make up the "backbone" of the network. The

system allows member agencies to operate anywhere in the County and most neighboring areas. All agencies on the network get the benefit of their own private channels or “talkgroups” along with the ability to access common channels during disasters and other major incidents.

For more information, please contact:

*Richard Chuck
Marin County*

Placer County

On February 4, 2003 the Placer County Board of Supervisors adopted a strategic plan with a three-phased approach to implement a new Countywide P25 Compliant Digital VHF High-band Trunked Radio Network solution. Placer County is currently in its final phase of implementing this network, including different levels of interoperability solutions with law enforcement agencies, fire services, and medical services from local cities, neighboring counties and the State of Nevada.

For more information, please contact:

*Heinz Klose
Telecommunications Supervisor
Placer County
Administrative Services Department*

Northern Planning Area (Mutual Aid Regions II, III & IV)

The Northern Planning Area is largely rural with a major mountain range dividing the landscape. One of the main challenges for this region is achieving better operability in rural areas that are devoid of any communications coverage, including wireless telephone and radio. To resolve this problem, the region has developed Planning Area systems, the most robust of which is SHASCOM. Because of the terrain and smaller population centers, many of the Northern Planning Area's "systems" are mobile units that can be quickly deployed during emergencies.

The following descriptions identify some of the systems in the North that help accommodate interoperable communications among disparate systems:

SHASCOM

SHASCOM is a consolidated communications center in Redding that serves Police, Sheriff, Fire, and EMS agencies for Shasta County and the City of Redding. This center provides for instant communication among the disciplines and sharing of data. The City of Redding and County of Shasta use the gateway device located at SHASCOM as a permanent link (patch) on CLEMARS between their disparate systems (800 MHz trunked and VHF), to provide constant interoperability. SHASCOM has one fixed gateway that is programmed to patch all first responders in the county, if needed. CHP has a mobile gateway device that is operational and based in Redding; the device is designed for regional response. CHP also has a fixed gateway at its Communications Center in Redding, however, it is not operational. The City of Redding recently upgraded its trunked 800 MHz system, which allows interoperable communications between police and fire, and also allows communications to the city buses. All local and state fire agencies have access to a countywide radio system, providing interoperability to all State, municipal, district, and volunteer fire departments within the County.

For more information, please contact:

Steve Peach

SHASCOM 911 Director

Humboldt Data Project

The Humboldt Sheriff's Office has undertaken an interoperable mobile data project. The project will use Ameral mobile data terminals (MDT) with a dedicated "T1" from Verizon Wireless to the Information Technology Center in Eureka, CA. The system will provide local warrants, report writing, case research, department e-mail, and GPS location/mapping via vehicle access to the California Law Enforcement Telecommunications System (CLETS). The currently funded build-out will be for 20 patrol cars and one mobile command post. There is active interest from two local law enforcement agencies to be included in the initial phase of the project. The second phase of the project will increase the number of MDTs, move toward a full computer aided dispatch system, and provide unit tracking.

For more information, please contact:

Phil Daastol

Humboldt Sheriff Department

Sutter County

The Sutter County Sheriff's Department has a mobile command vehicle equipped with an ACU-1000 (TRP-1000) Interoperability system. This command vehicle has multiple VHF, UHF, 800 MHz, and VHF lowband radios interfaced with the ACU-1000 system, basically making it frequency agile. This command vehicle is already pre-programmed with many of the local agencies as well as surrounding counties, and it is programmed with ALL mutual aid frequencies recommended by CalSIEC. This command vehicle is also set up to be a complete backup communications center for local agencies, and has the capability of "making" VHF and UHF repeaters for any local agency if their repeater equipment fails during a disaster. This vehicle can "patch" up to 12 various radios in the event that it is necessary, and has the capability for additional radios from other radios to be connected to the ACU-1000. A cable cache of common radio interface cables is kept with the command vehicle. In the event that the interoperability equipment needs to be deployed in a location the vehicle cannot respond to, the equipment has been constructed in such a format that it can be completely removed from the Command Vehicle and transported to any location necessary, along with transportable interoperability antenna kits.

*For more information, please contact:
Sutter County Sheriff's Department*

Yuba City

Yuba City's Police Department is currently in the process of developing a fixed, regional interoperability system. This project is in the planning and engineering stages at this moment, and some equipment has already been purchased. The proposed system will be constructed on a high-level mountain range which has a fairly wide area of RF coverage and a large area for potential operation. The City is planning to institute a system that will utilize existing mutual aid and CLEMARS frequencies in various bands (VHF Hi, VHF Low, UHF, 800 Mhz) as well as implement the V-CALL/V-TAC, U-CALL/U-TAC, and I-CALL/I-TAC frequencies, and provide the capability to cross connect or patch any combination of these frequencies together on an as-needed basis. The equipment that will be used for the Interoperability System is also capable of Radio over IP (RoIP) and Session Initiated Protocol (SIP). Yuba City Police Department's Communications Center will maintain control over this system, pending MOUs and SOPs. This system is being designed in such a way that any agency in the State (as well as nationwide) should be able to communicate with this system as long as the equipment is programmed with current Statewide and Nationwide Interoperable frequencies as recommended by various state communications plans, CalSIEC, and the PSRSPC. Although the system is a work in progress, these efforts represent a significant step toward achieving interoperability in California.

Both the Yuba County and the Sutter County systems will be designed to compliment each other and either one may be used depending on the totality of the circumstances and the specific need. As the Yuba-Sutter Regional Interoperability System is still under development, any surrounding agencies who wish to participate at this point are welcomed, and are encouraged to contact Joe Oates or Chief Doscher at Yuba City Police Department.

*For more information, please contact:
Joe Oates or Chief Doscher
Yuba City Police Department*

4.3 Standard Operating Procedures

A point often overlooked in the modernization/interoperability debate is the importance of robust Standard Operating Procedures (SOPs). SOPs are formal written guidelines or instructions for emergency management. SOPs typically have both operational and technical components and enable first responders to act in a coordinated fashion across disciplines in the event of an emergency. Effective collaboration through coordinated plans, protocols, and procedures are just as important, if not more important than, the equipment itself. Vendors may propose technical solutions, but without attendant plans, protocols, and staff training, the equipment is not able to serve its purpose. The key to unlocking the potential of communications interoperability equipment and investments is to establish protocols for how they will be consistently and effectively used. With the Federal government’s focus upon NIMS compliance throughout states, the need for “process” fixes to communications systems brings SOPs to the forefront of the interoperability challenge.

California has a long history of standardized response, including development of an ICS in the 1970s by fire services in southern California and California’s all hazards/all disciplines SEMS in the 1990s. Much of the success of these systems is due to the existence of mature SOPs, which are also key to the success of interoperable communications. California has a strong set of statewide SOPs exemplified by the CALCORD, CLEMARS, FIREMARS, and other documents governing the authorization and usage of interoperability channels and statewide systems. However, other SOPs are still required to enhance the use of existing gateway systems and to expand regional build-outs. This gap introduces the opportunity to assemble an SOP committee; develop and implement local and regional responses; and then test, evaluate, and manage the procedures.

The Continuum lane below measures SOP development from across the state based on information gathered from California’s current baseline assessment. As described in the methodology section, the data represents responses from 13 State agencies and only 223 local respondents. The final row lists the statewide assessment against the SOP lane.



Interoperability Continuum



Standard Operating Procedures	Number of Respondents					Totals
	Individual Agency SOPs	Joint SOPs for Planned Events	Joint SOPs for Emergencies	Regional Set of Communications SOPs	National Incident Management System Integrated SOPs	
Capital Bay	13	1	9	8	3	37
Northern	11	1	4	0	3	19
Central	6	1	5	2	3	17
Southern	34	10	13	17	11	85
State Agencies	9	1	1	0	1	12
Statewide Response	73 42.9%	17 10%	32 18.8%	27 15.9%	21 12.4%	170

Figure 22: SOP Baseline Assessment

➤ **Standardized Emergency Management Systems (SEMS) & Mutual Aid**

Communications interoperability SOPs are supported by established emergency management systems within California that guide and organize incident response roles and responsibilities. Without the emergency management structure, interoperability cannot be accomplished. Successful communications interoperability is contingent upon the fusion of both the technical and organizational aspects.

A key component of California's emergency management system is the Incident Command System (ICS), which was developed around the fire services' best practices for dealing with multi-jurisdictional wildland fires. ICS is a field-level emergency management system that is based on management by objectives and is focused on five functions: command, operations, planning/intelligence, logistics, and finance/administration. ICS fosters integration of various disciplines (fire and rescue, law enforcement, EMS, etc.) into a cohesive emergency response organization. ICS became the backbone for California's SEMS, and eventually NIMS. As California has a strong ICS structure, the state is better prepared than most for communicating in a disaster.

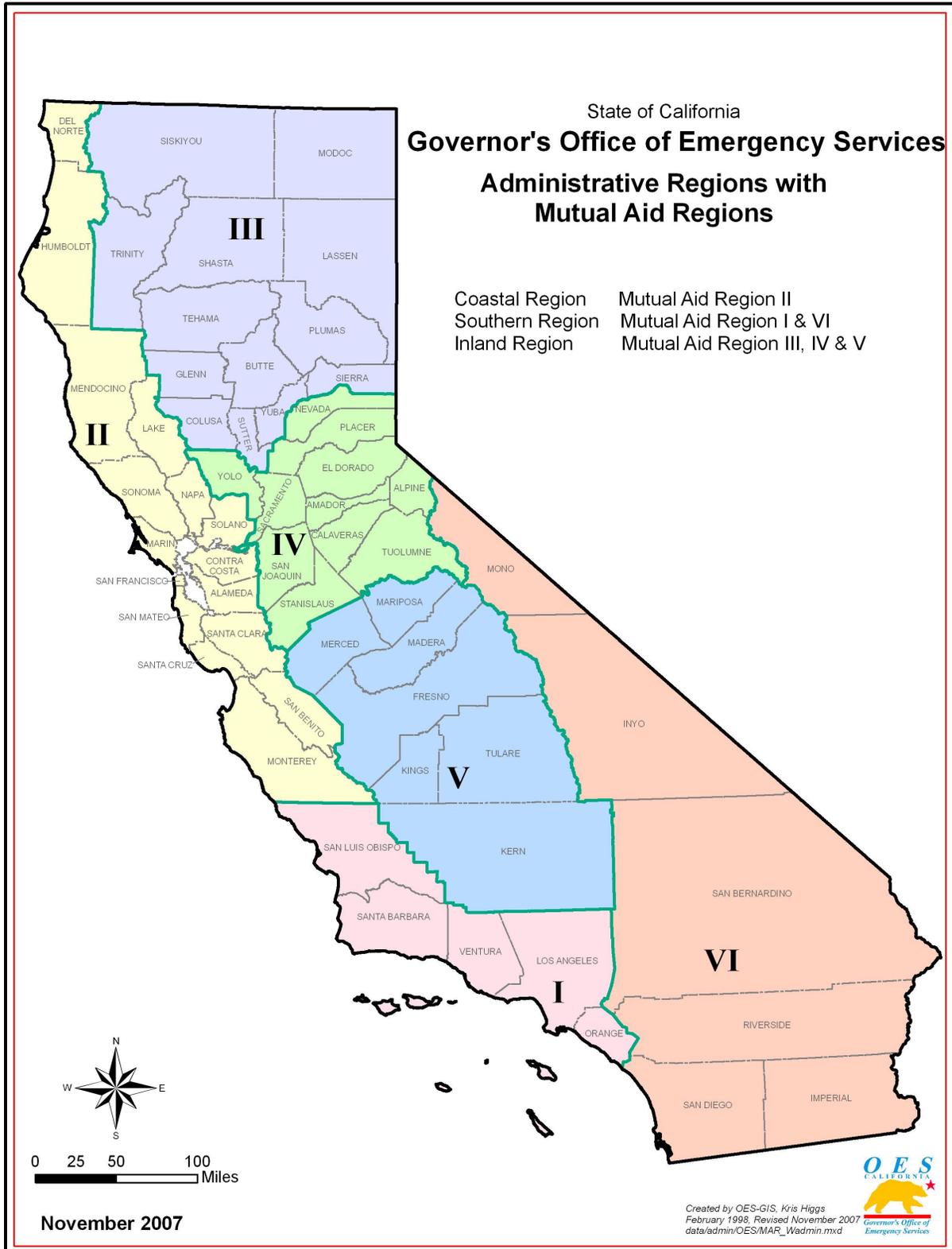


Figure 23: OES Mutual Aid Regions

SEMS incorporates ICS, multi/interagency coordination, mutual aid, and the operational area concept to ensure effective emergency response in California. There are 59 OAs corresponding with county boundaries plus the City of Los Angeles for purposes of mutual aid. The OA is used as the communications and coordination link between local governments and state government after a major disaster the OAs responsibilities include establishing operational area priorities and managing mutual aid.

Additionally, through the six Mutual Aid regions, depicted in Figure 23, SEMS/ICS permits organizations at all levels to respond to frequent and multiple disasters occurring anytime and anywhere in the state. It facilitates priority setting, interagency cooperation, and the efficient flow of resources and information. The mutual aid SOP process has been in place since 1950 and occurs due to the *California Disaster and Civil Defense Master Mutual Aid Agreement* (Appendix B). If requests for mutual aid assistance can not be filled at the regional level, they are forwarded to OES Headquarters (or the State Operations Center or State Coordination Center, if activated). There they are filled either with resources from OES, a locality in a nearby jurisdiction, another state agency, or a private vendor. If the request can not be filled at the state level, either because the state system is overloaded or the needed resource is highly specialized, the request is forwarded on to the Federal government or requested through the Emergency Management Assistance Compact (EMAC) from other states.

As depicted in Figure 24, within SEMS there are five organizational levels: field, local, operational area, regional, and state.

SEMS Levels	Description
State	Integrated with Federal agencies, the State is responsible for statewide resource allocation.
Regional	The regional level manages and coordinates information and resources among operational areas.
Mutual Aid Regions	Because of its size and geography, the State is divided into six mutual aid regions. They provide for the effective application and coordination of mutual aid and other emergency related activities.
OES Administrative Regions	OES provides administrative oversight of the mutual aid regions through three administrative regional offices. The OES regions maintain day-to-day contact with emergency services organizations at local, county, and private sector levels. During emergencies, the regions manage and coordinate information and resources among OAs within mutual aid regions, and between OAs and State agencies.
Operational Area	An OA encompasses the county and all political subdivisions within the county. Operational Areas serve as focal points for all local emergency management information and the provision of mutual aid. Each manages information, resources, and priorities among local governments within the OA.
Local	The local level includes counties, cities, and special districts. Local governments manage and coordinate the overall emergency response and recovery activities within their jurisdiction.
Field	Many emergency response organizations have direct control of resources and response functions at the site of a disaster. These organizations command law enforcement, fire, public works, and other response personnel and resources to carry out tactical decisions and activities within their jurisdiction.

Figure 24: SEMS Organization

Piecing it together, Figure 25 documents an example of how OES's SEMS-based Standard Operating Procedures for Law Enforcement Mutual Aid requests occur. Requests for tactical interoperable communications support, such as the statewide radio cache, would occur through standing mutual aid agreements and standardized procedures.



Law Enforcement Mutual Aid Quick Reference Guide



Mutual Aid Defined

Mutual aid is the voluntary sharing of personnel and resources when a department can not deploy, sufficiently, its own resources to respond to an unusual occurrence. Resources are then requested by the affected department through a recognized system established by the Master Mutual Aid Agreement and Emergency Services Act. This cooperative system may be executed on a local, countywide, regional, statewide, and interstate basis. The state has been divided into seven mutual aid regions to more effectively apply, administer and coordinate mutual aid. Mutual aid can become mandatory at the option of the Governor. Generally, there is no reimbursement for providing mutual aid.

Authorities

The California Law Enforcement Mutual Aid System and Plan derives its authority from the CA Emergency Services Act (Govt. Code §8550, §8569, §8615-8619, §8632, §8668) and the Master Mutual Aid Agreement.

Mutual Aid Process

Local – Chief of Police determines unusual event is beyond department resources, requests mutual aid assistance from Sheriff.

County(Operational Area) – If event is beyond the resource capability of Sheriff's Department and in-county law enforcement resources, the Sheriff requests mutual aid from Regional Mutual Aid Coordinator.

Region – A Sheriff in the region, who has been designated as the "Regional Mutual Aid Coordinator", fulfills mutual aid request from other Operational Areas and their respective law enforcement resources.

State – If the law enforcement resources within the impacted region are not sufficient, the M.A. Regional Coordinator requests additional mutual aid assistance from the State Mutual Aid Coordinator. Other mutual aid regions may be called upon to assist.

Channels For Requesting Mutual Aid

POLICE

↓

SHERIFF

↓

REGION M.A. COORDINATOR

↓

STATE M.A. COORDINATOR
OES

CHP

CNG

CHP resources may be used at any phase of the mutual aid request process.

Law Enforcement Mutual Aid Regions



Mutual Aid Considerations

- ★ State declaration of emergency not necessary to request and provide mutual aid.
- ★ National Guard resources are to be used *only* when local and state law enforcement resources are committed to maximum.
- ★ No jurisdiction is required to unnecessarily deplete their own personnel, equipment, and capabilities in order to provide mutual aid. It is generally accepted that a reasonable response will consist of up to 50% of available on-duty uniformed officers.
- ★ Planned and scheduled community events should include costs for public safety. However, mutual aid may be necessary in extraordinary situations.
- ★ Mutual aid reimbursement costs may be applicable under state and federal disaster declarations. Otherwise, all mutual aid costs are the responsibility of individual agencies participating.
- ★ OES may assign mission numbers to mutual aid events in order to track and coordinate resources and for potential liability or financial purposes.
- ★ Out-of state mutual aid is coordinated through OES unless as already specified in interstate agreements and MOUs.
- ★ Other state law enforcement agencies can be tasked to assist in providing mutual aid.

Figure 25: OES Law Enforcement Mutual Aid Guide

➤ National Incident Management System (NIMS) Compliance

At the Federal level, California's SEMS emergency program was recognized as a best practice model and as the standard. The Department of Homeland Security, in conjunction with the Federal Emergency Management Agency (FEMA), leveraged the SEMS model to develop NIMS. Released as a key federal initiative in the post 9/11 environment, NIMS was developed so responders from different jurisdictions and disciplines can work together more effectively

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when responding to natural disasters and emergencies, including acts of terrorism. NIMS benefits include a unified approach to incident management; standard command and management structures; and emphasis on preparedness, mutual aid, and resource management. As NIMS, the National Response Framework (NRF) and the National Preparedness Goal (NPG) are addressed for compliance, interoperable communications elements will be integrated into the State's framework.

California's OES is responsible for coordinating and monitoring the overall statewide integration of the SEMS and the NIMS to meet federal NIMS requirements and timeframes. As a state, California addressed the FY 2006 NIMS requirements through the SEMS Maintenance System as set forth in Governor's Executive Order S-02-05 (Appendix M). The Training and Exercise section of this plan provides further detail on NIMS statewide training. The following is a description of the State's strategy for NIMS SOP compliance based upon SEMS system enhancement and the monitoring of compliance progress in the state.

NIMS Requirements:

1. *Multi-agency Coordination System: Coordinate and support emergency incident and event management through the development and use of integrated multi-agency coordination systems, i.e., develop and maintain connectivity capability between local Incident Command Posts (ICP), local 911 Centers, local Emergency Operations Centers (EOCs), the state EOC and regional and federal EOCs and /NRP organizational elements.*
 - SEMS Compliance: The SEMS structure that has been in place since 1996 incorporates the concepts of multi-agency coordination. This is exemplified in the structure identified in all SEMS materials and supported by regulations that require activation during disasters with lines of information and coordination established from the ICP through local government EOCs to Operational Area (county and jurisdictions within) to the OES Region and State EOC. The State EOC establishes coordination links to the federal level through FEMA Region IX. This is an established process for emergency response in California.
2. *Revise and update plans and SOPs to incorporate NIMS and National Response Framework components, principles and policies, to include planning, training, response, exercises, equipment, evaluation and corrective actions.*
 - SEMS Compliance: State agencies need to conduct a plan assessment to identify those plans, principles, and policies that need to be updated and revised. This will form the basis for planning efforts undertaken by State agencies. Training, exercises, equipment, evaluation, and corrective actions related to this requirement will be addressed by the specific Specialist Committees (Training and Exercises, After Action Report/Corrective Action). Any equipment concerns will be addressed within the communication groups.
3. *Leverage training facilities to coordinate and deliver NIMS training requirements in conformance with the NIMS National Standard Curriculum.*
 - SEMS Compliance: Existing training classes are being modified to conform to the NIMS National Standard Curriculum through the SEMS Training and Exercise Specialist Committee. These classes are being delivered through a variety of State agencies and their training facilities, including the California Specialized Training Institute, California Highway Patrol Academy, and the CAL FIRE Training Academy.

NIMS Compliance & Tribal Governments

As described in California's Implementation Guidelines for the National Incident Management System,³⁴ all tribal governments within California's borders are viewed as critical partners in the pursuit of NIMS compliance as well as the ongoing refinement of overall emergency management techniques and coordination. With their status as independent sovereign nations, tribal governments are not specifically required to comply with the elements of SEMS but are highly encouraged to do so in order to enhance and strengthen statewide response systems. Significant work has already been accomplished by many Tribal Nations towards NIMS compliance, as well as the integration of SEMS principles—from which much of NIMS is derived. California is committed to this partnership in support of strong emergency collaboration and is engaged with the Tribes to accomplish this goal in many ways, including:

- Supporting a Specialist Committee dedicated to tribal nations emergency coordination
- Offering representation on all Specialist Committees within the SEMS Maintenance System
- Developing and presenting Technical Assistance Workshops specifically for tribal nations
- Creating a robust communications system through the Tribal Nations Specialist Committee that will promote information sharing among and between the tribes and California's other governmental, private sector, and community-based organizations.

➤ Tactical Interoperable Communications Plans

Tactical interoperable communications is defined as the rapid provision of on-scene, incident-based, mission critical voice communications among all emergency responder agencies (e.g., EMS, fire, and law enforcement), as appropriate for the incident, and in support of an Incident Command System as defined in NIMS. As previously mentioned, California requires that by the end of 2008 all 59 operational areas must participate in at least one TICP in order to qualify for State Homeland Security funding; to date, 30 have been developed. Each TICP thoroughly describes the Operational Area's unique SOPs requirements. A full listing of completed TICPs throughout California, including a point of contact, is found in the Background section of this document in Figure 3. Stakeholders desiring to assess or review the SOPs documented within a completed TICP should contact the document's owner.

CalSIEC and PSRSPC are working collaboratively with their regional partners to document and complete TICPs. CalSIEC developed and adopted a TICP template to help remaining OAs complete the TICP mandate.³⁵ The California TICP template simplifies the documentation process and provides additional guidance to the Operational Areas. Additionally, the strategy recommends the use of CASM to leverage each operational area TICP in order to help facilitate the overall current state of statewide tactical interoperable communications. CASM will serve as a tool to depict a statewide tactical interoperable communications snapshot across all lanes of the Interoperability Continuum.

³⁴ [http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/NIMS-CAimplementation/\\$file/CAimpNIMS-Sec1-II.pdf](http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/NIMS-CAimplementation/$file/CAimpNIMS-Sec1-II.pdf)

³⁵ <http://rimsinland.oes.ca.gov/calsiec.nsf/Content/51528F8F2D4D9583882571BD006117F3?OpenDocument>

➤ **Local SOP Processes**

Most SOPs across California are locally-based and are identified in detail within their respective Operational Area TICPs. Localities develop MOUs and SOPs with participating agencies for the use of the interoperable techniques, protocols, and technologies such as gateways or radio caches. The regions communicate the SOPs through their existing governance structures and document the process and protocols in their TICPs. Additionally, localities are responsible for maintaining SOPs. For example, the Bay Area Super UASI is in the process of updating existing SOPs to reflect the new grouping of cities. The CalSIEC Southern Planning Area provides another regional example of the SOP development and coordination process. The Southern Planning Area coordinates the area's SOP development process by providing a template for local SOPs and ensuring compliance with State protocols. It is currently developing an assessment of existing SOPs within the area. The templates help promote consistency in content and usability throughout the area, but remain locally driven in their approach to standardization.

Localities participate in the statewide SOP process through the support and use of SEMS and NIMS. In most regions, the use of an ICS compliant with NIMS is required for use of any regional interoperability resource.

➤ **Neighboring States and Countries**

Like many SOPs, coordinated interoperable communications between California's neighboring states and Mexico is mostly achieved through local governance groups, partnerships, and requirements with bordering localities and regions. Stronger statewide SOP coordination is beginning to occur as statewide interoperability efforts improve within California and with the bordering states of Oregon, Nevada, and Arizona. The Strategy section directs California to develop a statewide strategic plan for coordinated interoperable communications with neighboring states and Mexico. This initiative, along with coordinated statewide governance as described by the CalSCIP, will guide California to improved statewide SOP coordination with neighboring states and countries.

SOPs with Neighboring Countries and States

- ◆ In Southern California, San Diego County is paving the way for the State to communicate with neighboring states and countries. Leaders of the San Diego Regional Communications System (SDRCS) are active participants in the US Department of State's High Level Consultative Commission (HLCC) for Telecommunications efforts to provide for cross-border, international communications between Mexico and the United States. Mexico and the United States signed an agreement governing a critical spectrum band used by U.S. military installations along the border for tactical and training operations, amended an existing agreement to permit cross-border security communications, and developed the final text of a new agreement for public safety and commercial services. Additionally, SDRCS (which includes San Diego and Imperial counties) entered agreements with Yuma, Arizona to ensure interstate communications capabilities.
- ◆ In Central California, Placer County is actively planning SOPs to support interoperable communications with the State of Nevada's 800 MHz system by extending the Com-Link network connectivity from the Placer County PSAP to the Washoe County (Nevada) Public Safety Access Point (PSAP).

➤ **Transit Systems, Intercity Bus Service Providers, Ports, and Passenger Rail Operations**

There are two bodies in California that deal specifically with port security and transit security in California. The Regional Transit Security Working Groups (RTSWG) and the California Maritime Security Council (CMSC) are both coordinating critical security matters and will be consulted with by PSRSPC and CalSIEC regarding interoperable communications gaps.

SOPs between major transit systems and local first response agencies are also mostly derived from local and regional requirements. Bus service providers, port authority, and passenger rail representatives serve on both local and regional interoperability governance bodies including the CalSIEC. Through their collaboration and partnership with these bodies, they are included in the production, administration and delivery of any statewide interoperable communications SOPs. Major transit systems are also included in many statewide training exercises. Detailed regional SOP information can be found in existing UASI Strategic Plans and TICPs.

For instance, the San Francisco Urban Area 2006 TICP demonstrates how major transit entities participate in the local planning and SOP development process. AMTRAK Police, Bay Area Rapid Transit (BART) Police & Fire, the US Coast Guard, the San Francisco International Airport and the Golden Gate Bridge District represent various local major transit and port authorities serving on the San Francisco UASI governance body and contributing to the area's SOP and TICP needs.

SOPs with Transit

- ◆ In Northern California, Humboldt County regional participation with local port authorities is a daily occurrence. The Humboldt Sheriff's Office has a long working relationship with the Humboldt Bay Harbor and Recreation District. The Harbor District provides a small cache of portable radios for response to incidents in their jurisdiction. Furthermore, the County of Humboldt and the Harbor District have recently designated common channels and established detailed communications SOPs to manage the channels and the radio cache. Joint participation occurs throughout the year through several scheduled multi-agency exercises on Humboldt Bay. A recent exercise has allowed participants to respond with the Humboldt Sheriff's Mobile Command Post/Gateway.
- ◆ In California's Capital Bay Area, the Bay Area Rapid Transit (BART) Radio Cache demonstrates how SOP and Technology coordination occurs on the local level to incorporate mass transit. During an event, BART Public Safety provides radios to the San Francisco Fire Department. These radios are configured for the EDACS radio system utilized by BART and are housed at the Fire Academy/Division of Training for deployment. The Emergency Communications Division (ECD) dispatch center also has two EDAC radios at the supervisor's bridge console for immediate interoperability. Beyond the cache's technological components, BART and the San Francisco Fire Department have detailed SOPs outlining activation and deactivation of the cache.

➤ **Statewide SOPs Development Process**

Moving forward, OES intends to leverage the multidiscipline and multi-jurisdictional membership of the Statewide Communications Interoperability Governance structure in the development of statewide SOPs. As appropriate, the process will involve generating an initiative working group to draft the SOP. The working group will include stakeholders who are subject matter experts on the desired SOP. Once drafted, the initiative working group will elevate its recommendations through the governance structure for the body's approval and implementation. This will be an extension and formalization of the voluntary collaboration and coordination that occurs between the CalSIEC and PSRSPC. For example, to provide enhanced TICP guidance to localities, an initiative working group comprised of CalSIEC and PSRSPC members was formed to draft the CA adopted TICP template. Once drafted, the template was approved by the governance bodies and publicized via the efforts websites and email list-servs. The Strategy section references the need for additional statewide SOPs by building upon current local and regional SOPs.

Specifically, the CalSIEC has a long history of developing and maintaining statewide mutual aid and interoperability channel SOPs. Under the authorities of the California Emergency Services Act (Government Code §8550 et seq.), the Office of Emergency Services currently coordinates and manages Mutual Aid radio frequencies. On August 7, 2003, OES directed that the CLEMARS Executive Committee reestablish itself as the CalSIEC, with oversight responsibility delegated to the OES Telecommunications Section in coordination with the Law Enforcement and Fire & Rescue Branches (see Memo for the Record in Appendix G).

Under the current CalSIEC mission, CalSIEC maintains the agreements and SOPs that define practices for the use of statewide interoperability channels. This governance body now serves

as the clearing house for establishing and executing the process by which statewide SOPs are developed, managed, maintained, and upgraded. CalSIEC fulfills this role as it functions as part of SEMS/NIMS. While CalSIEC is the entity responsible for statewide interoperable communications SOPs across all first response disciplines, other discipline specific associations and agencies, such as FIRESCOPE, aid in the development of certain SOPs through CalSIEC. In this case, FIRESCOPE currently serves as the CalSIEC workgroup for SOPs relating to the state's fire agencies.

➤ **Statewide SOPs: Swapping Radios and Sharing Channels**

California understands that local, regional and State agencies develop communication interoperability SOPs specific to their requirements and needs. While all of California's SOPs are molded to conform to the elements of NIMS, some appropriately remain local and/or regional in focus. Statewide, California's SOPs for interoperability communications currently focus on swapping radios and sharing channels on the Statewide Mutual Aid Regional System (SMARS) and individual State agency systems. A detailed explanation of the SMARS system can be found in the Technology section of this plan.

California's statewide radio caches are a key asset used to establish interoperable communications at an incident. Like many statewide procedures, obtaining and activating the resource requires following California's standard mutual aid process. Whether employing state owned radio caches or locally owned radio caches, proper SOPs are followed for deployment and activation of the cache.

California has a robust SOP process for developing protocols and managing its shared interoperability and mutual aid channels. Each user must be a signatory of the California Disaster and Civil Defense Master Mutual Aid Agreement. All operations must be strictly in accordance with the relative network plans and frequencies used for SMARS must be in the VHF high band. However, the plan's rules allow for any public radio frequency to be installed and used by any public safety unit, provided proper procedures and licensing are followed. The plan is designed to do the following:

- Utilize existing mutual aid channels in the most effective manner
- Improve interagency communications by specifying a dedicated channel for on-scene use
- Encourage agencies to prepare for disaster communications by installing SMARS channels in response vehicles
- Provide for the most effective day-to-day and disaster use of designated channels
- Secure and administer caches of mutual aid communications equipment placed at appropriate locations
- Improve mutual aid communications among agencies
- Promote better knowledge, use, and control of public safety mutual aid channels
- Prioritize all transmissions on SMARS channels according to the need for communications.³⁶

FCC Interoperability Channels

The National Public Safety Telecommunications Council (NPSTC) published a report in June of 2007 outlining a *Standard Channel Nomenclature* for Public Safety Interoperability Channels. The requirement for a common naming protocol for public safety's interoperability frequencies

³⁶ Statewide Mutual Aid Radio System Plan (SMARS). May 1991.

was identified in early 2000 by the Public Safety National Coordination Committee (NCC), a Federal Advisory Committee chartered by the Federal Communications Commission (FCC) that operated from 1999 to 2003 and provided recommendations to the Commission on operational and technical parameters for use of the 700 MHz public safety band.³⁷

The NCC/NPSTC document emphasizes the need for a nationwide standard for naming radio channel frequencies used for interoperability. The document argues that doing so will help avoid the confusion and potential breakdown in communications caused by different agencies using different nomenclatures for the same radio channel frequency. The document outlines a nomenclature standard, or naming convention, to be applied nationwide to public safety radio channels that are used for interoperability.

Currently, individual agencies normally assign their own nomenclature for radio channel frequencies that are installed in their radio equipment. Consequently, there can be confusion and a breakdown in communications because personnel from one agency may not recognize the nomenclature for an interoperability channel specified by another agency during joint response to an emergency. The fact that this occurs despite both agencies having the same radio channel frequency installed in their individual radios suggests that a nomenclature standard is needed.

The NCC/NPSTC Standard proposes channel naming convention parameters (nomenclature standards) for labeling specific interoperability radio channel frequencies for all public safety agencies nationwide. The intent is to enable personnel from different agencies who require interoperability with each other to switch their radios to a common radio channel frequency that has the same nomenclature for each agency.

The use of standardized nomenclature for the same radio channel frequencies will benefit all agencies that rely on sharing radio channel frequencies with other agencies for interoperability during emergencies and disasters. The adoption of radio channel frequency nomenclature standards is strongly recommended. To be effective, however, all local, state and Federal agencies will need to be active participants, and appropriate enforcement procedures will need to be developed that will ensure that all agencies throughout the state comply with the nomenclature standards.

It should be noted that the National Telecommunications Information Administration (NTIA) that governs the use of radio channel frequencies by Federal government radio users, has established standardized radio frequency channel designations (nomenclatures). There are, however, some discrepancies between two separate NTIA publications. Pending resolution of this conflicting information, the risk for nomenclature duplications for different radio channel frequencies exists.

Currently, the FCC regulates the use of radio channel frequencies for non-Federal government licensees, and therefore regulates the nomenclature for these frequencies as well. To date, the FCC has declined to include or regulate radio channel frequency nomenclature standards in the FCC's rules and regulations. FCC regulation of a standardized radio channel frequency nomenclature will mandate use of the channel nomenclature for all public safety licensees that operate on licensed frequencies intended for interoperability.

³⁷ See: <http://www.npstc.org/documents/IO-0060B-20070612%20Standard%20Channel%20Nomenclature%20Final.pdf>

NPSTC, NTIA, and the FCC recognize the need for collaboration and mandated standard radio channel frequency nomenclature for all public safety agencies nationwide. However, the ongoing work to reach consensus among NTIA and FCC officials can be expected to be a protracted effort that is unlikely to be resolved in the near future.

Within California, all channel names under NPSPAC should use the NPSTC common nomenclature as approved by CalSIEC. The full letter of support from the CalSIEC can be found in Appendix N. A full listing of the NPSTIC common nomenclature sorted by band in numeric order can be found in Appendix O.

➤ **Approval Process for Mutual Aid & Interoperability Shared Channels**

As identified by the CalSCIP’s mission and vision statements, designated public service organizations are a vital stakeholder group requiring interoperable communications capability. Furthermore, section B of California Code §8588.1 states, “The Office of Emergency Services may, as appropriate, include private businesses and nonprofit organizations within its responsibilities to prepare the state for disasters under this chapter.”³⁸ As such, designated public service organizations are also eligible to apply for OES approval to use interoperability and mutual aid channels. CALCORD and/or CESRS are possible channels to which NGOs, critical infrastructure, private businesses, nonprofit organizations and other designate public service organizations may be assigned. Figure 26 articulates the participating agencies and the approval process regarding California’s Shared Channels. A more detailed explanation can be found in the CalSIEC Interoperability Channels Authorization Process in Appendix P. The mutual aid and interoperability shared channels process and SOPs are made available through the OES Telecommunications and Interoperability website.³⁹

Channel Name	Description	Eligibility	Approval Process
CALCORD	California On-Scene Emergency Coordination Channel	Any CA Local Govt.	Email to 'interop@oes.ca.gov' - Subject: "CALCORD"
CESRS	California Emergency Services Radio System	OES, Op Area Emer. Mgmt., other authorized users	Email to 'interop@oes.ca.gov' - Subject: "CESRS"
CLEMARS	California Law Enforcement Mutual Aid Radio System	Law Enforcement	Email to 'interop@oes.ca.gov' - Subject: "CLEMARS"
FIREMARS	Fire Emergency Mutual Aid Radio System	Fire & Rescue & EMS	Contact OES Fire & Rescue
OES FIRE	Office of Emergency Services Fire & Rescue Radio System	Fire & Rescue Operational Area & Regional Coordinators	Letter to OES Fire & Rescue
NPSPAC	800 MHz Interoperability Channels	Any Public Safety	Email to 'interop@oes.ca.gov' - Subject: "NPSPAC"

Figure 26: CalSIEC/OES Interoperability Channels Authorization Process

³⁸ <http://caselaw.lp.findlaw.com/cacodes/gov/8585-8589.7.html>

³⁹ <http://www.oes.ca.gov/Operational/OESHome.nsf/Content/B0AFF4D0C95615BC88256C6B006839D5?OpenDocument>

4.4 Training and Exercises

Training and exercises refer to the instructional support designed to develop and retain the knowledge, skills, and performance of public safety personnel. Proper training and regular exercises are critical to the implementation and maintenance of a successful interoperable system. Effective training programs and exercises that practice communications interoperability are essential for ensuring the technology works and that responders use it effectively during emergency operations. The old adage of “practice makes perfect” is fundamental in these planning efforts. California understands and works to ensure that general orientation of equipment, tabletop exercises for key field and support staff, and on-going, comprehensive regional training and exercises are regularly scheduled.

California sponsors and facilitates a plethora of well-designed and executed exercises, which are the most effective means of testing and validating policies, plans, procedures, training, equipment, and interagency agreements; training personnel and clarifying roles and responsibilities; improving interagency coordination and communications; identifying gaps in resources; improving individual performance; and identifying opportunities for improvement. A list of California’s training and exercises can be found at:

- <http://www.oes.ca.gov/Operational/OESHome.nsf/>
- www.ohs.ca.gov/hseep/traininghome.html

The Continuum lane depicted in Figure 27 measures Training and Exercises development from across the state based on information gathered from California’s current baseline assessment. As described in the Methodology section, the data represents responses from 13 State agencies and 223 local respondents. The final row lists the statewide assessment against the Training and Exercise lane.

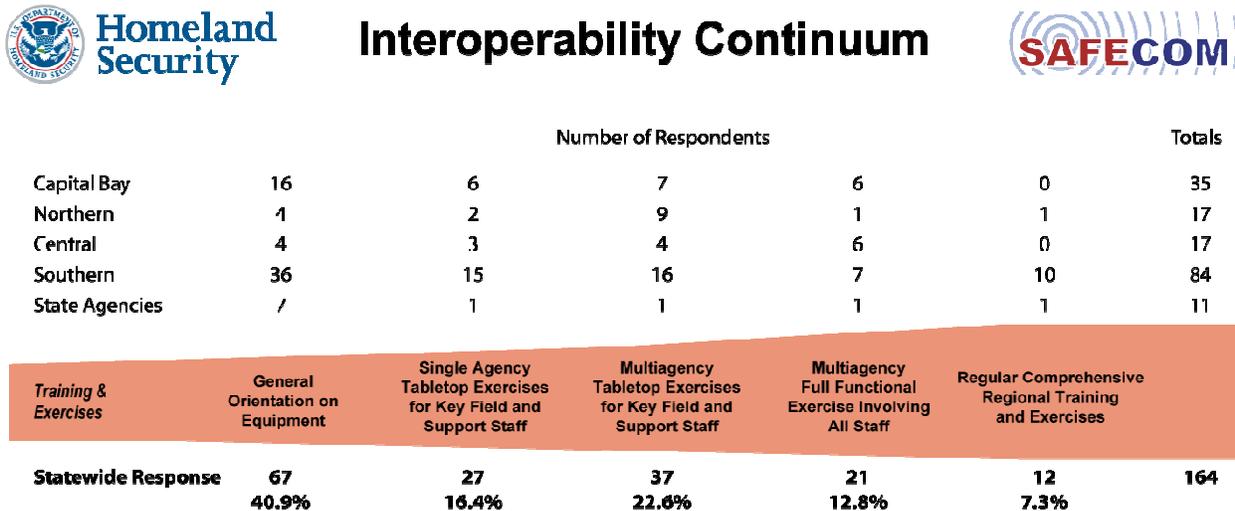


Figure 27: Training and Exercise Baseline Assessment

➤ Statewide Training Efforts

NIMS/SEMS Training

California's SEMS continues to provide the structured framework for responding to and managing emergencies and disasters of all kinds. The enhancements to SEMS through integration of NIMS improve the ability of California to reduce the impacts of disasters and continue to lead the nation in emergency management. Existing training classes are being modified to conform to the NIMS National Standard Curriculum through the SEMS Training and Exercise Specialist Committee. These classes are being delivered through a variety of State agencies and their training facilities, including the California Specialized Training Institute, California Highway Patrol Academy, and the California Department of Forestry and Fire Protection Training Academy.

In the past, California used four components to allow stakeholders to "self-certify" their compliance with FY 2006 NIMS requirements. Currently, the State is NIMS compliant down to the Administrative Regions. Moving forward from Federal Fiscal Year (FFY) 2007, NIMS requirements will use performance metrics that capture details on how a jurisdiction has met the FFY 2005 and FFY 2006 NIMS requirements rather than the "self-certification" process of the past. Compliance assessment through the use of these metrics will provide the basis for all future Federal preparedness funding beginning in FFY 2008.

To assist in the compliance reporting, the NIMS Capability Assessment and Support Tool (NIMSCAST) will be modified to reflect the FY 2007 requirements and to provide a tool to collect the metrics associated with NIMS compliance. In FY 2007, all jurisdictions must comply with specific performance-based metrics. These metrics were derived, in part, from the FY 2006 required compliance activities and also include new performance measures. Metrics will be used to:

- Gather information on the current state of NIMS compliance;
- Identify best practices and areas that may require further technical assistance;
- Provide continued guidance and feedback, and;
- Assist with the refinement of metrics and/or data-gathering tools.

The State elected to use NIMSCAST as the vehicle to establish the state baseline and to then measure the State's progress for NIMS compliance by way of annual updates. Those entities to be included in the official state assessment include counties, UASI cities, the City of Fresno, key State agencies in the State Emergency Plan, and those tribal governments that choose to participate. Certification will include review and analysis of NIMSCAST responses by local, tribal, and state governments. Additionally, Homeland Security Presidential Directive-5 (HSPD-5) requires Federal Departments and agencies make adoption of NIMS requirements mandatory for local and state organizations in order to receive Federal preparedness assistance. The NIMSCAST facilitates the adoption of NIMS by local, tribal, and state governments in order to meet the requirement established in HSPD-5. More information is available at <http://www.fema.gov/nimscast/AssessmentPdfs.do>.⁴⁰

⁴⁰ Note: No Data Collection will be conducted using this technical assistance tool until the Office of Management and Budget (OMB) has approved the data collection request. The Federal Registry Notice for the metrics collection has been released (E7-3282).

ICS Training

To further assist practitioners with meeting NIMS requirements, OES developed an ICS 300 & 400 train-the-trainer course for Emergency Operations Center (EOC) personnel. ICS 300 & 400 is field oriented; this course was specifically selected by OES after it became apparent that EOC personnel need to understand those ICS concepts and how they may best support those in the field. The pilot course was held in late March 2007. The OES training branch will provide a number of train-the-trainer courses around the state, free of charge, to assist stakeholder efforts and train as many emergency responders as possible. The materials can also be accessed from the OES website with additional details regarding the FFY 2007 requirements.

New training requirements and expectations for FFY 2007 include the completion of ICS 300 by middle management and command and general staff as well as the completion of ICS 400 by command and general staff. These courses are in addition to the prior requirements of IS 700, IS 800, ICS 100, and ICS 200. It is important to note that California is moving from the awareness level of training to requiring that those who take training are able to accomplish their objectives, whether it be developing an incident action plan, establishing a command structure, or designing a unified command. This is the beginning of performance based training and will lead to more detailed position training.

The following is a matrix created by OES in January 2007 that detail SEMS and NIMS training requirements for the state of California:

<http://www.americanhomelandsolutions.com/pdfs/SEMS-NIMS%20-%20Training%20Guidance%20Matrix.pdf>

Standardized Emergency Management System National Incident Management System Training Guidance MATRIX	SEMS Introduction	SEMS EOC	SEMS Executive	ICS 100 (IS 100)	ICS 200 (IS 200)	ICS 402	NIMS (IS 700)	NRF (IS 800)	SEMS - ICS - NIMS	The Combined Course	ICS 300	ICS 400
Required: All public employees who may be tasked, directed or called upon to respond for an emergency. At all levels of government and all phases of emergency management. Recommended: CBOs, NGOs, Private Sector, Volunteer Orgs, etc.	●			●			●		●			
Personnel who assist or support the incident organization but do not normally supervise others. Recommended: CBOs, NGOs, Private Sector, Volunteer Orgs, etc.	●			●	●		●		●			
Personnel who supervise a branch, division, group or unit in the field or Emergency Operations Center. Recommended: CBOs, NGOs, Private Sector, Volunteer Orgs, etc.	●	●		●	●		●	●	●		●	
Personnel in the Command/Management or General Staff at an incident or Area Command or in a Emergency Operations Center. Recommended: CBOs, NGOs, Private Sector, Volunteer Orgs, etc.	●	●		●	●		●	●	●		●	●
Executives, administrators and policy makers within agencies that are required to support a SEMS emergency response or recovery organization. Recommended: CBOs, NGOs, Private Sector, Volunteer Orgs, etc.			●			●	●	●				

Figure 28: SEMS/NIMS Training Requirements

Communications Unit Leader Training

During many Tactical Interoperable Communications Planning efforts completed in California’s UASI regions, Communications Unit Leaders (COML) were identified as part of the designated points of contact in charge of coordinated communications needs during large-scale response situations. The localities and UASIs have committed to establishing a training program to ensure staff are adequately trained and certified as COMLs in accordance to the NIMS/ICS standards. Upon receiving this certification, these individuals would run the communications unit as part of the NIMS/ICS structure.

The state has identified COMLs who have completed either the National Interagency Fire Center (NIFC) COML or National Urban Search and Rescue Communications Specialist Training. The names and contact information of certified COMLs are currently maintained by each agency. COMLs are trained and certified according to the latest available standards and procedures as they continue to develop. California plans to continue its build-out of this capability and resources during the implementation of the CalSCIP.

Currently, COML training is provided by the National Interagency Fire Center or DHS National Urban Search and Rescue Communications Specialist Training. Communications training is reviewed annually at the state level through OES, FIRESCOPE, and the Urban Search and Rescue Communications Working Group. California intends to participate in the DHS COML training curriculum once the certified program is released by the NIMS Integration Center. The

COMLs will be trained and certified in accordance with NIMS/ICS standards and the core competencies described in the DHS Communication Unit Leaders Guidance (available at: http://www.ojp.usdoj.gov/odp/docs/COML_Core_Competencies.pdf). The course will be non-discipline specific as have been previous versions of the course. The intent is to ensure an adequate number of staff members are trained as COMLs as defined by the NIMS model.

To accomplish this goal, a portion of the State's PSIC Grant allocation will be dedicated toward State Projects including Communication Unit Leader Training. The amount dedicated to COML training is \$2,500 per person or \$500,000, which will be included in the State's PSIC IJ.

OES Statewide Training Program

Established in 1971, the California Specialized Training Institute (CSTI) now plays a key role in managing California's disasters. A coordinated response to disasters and major emergencies is critical to saving lives and protecting property. Through its training programs, CSTI has set the standard for effectively managing and coordinating the response of emergency response personnel throughout California. CSTI's programs provide an opportunity for all emergency response disciplines – law enforcement, fire service, emergency medical, public health, public works, private industry, and many others – to train and exercise together.

OES/CSTI has one of the longest deployed and most comprehensive all-hazard preparedness training programs in the nation. An essential part of this preparedness mission is the OES Statewide Exercise Program. Key elements and goals of this program include:

- Ongoing exercise design team training for all of California's Operational Areas
- Annual State/regional all-hazard multi-jurisdictional exercises
- The deployment of nearly 200 tabletop, functional, and full-scale exercises in OES training courses annually
- A State master exercise calendar
- State Exercise Training Officer (ETO) coordination, oversight, and review, and adaptation of Federal standards
- Ongoing training and exercise needs assessments and jurisdictional analysis conducted by OES Regional Coordinators
- After Action Reports/Improvement Plans
- State agency and executive workshops

CSTI ensures that its training, including that of its outreach instructors, meets the requirements of the National Response Framework and NIMS, and meets the standards identified by the California Commission on Peace Officer Standards and Training (POST), the National Fire Protection Association, and the Occupational Safety and Health Administration (OSHA). CSTI also ensures that its training meets the requirements of the following SEMS government codes:

- California Government Code §8607(d), which states: By December 1, 1996, all State agencies shall use the Standardized Emergency Management System (SEMS) as adopted pursuant to subdivision (a), to coordinate multiple jurisdiction or multiple agency emergency and disaster operations.
- California Government Code §8607(e) (1), which states: By December 1, 1996, each local agency, in order to be eligible for any funding of response-related costs under disaster assistance programs, shall use the Standardized Emergency Management System as adopted pursuant to subdivision (a) to coordinate multiple jurisdiction or multiple agency operations.

Office of Homeland Security Training and Exercise Division

The California Office of Homeland Security (OHS) Training and Exercise Division (OHSTED) is responsible for the State's Training and Exercise Program. In partnership with OES, OHS works to provide first responders and agencies with training and exercises related to terrorism, weapons of mass destruction, and man-made or natural catastrophic incidents.

California OHS training opportunities are published in a monthly bulletin as part of their comprehensive preparedness training program focused on establishing unified response; providing easier access to information for local, tribal, state, and Federal preparedness training; strengthening preparedness; enhancing effectiveness; improving response levels; and providing viable solutions throughout California's response community. Participating agencies include the following:

- American Homeland Solutions - AHS NIMS/SEMS Calendar
- California 46th Congressional District
- California Commission on Peace Officer Standards and Training (POST)
- California Maritime Academy
- California Office of Homeland Security
- California Specialized Training Institute (CSTI) Courses
- California State Fire Marshal
- Center for Domestic Preparedness
- Emergency Management Institute
- Energetic Materials Research and Testing Center (EMRTC)
- National Center for Biomedical Research and Training (NCBRT)
- National Security Technologies:
- Naval Postgraduate School (NPS) Center for Homeland Defense and Security (CHDS)
- Northern California Regional Terrorism & Threat Assessment Center
- Sacramento Regional Training Center for Homeland Security
- Texas Engineering Extension Service
- US Army Medical Research Institute of Chemical Defense

Although not all courses focus directly on interoperability, many do highlight it as a significant portion of their training. For a representative list of California's training offerings, refer to the complete October 2007 training calendar, available via the following link: http://www.homeland.ca.gov/pdf/Training_Opportunities_Bulletin_Oct-Nov2007.pdf.

OHS recently announced that OAs and UASIs wishing to use the Homeland Security Grant Program (HSGP) funds for Federal and California courses can do so by following a simple Training Request Form available through the OHS website.

➤ **Statewide Exercises**

The following exercises are sponsored by the state and are designed to test California's ability to prevent, respond to, and recover from a terrorist attack or catastrophic natural disaster. While these exercises are not specific to communications interoperability, cross-discipline communications plays a role in each. Many of these exercises are conducted on a regular basis and also provide future opportunities for interoperable communications exercising.

- **Golden Guardian (GG)**

On November 15 and 16, 2006 the City and County of San Francisco Operational Area participated in the annual State of California, Office of Homeland Security multi-agency and multi-jurisdictional functional exercise, also known as Golden Guardian 06 (GG06). The primary focus for GG06 was to exercise and assess the flow of information and resource requests from local Department Operation Centers (DOCs)/Emergency Operations Centers (EOCs) to the Regional Emergency Operations Center (REOC), and then on to the State Emergency Operations Center (SOC) and, if necessary, to the Federal level. The California Office of Homeland Security (OHS) and California OES (REOC) have provided direct management, conduct and design oversight of the exercise. This 24-hour functional exercise involved activation, operation, and expansion of the City EOCs and multiple City Department and Agency DOCs in response to an earthquake.

The Golden Guardian Statewide Exercise Series was first introduced in California in 2004 and has become an annual exercise conducted to coordinate prevention, preparation, response, and recovery mechanisms of city, county and State governmental entities, and private sector and volunteer organizations. The goal of the Golden Guardian Exercise Series is to build upon the lessons learned from this and subsequent exercises conducted throughout the nation, as well as real world events. The Full-Scale Exercise (FSE) is complimented with pre/post-exercises to address roles, communications, and recovery and mitigation measures, as well as others. The training strategy and program developed in the Strategy section will leverage and coordinate with such an initiative, wherever possible. Future Golden Guardian exercises will be coordinated closely with PSRSPC and CalSIEC to ensure interoperable communications exercise injects are included where necessary.

- **San Francisco Catastrophic Exercise**

The Federal Emergency Management Agency (FEMA) has retained the services of URS Corporation to facilitate catastrophic earthquake planning efforts, which includes the development of a Catastrophic Incident Base Plan, Concept of Operations (CONOP), and Bay Area Earthquake Concept Plan (CONPLAN). Such planning efforts, led by various working groups across the state, are highly complex and include gathering various information, coordinating agencies, and planning development steps. Fundamental to this process was the development of a potential earthquake scenario that is firmly rooted in the historical data as well as the latest seismological research and forecasting. The working groups are currently developing an execution schedule that will include information on what actions are to be taken by what agencies and when, post event, to re-establish and sustain critical emergency responder communications capabilities in the Bay Area region. Key decision points are also to be identified. The San Francisco Earthquake Catastrophic Exercise will be the first in a series that will change UASIs annually. A copy of the San Francisco Catastrophic Exercise can be found in Appendix Q.

- **Large Stadium Initiative (LSI)**

Large public venues such as sports stadiums present unique security and disaster response challenges. Through the Large Stadium Initiative, OHSTED is able to work with our public and private partners to tailor exercises to their specific needs to ensure the greatest possible protection for the public at these venues.

- **Continuity of Operations and Continuity of Governance (COOP & COG)**

The ability for government operations to continue in the event of a disaster is a priority. OHSTED has developed exercise programs to test the ability of our governments at all levels to function should disaster strike.

- **Mass Transit Initiative (MTI)**

As seen a number of times around the world, mass transit systems can be targets of terrorist attacks. Learning from these attacks, California has begun to work with mass transit systems to develop exercises that better prepare these systems for potential attacks.

- **Agricultural Readiness Initiative (ARI)**

California is the nation's leading agricultural producer. The possible introduction of man-made and naturally occurring threats like the H5N1 (Avian Influenza) virus would have a devastating effect, not only on California's agricultural community, but on national and world agricultural markets as well. Specially designed exercises that address these threats help to coordinate the myriad of public and private entities that would be involved in responding to a potential agricultural disaster.

- **Cyber-Terrorism Program (CTP)**

Attacks on public and private technology infrastructures can have crippling governmental and economic impacts. OHSTED has established an exercise initiative that works to continually address cyber threats and help State data centers devise mitigation plans to reduce the threats and recover from a potential attack.

- **Small Counties Initiative (SCI)**

Many rural and small California counties have identified risks but have insufficient funds to exercise their response plans. The Small Counties Initiative was established to help provide those areas with discussion based readiness exercises that they would be unable to perform on their own.

- **Ports Readiness Initiative (PRI)**

OHS is a member of California's three Area Maritime Security Committees (AMSCs). Through involvement in those committees, OHS works with the United States Coast Guard (USCG), the ports, private industry representatives, and others to develop meaningful exercises to test California's readiness to respond to a disaster among its ports.

- **Rough and Ready (R&R)**

R&R is a joint military-civilian disaster medical field training exercise designed for California Medical Assistance Team (CalMAT) members and Federal Disaster Medical Assistance Team (DMAT) members. The purpose is to observe hands-on disaster response training during a mock exercise by CalMAT and DMAT members and to focus on triage and treatment of injuries as seen in an actual catastrophic event. Throughout the exercise, participants receive training in basic living skills, deployment, patient preparation and aero medical operations, patient documentation, radio communication, shadow instruction, and special clinical considerations. The exercise may also include updates on hazardous materials and weapons of mass destruction. In addition to the CalMat and DMAT teams, participants in the exercises include representatives from organizations statewide such as the Emergency Medical Services Authority, California Highway Patrol, California National Guard, Medical Reserve Corps, and the Citizens Emergency Response Teams.

A monthly training and exercise calendar is available at the following links:

- <http://www.oes.ca.gov/PrepareTrain/Public/exerciseschedule.nsf/1e28ad6cf0ce4f26882572d50074bcf7?OpenView&Count=30&ResortAscending=0>
- <http://www.ohs.ca.gov/hseep/TrainingHome.html>

Local and Regional Training Highlight

- ◆ Fresno: The Fresno, California UASI Region Interoperable Communications Functional Exercise (FE) was designed to help participants focus on interoperable communication capabilities and issues by providing the opportunity to actually engage in facilitated communications activities situated throughout the Fresno UASI region. The exercise commenced on February 9, 2006 with a made-up incident in Fowler, California, and followed the continuation of events through the attack at the University of California, Fresno campus, and the activities subsequent to the disaster.

The exercise focused on key local emergency responder coordination, critical decisions, and the integration of State and Federal assets necessary to save lives and protect public health following an incident. The goal of the FE was to demonstrate, evaluate, and discuss the communication policies, procedures, plans, available assets, and communication capability gaps involving communications systems that the region's different agencies would use in response to a multi-jurisdictional event and to attempt to resolve, as a group, problems that may arise during these activities. The exercise included the use of portable radios and other communications equipment that would be used by responding public safety personnel at the scene, as well as a complete Incident Radio Communications Plan (IRCP?).

The FE accomplished the following objectives:

- The multi-agency scenario evaluated all levels of communications integration and interoperability available to or required by the Fresno area exercise participants in accordance with operational procedures and regional response plans, including integration of specialized communication equipment packages.
- The scenario enhanced the overall readiness of the region in the event of an actual emergency involving a large-scale threat or incident.
- The scenario determined the ability to establish interoperable communications in the case of a major, multi-jurisdictional event.
- ◆ San Francisco: California's commitment to cross-jurisdictional and cross-disciplinary training and exercises is exemplified by the milestone accomplishment completed in the Capital Bay Area Planning Area. The purpose of the San Francisco Earthquake 2006 Functional Exercise (Earthquake 06) was to evaluate the City and County of San Francisco's readiness and capability to establish and operate the CCSF Emergency Operations Center (EOC). The exercise also assessed the Department Operations Centers (DOC) in order to accomplish key objectives outlined in Homeland Security Presidential Directive 8 (HSPD8) and the Homeland Security Exercise and Evaluation Plan planning and evaluation guidelines. Details of this FE are available in Appendix Q.

4.5 Usage

Success in the usage of emergency response capabilities is contingent upon how well other Interoperability Continuum elements are integrated and developed—how you train is how you play. Achieving success requires day-to-day dedication to the use of communications and interoperability capabilities. The ultimate goal of usage is to have the interoperability aspect of the California SoS accessed on a daily basis so that emergency responders are kept abreast of current protocols, equipment operations, and techniques. Users can then remain familiar with the system's interoperability capabilities, ensuring their effective use when necessary. Familiarity with communications systems is imperative for a cohesive, timely, and efficient response to any request for assistance.

➤ Daily Usage

The California Warning Alert System (CALWAS) and the National Warning Alert System (NAWAS) are two separate and secure communications systems consisting of hard-wired direct telephone lines. The CALWAS system connects 56 of 58 counties in California. The NAWAS system connects all 50 States, FEMA Regional Offices and Federal Government Agencies to a National Warning Center (NWC) and the Alternate National Warning Center (ANWC) in Olney, Maryland, which are staffed 24 hours per day and serve as the primary control for the National Warning System (NAWAS). Test calls are made daily on each system.

Many of the local and regional systems work to ensure usage of the systems on a daily basis by conducting weekly tests and tying participation in the usage tests to the service offering of their respective systems. This helps ensure that first responders and public safety professionals using the systems are adequately prepared, aware of, and equipped to do so and have an applicable understanding of the SOPs governing the use of the equipment. While system specific usage is strengthening, a challenge that remains is achieving usage among the counties and across the systems.

The Continuum lane depicted in Figure 29 measures Usage development from across the state based on information gathered from California's current baseline assessment. As described in the Methodology section, the data represents responses from 13 State agencies and 223 local respondents. The final row lists the statewide assessment against Usage lane.

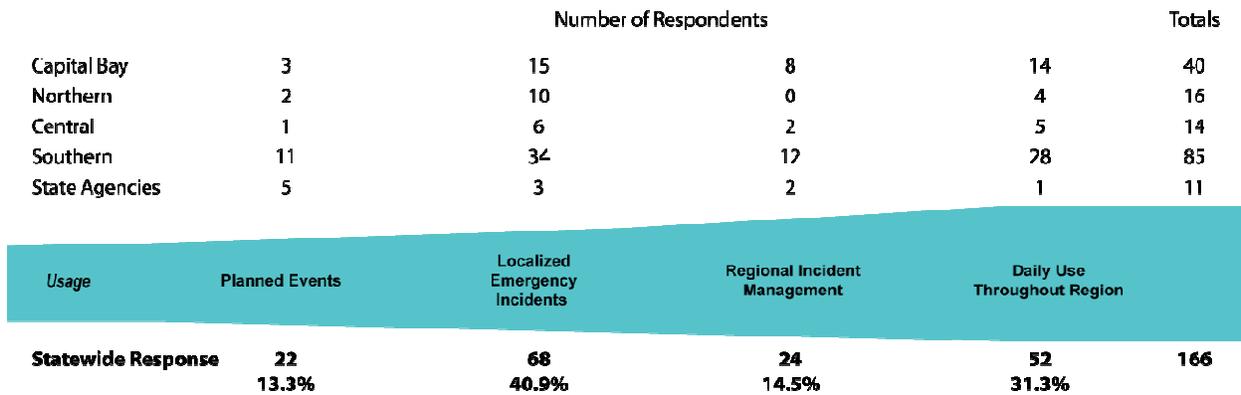


Figure 29: Usage Baseline Assessment

As mentioned in the Training and Exercise section of the CalSCIP, CSTI and OHS play a key role in managing California’s disasters. The state’s programs provide an opportunity for all emergency response disciplines – law enforcement, fire service, emergency medical, public health, public works, private industry, and many others – to train and exercise together. California’s mutual aid live exercises, which encourage and enhance the usage of communications interoperability equipment and capabilities by testing protocols and SOPs, include:

- Agricultural Readiness Initiative (ARI)
- Continuity of Operations and Continuity of Governance (COOP & COG)
- Cyber-Terrorism Program (CTP)
- Golden Guardian (GG)
- Large Stadium Initiative (LSI)
- Mass Transit Initiative (MTI)
- Ports Readiness Initiative (PRI)
- Small Counties Initiative (SCI)

➤ Usage Exercises

The following table highlights some of the Tests and Exercises that are conducted in the OES Warning Center. These Tests and Exercises are conducted from the state level down to the PSAP level and other county agencies.

OES Warning Center Exercises	Frequency
Earthquake	Quarterly
Tsunami	Monthly
Nuclear Power Plant	Quarterly
Fire Radio Checks	Bi-Weekly
Independent Systems Operators	Quarterly
Dam Exercise	Monthly
OASIS Tests	Weekly
CALWAS/NAWAS	Twice Daily

OES Warning Center Tests and Exercises

➤ Emergency Usage: 2007 California Wildfires

Gathering of lessons learned from the recent fires is still in progress, but much has already been said about California's response to the emergency. Listed below is a selection of feedback on the state's response:

- "Because of well-organized disaster preparedness planning at the state and regional levels and drills that are continually performed, California is considered the gold standard of emergency response. After devastating fires in 2003, San Diego County invested in the automated reverse 911 system, which [on the week of October 25] urged San Diego County residents to evacuate. And Californians have something that Louisianans, in particular those in New Orleans, didn't have when they needed it most: leadership, in this case from Gov. Arnold Schwarzenegger and the San Diego mayor on down. That there have been just five fatalities in an inferno that has burned an area twice the size of New York City shows what can result from clear and coordinated leadership."

– *The Washington Post* ⁴¹

- "If there is any good news, it's that the communication system operated very well and interoperability was achieved. Well not completely perfect, much better than in 2003 when we experienced other devastating wildfires. The 3C's project performed admirably and video conferencing among a wide variety of disciplines functioned well along with the video downlink from the SDPD and SDFD helicopters."

– *Chief Brian Fennessy*
Deputy Fire Chief, Special Operations Division
San Diego Fire-Rescue Department

⁴¹ <http://www.washingtonpost.com/wpdyn/content/article/2007/10/24/AR2007102402334.html>

4.6 Funding

Funding is essential for California to maintain communications operability and to improve interoperability throughout the state. Additionally, significant challenges continue to exist which require an enormous amount of time and effort by OES and the PSRSPC and CalSIEC members to ensure progress.

California will pursue Federal funding when eligible, although the magnitude of the communications replacement, modernization, maintenance, staff, and training costs requires a continuous, dedicated funding source year to year. California supports individual local and State agencies and departments' existing funding proposals in order to allow them to address their critical operating needs while ensuring the project proposals are coordinated through the PSRSPC and CalSIEC for consistency with statewide interoperable communication objectives.

Notably, most states do not have a line item appropriation for the support of communications interoperability. This is an on-going paradigm shift for state and local leaders: that is, there are no sustainable models at the local or state levels that meet long-term needs. Several localities and regions have also taken it upon themselves to manage their annual budgets to ensure technology is refreshed on a regular basis. Furthermore, part of the challenge for localities and UASIs lies in determining how much money to give to all the all-hazards efforts.

➤ **FY 2006 Grant Funding**

In FY 2006, the State of California submitted a Homeland Security Grant Program (HSGP) Investment Justification (IJ) to "Strengthen Interoperable Communications Capabilities" in the amount of \$40,737,529. Out of this, the OAs requested \$17,739,596 towards Interoperable Communications projects and the Urban Areas requested \$24,055,747 in Interoperable Communications projects. This is slightly higher than the proposed statewide IJ as some additional projects were developed after the IJs were submitted with the state's FY 2006 application.⁴²

➤ **FY 2007 Grant Funding**

In FY 2007, the State of California submitted a HSGP IJ to "Strengthen Interoperable and Survivable Communications Capabilities" in the amount of \$21,410,534. The OAs and UASIs have not yet submitted their proposed projects into the Grants Reporting Tool (GRT); however, these will need to be entered during the December 2007 Biannual Strategy Implementation Report (BSIR) due date approximately 01/31/08.

Figure 30 shows the grant funds entered into the Grants Reporting Tool for the FY 2006 & FY 2007 Initial Strategy Implementation Plan (ISIP) regarding the State and Urban Areas Investment Justifications. More detailed information could be requested from the local level on the expenditures listed below. Furthermore, OHS will require compliance with the CalSCIP document for all future Homeland Security grants.

⁴² This information was obtained from the June 2007 Biannual Strategy Implementation Report in the Grants Reporting Tool

Grant Name	Total Request	Projects
2006 HSGP Grant Funding	\$40,737,529	<ul style="list-style-type: none"> • <u>Total California Investment</u> "Strengthen Interoperable Communications Capabilities" - \$40,737,529
FY 2006 UASI Funds for Interoperable Communications	\$24,055,747	<ul style="list-style-type: none"> • <u>Bay Area SUASI Investment</u> "Interoperable Communications" - \$6,500,000 • <u>City of Anaheim/Santa Ana Investment</u> "Enhancing Interoperable Communications" - \$2,886,248 • <u>City of Los Angeles/Long Beach Investment</u> "Strengthen the Flow and Security of Real-Time Communication to Enhance Response Capabilities" - \$11,553,000 • <u>City of Sacramento UASI Investment</u> No Investment in this area submitted • <u>City of San Diego UASI Investment</u> "Interoperable Communications and Connectivity" - \$3,116, 499
FY 2006 Operational Area Funds for Interoperable Communications	\$17,739,596	<ul style="list-style-type: none"> • Detailed information can be found in Appendix R: FY2006 Interoperable Communications Projects
PSIC Grant Program	\$94,034,510	<ul style="list-style-type: none"> • Northern: \$2,444,897.26 • Central: \$5,431,433.30 • Capitol-Bay: \$22,793,965.22 • Southern: \$44,557,312.22 • State: \$18,806,902.00
2007 Homeland Security Grant Program (HSGP) Grant Funding	\$21,410,534*	<ul style="list-style-type: none"> • <u>Total California Investment</u> "Strengthen Interoperable and Survivable Communications Capabilities" (OAs and UASIs will submit their projects into GRT by 01/31/08) <p>*This figure includes Law Enforcement Terrorism Prevention Program (LETPP) and State Homeland Security Program (SHSP) grant funds.</p>

Grant Name	Total Request	Projects
FY 2007 UASI Funds Initial Strategy Implementation Plan (ISIP)	\$25,120,350	<ul style="list-style-type: none"> <li>• <u>Bay Area SUASI Investment</u> "Interoperable Communications" - \$11,450,000 <li>• <u>City of Anaheim/Santa Ana Investment</u> "Strengthen Interoperable Communications" - \$2,075,934 <li>• <u>City of Los Angeles/Long Beach Investment</u> "Strengthen Interoperable Communications Capabilities" - \$11,064,416 <li>• <u>City of Sacramento UASI Investment</u> No Investment in this area submitted <li>• <u>City of San Diego UASI Investment</u> "Tactical Interoperable Communication Plan Project" - \$530,000

Figure 30: FY 2006 & FY 2007 Grant Funds for Interoperable Communications

Strategy

5.0 Strategy

The CalSCIP is not meant to stand alone; it is to be used in conjunction with city, county, Operational Area, and State agency plans. This plan is for statewide interoperability and should not take the place of local or regional strategic communications interoperability plans, Tactical Interoperable Communications Plans, or mutual aid plans. Furthermore, this plan will serve as an addendum to the State's Emergency Plan. Communications interoperability is one component of California's process of addressing mitigation, preparedness, response, and recovery activities.

The statewide strategy was developed through a consensus-driven process with the statewide interoperability governance structures and additional stakeholders from the emergency response and support communities. While the 2017 vision is statewide, most of California's major cities and UASIs will achieve interoperability within their regions sooner as funding and planning efforts are already well underway.

The vision, mission, goal, and objective statements presented here are for the Statewide Communications Interoperability Planning effort. The CalSIEC and the PSRSPC will maintain their own pre-determined vision, mission, and goal statements as documented in their perspective plans.

5.1 Interoperability Vision

By 2017, ensure all local, regional, tribal, state and Federal public safety first responders and designated public service organizations operating within California are able to communicate in real time, across disciplines and jurisdictions, to respond more effectively during day-to-day operations and major incidents.

5.2 Mission

Provide a statewide strategic planning framework for an innovative, inclusive, scalable, sustainable, and well-managed interoperability infrastructure that promotes national standards and is effective in addressing the unique urban and rural requirements of the public safety first responders and designated public service organizations serving the citizens of California.

5.3 Goals and Objectives

➤ CalSCIP Goals

The goals of the CalSCIP are long-term goals that will remain constant throughout the CalSCIPs various iterations. The goals align to the Interoperability Continuum and therefore, each plays an integral part in communications interoperability—none take precedence over another. In support of the strategic vision, the following goals focus on improved interoperable communications by 2017:

- **Goal 1: Governance** – Maintain coordinated governance for integrated regional and statewide public safety voice and data interoperable communications systems planning

- **Goal 2: Standard Operating Procedures** – Maintain NIMS/SEMS-compliant Standard Operating Procedures for statewide interoperable communications
- **Goal 3: Technology** – Develop a statewide standards-based System of Systems communications network for California’s public safety and designated public service practitioners
- **Goal 4: Training & Exercise** – Ensure that regular interoperable communications training and exercise opportunities are designed and offered statewide to California’s public safety and designated public service practitioners
- **Goal 5: Usage** – Encourage daily usage statewide of interoperable communications equipment and Standard Operating Procedures

➤ **CalSCIP Objectives**

The CalSCIP strategic objectives are intended to cut across the strategic goals and focus on the breadth of interoperable communications and the steps required to get there. Each objective listed below builds upon the last and is listed in priority order. For example, a locality should work to achieve communications interoperable response capabilities before the region can claim communications interoperability.

- **Objective 1:** Provide interoperability governance and outreach statewide
- **Objective 2:** Achieve communications operability for State agencies and localities as necessary to support interoperability
- **Objective 3:** Achieve voice and data interoperable communications within each locality to enhance multi-discipline response capabilities for local response
- **Objective 4:** Achieve multi-discipline and multi-jurisdiction voice and data interoperable communications to enhance regional response capabilities
- **Objective 5:** Enhance State agencies’ voice and data interoperable communications across California to provide comprehensive support during emergencies
- **Objective 6:** Provide tools necessary for region-to-region and state-to-region voice and data interoperable communications to enhance mutual aid response capabilities
- **Objective 7:** Enhance communications back-up and redundancy for interoperability systems to ensure communications are maintained following catastrophic events

- **Objective 8:** Support interoperable communications with Federal entities, other states and countries to respond to national, multi-state, and international emergencies
- **Objective 9:** Achieve the integration of private entities identified as part of critical infrastructure/key resources and the participants in the State Emergency Operation Plan (EOP) into interoperability efforts to ensure communications are maintained during emergencies and recovery efforts

5.4 Strategic Initiatives

California will implement a roadmap addressing the strategic needs and practical actions needed to accomplish interoperable communications in California. In addition to ongoing initiatives currently being implemented throughout the state, California will achieve the following initiatives in FY 2008–FY 2009 to move towards its 2017 vision. The following initiatives articulate the next steps necessary to propel the state forward towards its vision. While each initiative is an important component to the CalSCIP, success factors on the completion of all. Figure 32 shows in which order the initiatives will be implemented in California. To help implement these initiatives, action teams will be formed, as necessary, from the Stakeholder Resource Pool demonstrated in the governance model in Figure 11. Further, because of the outreach and stakeholder collaboration in the development of the CalSCIP, the projects included in the PSIC grant IJs will support the state towards its overall goal of statewide communications interoperability.

Some initiatives may take multiple years to fully complete, but the initiatives listed below include tasks that can be completed in two years. These initiatives are grouped into the categories listed below which align with the Interoperability Continuum; each initiative will be measured and evaluated according to the state's rightward movement along the corresponding lane of the Continuum:

- Governance
- Technology
- Standard Operating Procedures
- Training, Exercises, & Usage
- Funding*

The Implementation Lifecycle section explains the implementation process in further detail.

The milestones below in Figure 31 demonstrate the past, present, and desired future state of California's statewide interoperability.

* Does not correspond to the Continuum

CalSCIP Milestones

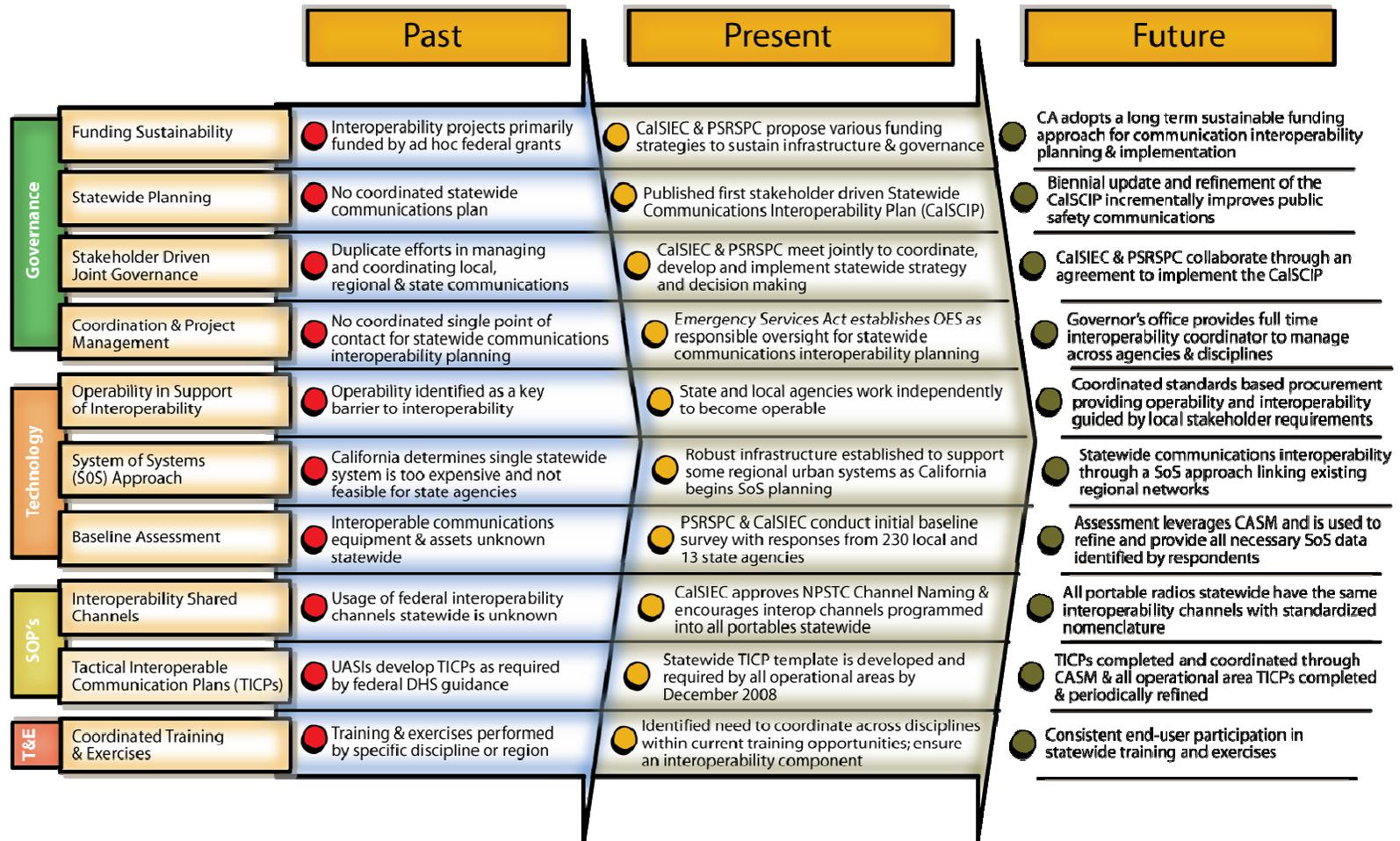


Figure 31: Past, Present, and Desired Future State Statewide Interoperability

Governance Initiatives

Governance, as a cornerstone for building successful interoperability efforts, is a critical element that must be bolstered in order to ensure progression along all the other lanes of the Interoperability Continuum. California's current processes have produced several key work products, including this CalSCIP, but implementation and future developments require clarification in a few important areas. Moreover, the process of having to develop the CalSCIP produced several lessons and ideas for improvement.

The improvement initiatives outlined below will help to:

- Clarify the role of the lead coordinating office for implementing the CalSCIP and driving forward improvements in statewide interoperability. This responsibility is currently within OES, but may be elevated depending on the creation and location of the proposed Statewide Interoperability Coordinator's Office
- Streamline the effectiveness of the statewide governance process
- Ensure the two distinct, yet somewhat interdependent bodies, have a cohesive agreement for decision-making and enforcement
- Support the alignment of the CalSCIP initiatives to the PSIC and other Federal grant program initiatives and investment plans

The first order of business, if the Interoperability Office is not developed in a timely manner, will be to coordinate, streamline, and improve governance by implementing the initiatives outlined in this section.

While the PSRSPC and CalSIEC are required by legislation to collaborate, an explicit agreement explaining the details of the collaboration process and structure, including membership criteria, decision-making processes and authorities, succession planning, among other topics, is necessary. Specifically at question is how and when the governance bodies will effectively collaborate and coordinate to implement the CalSCIP and advance statewide interoperable communications capabilities. The following initiatives address this identified gap:

Initiative 1: Finalize and adopt the CalSIEC governance charter

- Notably, this is an essential first step and precursor to Proposed Initiative 2. OES intends this effort to be a "quick win" for the State of California, because the CalSIEC already has a charter in draft form that requires update, CalSIEC-wide review, and adoption by OES. Updating and formalizing the CalSIEC charter will also help ensure the continued success and progress of the CalSIEC itself.

Initiative 2: Develop a formal agreement between the CalSIEC and PSRSPC to define an officially recognized, coordinated, and collaborative governance body responsible for implementing the CalSCIP

Tasks include:

- Developing and adopting a governance charter for the governance body responsible for implementing the CalSCIP, if appropriate. The charter will include specific decision-making processes, membership criteria and chair

selection, meeting schedules, roles and responsibilities, and other key factors to ensure collaborative planning and implementation

- Consider creating single body responsible for the implementation of the plan based on the SAFECOM criteria best practice
- Defining an inclusive process for the establishment and use of CalSCIP initiative action teams for specific initiatives in the future and incorporating that process into the governing body's charters or agreements
- Coordinating with ongoing legislative initiatives

Throughout the development of the CalSCIP a key gap in the relationship between the Planning Areas and the Mutual Aid Regions was identified. On one hand, the Planning Areas build upon the spectrum transmission pathways and natural interoperability planning and build out partnerships within the geographic regions of California. On the other hand, Mutual Aid Regions are the agreed to, legislatively recognized structures for administering and managing incident response, sharing resources, and conducting strategic planning for all-hazards preparedness. The state's Mutual Aid Regions are the primary multi-agency coordination and resource allocation mechanisms utilized by both local governments and State agencies throughout California during disasters. The need to integrate these two efforts from all perspectives—historical, geographical, response-related, and multi-disciplinary—emerged as a key initiative for the CalSCIP implementation efforts. Co-locating meetings between Mutual Aid Regional Advisory Committees (MARACs) and Planning Areas is one suggested mechanism for easing this layer of complexity. Additional approaches to integrate coordination activities will be investigated as part of the CalSCIP implementation activities.

Initiative 3: Define and strengthen the integration between the Mutual Aid Regions and the CalSIEC Planning Areas for coordinated development and implementation of the CalSCIP initiatives

Tasks include:

- Promoting sharing of information at the MARAC meetings to conduct outreach and develop a shared understanding across the state
- Evaluating the process and lessons learned from regional management of PSIC Grants
- Ensuring a CalSIEC decision aligned with this initiative

Best practices and lessons learned from SAFECOM pilot projects in other states identified the need for a Statewide Interoperability Communications Coordinator. OES continues to work within California's executive and legislative branches to acquire funding to support these positions as well as the necessary support staff. The following initiative addresses this gap:

Initiative 4: Support a dedicated California Statewide Interoperability Coordinator responsible for the implementation of the CalSCIP and coordination of statewide communications interoperability planning

Tasks include:

- Conducting analysis of best practices in existing offices across the country
- Securing resources to sustain the Interoperability Communications Office through the State funding process
 - See Appendix S for the overview of the Interoperability Office and its leader's draft responsibilities.
- Developing and initiating an outreach plan that educates policy makers and practitioners
- Exploring and pursuing alternative funding sources

Technology Initiatives

While California has a straightforward, high-level concept of the SoS, the project will be unmatched in size and scope. Because of its magnitude the timeline for design, procurement, and deployment is approximately ten years from initial receipt of funding. The regional projects funded with the PSIC grant will help work towards building the SoS. The following initiative addresses this plan:

Initiative 5: Enhance and implement the SoS Preliminary Draft Project Plan

Tasks include:

- Continue to coordinate with regions and localities to minimize operability shortfalls and help systems migrate towards interoperability
- Coordinating with ongoing efforts to further refine the SoS Statement of Requirements (SoR) (Appendix K) and verifying all stakeholder operational and functional requirements are accommodated by the developing SoS solution
 - The migration path to modernizing existing systems must consider maintenance, upgrading, linking, and transitioning equipment and systems
 - Include the standards-based feature for networking (i.e., P25 ISSI)
- Coordinating with the SAFECOM Emergency Response Council's System Design & Interconnects practitioner action team on the definition of SoS
- Leveraging the PSRSPC efforts

Initiative 6: Consider current and long-term solutions to mitigate incompatible capabilities, including:

1. Continued gateway deployment
2. Additional multi-band radios covering all required bands currently in place
3. Effective spectrum management
4. Internet Protocol (IP) connecting applications

Tasks include:

- Developing and implementing MOUs, best practices and SOPs

Initiative 7: Identify a process for completion of the statewide capabilities assessment by leveraging TICPs and CASM, as appropriate

Tasks include:

- Supporting the OAs, as appropriate, in the completion of TICPs by the 12/08 deadline
- Using the current TICPs to develop a catalogue of statewide tactical interoperable communications
- Evaluating CASM in detail to identify and address any CASM deficiencies or variances relative to the state's requirements
- Encouraging all localities to insert technical and geographical data into CASM and to allow for statewide sharing of CASM data
 - Develop outreach materials educating localities on CASM
 - Leverage ICTAP efforts and training
- Establishing and adhering to detailed common practices when working with, and particularly when entering data into CASM

Pursuant to provisions of the FCC's Report and Order in Docket 96-86 regarding the 700 MHz band, when a state's governor notified the FCC that it was establishing an SIEC (as was done for CalSIEC in 2001 by the Department of General Services on behalf of California's governor), the FCC then assigned that SIEC responsibility for management of 700 MHz interoperability spectrum in that state. The FCC also gave that SIEC the opportunity to assume management responsibility for all other public safety interoperability spectrum in that state, a responsibility that was also assumed by CalSIEC.

Initiative 8: Develop a comprehensive Statewide Interoperability Spectrum Management Plan for the allocation, use and implementation of systems based upon currently available, or soon to be available public safety interoperability spectrum compatible with existing plans, legislation, Federal regulations (e.g. FCC) and guidelines (e.g. SAFECOM) as appropriate. The initiative requires active and equitable coordination between the:

- CalSIEC and PSRSPC spectrum planning working groups
- 700 and 800 MHz Regional Planning Committees (RPCs) and their respective spectrum planning working groups
- Affected public safety entities eligible for use of the spectrum
- Spectrum planning working groups and correlating representatives in Oregon, Nevada, Arizona, and (via the State Department) Mexico

All Public Safety Spectrum

The following tasks apply to all public safety spectrum in all bands:

- Ensuring that the consolidation of existing statewide interoperability plans (CALCORD, CLEMARS, FIREMARS, etc) reflect a common spectrum structure in the new plan and its associated Interoperability Field Operations Guide (IFOG)
- Ensuring that naming of interoperability channels by user agencies follows CalSIEC's required naming system and timelines

800 MHz Public Safety Spectrum

Rebanding of public safety 800 MHz spectrum is underway across the nation to reduce the potential for interference between public safety users and adjacent and incompatible commercial spectrum users. This is a major undertaking for all 800 MHz users.

Tasks include:

- Coordinating rebanding of the 800 MHz bands between Regions 5 and 6 to ensure that statewide interoperability is not degraded due to the differing rebanding schedules

700 MHz Public Safety Narrowband Spectrum

Develop and/or consolidate plans qualifying and quantifying the use of spectrum and the implementation of systems utilizing 700 MHz interoperability spectrum.

Tasks include:

- Becoming familiar with the interoperability sections of the FCC RPC Region's 5 and 6 plans
- Developing appropriate guidance and procedures for 700 MHz interoperability spectrum use focusing on optimizing improvements in public safety interoperability
- Developing separate, tentative timelines for the implementation of systems and deployment of equipment using 700 MHz interoperability spectrum

VHF High Band and UHF Public Safety Spectrum

Develop and/or consolidate plans qualifying and quantifying the use of interoperability spectrum and/or the implementation of (or transition to) narrowband systems and equipment utilizing interoperability spectrum in the public safety realms of 150-174 MHz and 421-512 MHz in accordance with SAFECOM guidelines and the applicable sections of FCC 47 CFR Part 90.

Tasks include:

- Developing guidance and plans focused on ensuring that all Public Safety Radio Pool licensees operating on interoperability spectrum in the 150-174 MHz and 421-512 MHz bands migrate completely to narrowband systems and technologies utilizing a maximum channel bandwidth of 12.5 kHz or less by January 1, 2013
- Developing separate, but coordinated, tentative timelines for the transition to narrowband systems and technologies that utilize interoperability spectrum in the public safety realms of 150-174 MHz and 450-512 MHz

- Developing plans qualifying and quantifying the use of interoperability spectrum newly available after 2012 as a result of narrowbanding (including UHF MED channels)

Other Public Safety Interoperability Spectrum

Develop and/or consolidate plans qualifying and quantifying the use of other public safety interoperability spectrum and/or the implementation of systems utilizing other public safety interoperability spectrum focused on optimizing improvements in public safety interoperability

Initiative 9: Modify Government Code §8592 to encourage statewide compliance with the CalSCIP requiring that (1) all projects funded by state and Federal funds must comply with CalSCIP and (2) distribution of grant funds are contingent upon compliance with the CalSCIP

Training, Exercises & Usage Initiatives

California's training efforts will coordinate with the regional governing bodies, as well as current ongoing efforts, and will focus on new initiatives to maximize equipment use, improve interoperability, and address how California's first responders prepare and practice for major emergencies across agencies, disciplines, and jurisdictions. Stakeholder participation plays a crucial role in the planning, implementation, and revision of statewide training and exercise programs.

Initiative 10: Develop a training strategy and implement a long-term, continuous, single and multi-discipline training program for communications interoperability

Tasks include:

- Enhancing and augmenting interoperable communications training programs to continue SEMS/NIMS compliance
- Coordinating with existing training programs to identify, develop, coordinate, and promote statewide multi-discipline communications interoperability training efforts
 - Leverage existing statewide exercises (i.e., Golden Guardian) to incorporate communications interoperability training
 - Review and incorporate, where possible, Peace Officers Standards and Training (POST), Fire Service and EMS training requirements
- Developing statewide COML training curriculum and class offerings
- Designing an equipment training program for the various cache resources and telecommunications equipment available via mission tasking requests
- Offering training and exercises during off-hours and weekends
- Exercising newly completed TICPs as part of the state's Golden Guardian Exercise Series

Success in the usage of emergency response capabilities is contingent upon how well other Interoperability Continuum elements are integrated and developed—as mentioned before, how you train is how you play. Currently, the state is lacking a regular plan or protocol for usage. Initiative 11 is intended to resolve this deficiency

Initiative 11: Develop a regular usage plan and protocols for all agencies statewide, including Federal responding agencies

Tasks include:

- Leveraging best practices from OES Warning Center, and;
- Developing comprehensive communications interoperability After Action Reports following major incidents

Standard Operating Procedures Initiatives

California has been a longtime leader in the development and implementation of SOPs. ICS became the backbone for California's SEMS, which served as the prototype for NIMS. California looks to further strengthen its communication interoperability incident response policies and procedures through four initiatives. Each initiative will require a dedicated resource and/or initiative working group derived from the statewide resource pool. As highlighted in the current state assessment of California's SOPs, the following four SOP initiatives address gaps with the DHS SAFECOM Criteria:

Initiative 12: Develop a statewide strategic plan that builds upon existing local, regional and state SOPs for coordinated interoperable communications with neighboring states and Mexico

Tasks include:

- Leveraging and interviewing key stakeholders in all border counties
- Seeking out potential local and/or regional cross-border SOPs that have a statewide effect or influence
- Leveraging best practices from the San Diego Regional Communications System (SDRCS) and the United States' Department of State's High Level Consultative Commission (HLCC) for Telecommunications efforts on its cross-border, international communications agreements between Mexico and the United States
 - CalSIEC and PSRSPC member attend January 2008 meeting in Mexico
- Leveraging California's Emergency Plan, Mutual Aid Plan, SEMS, NIMS, and FEMA's mutual aid process

Initiative 13: Develop a statewide plan addressing communications interoperability with safety and security elements of the major transit systems, ports, and rail operations as appropriate

Tasks include:

- Coordinating with the Regional Transit Security Working Groups (RTSWG), the California Maritime Security Council (CMSC), and rail communication and policy subject matter experts to identify gaps in resources and governance protocols.
- Analyzing local and regional transit, port, and rail operations' SOPs to determine best practices for administering and developing a statewide interoperable communications transit, port and rail plan

Initiative 14: Develop a statewide communications Interoperability Field Operations Guide (I-FOG)

Tasks include:

- Defining interoperability protocols and developing a collaborative process for developing new and analyzing current SOPs
- Compiling and analyzing the communication components of CALCORD, CESRS, CLEMARS, FIREMARS, OES Fire, and NPSPAC SOPs
- Incorporating NPSTC's common naming protocol outlined in the Standard Channel Nomenclature for Public Safety Interoperability Channels report of 2007
- Considering the modification of I-FOG SOPs to include language permitting Tribal Law Enforcement (POST/BIA certified) and Tribal Public Safety agencies to interact with Public Safety agencies or other Tribal law enforcement/public safety agencies. Frequencies should include but not be limited to the following: CLEMARS, NALEMARS, and CLERS channels in 700/800 MHz, VHF-High, VHF-Low, and UHF Bands

Initiative 15: Develop SOPs for statewide Interoperability Gateways

Tasks include:

- Leveraging the FIRESCOPE Communications Specialist Group's (CalSIEC Fire Working Group) best practices document for the use of interoperable gateways
- Leveraging PSRSPC interoperability gateways work products
- Including Tribal Nation's first responder services in SOP development and documentation for interoperability between county services and tribal services, or between tribal services within the county

Funding Initiatives

Funding is essential for California to maintain communications operability and to improve interoperability throughout the state. Through grants and other resources, California has managed to obtain adequate funding for communications interoperability. However, the funding is not consistent or sustainable and the State does not have a line item appropriation for the

support of communications interoperability. There is currently no sustainable model at the state or local levels that meet long-term needs for funding. Initiative 16 is aimed at developing a model that will resolve the State's funding issues.

Initiative 16: Develop a funding strategy leveraging ongoing efforts

Tasks include:

- Considering funding models to support public safety communications interoperability at all levels
- Developing funding plan for operability
- Identifying and pursuing grant funding for all statewide communications interoperability efforts
- Developing a strategy for a phased, renewable, and priority-based public safety communications physical infrastructure
- Develop funding strategy for recurring costs (e.g., maintenance and training)
- Leverage PSRSPC funding plan

CalSCIP Timeline

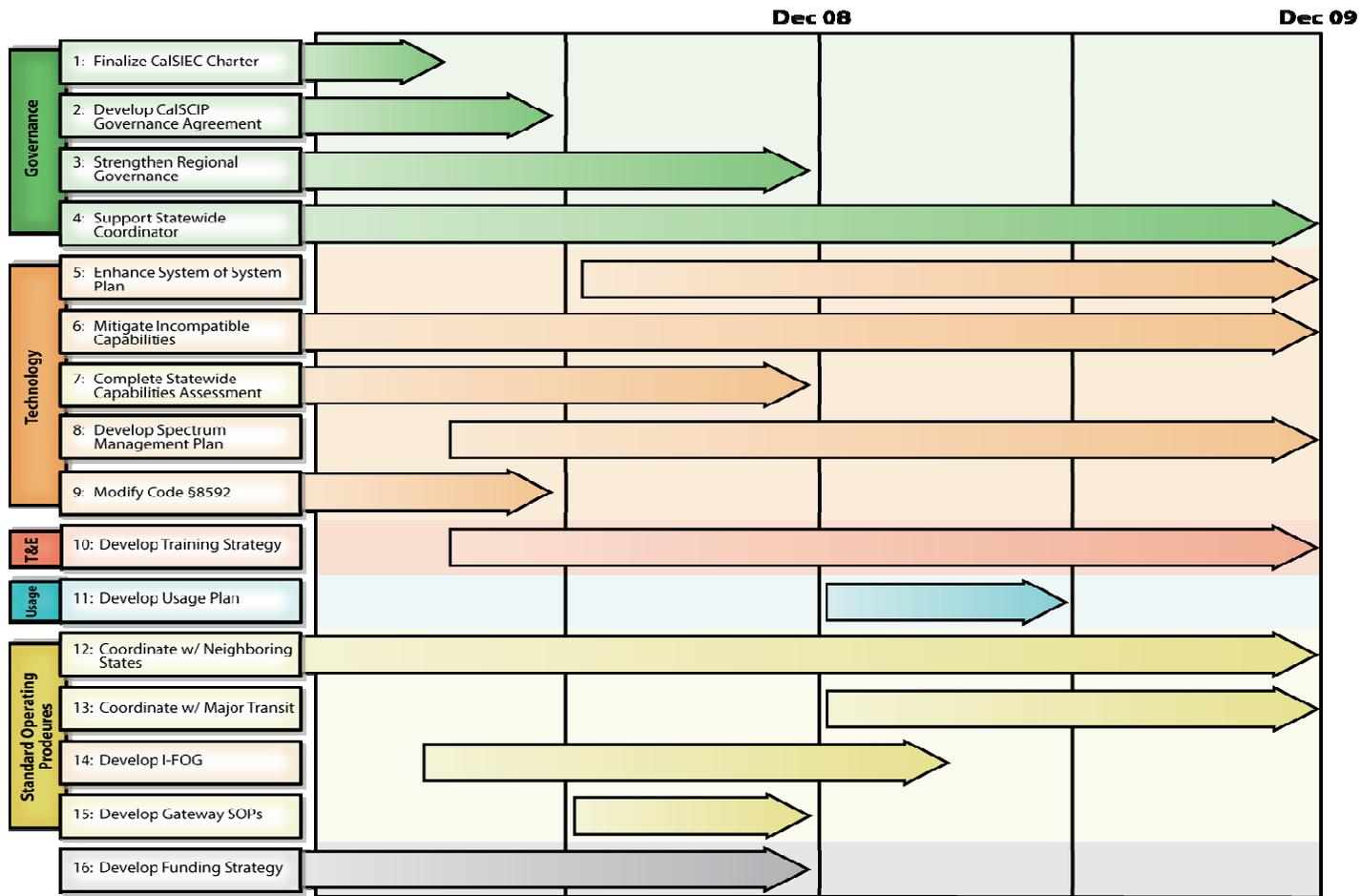


Figure 32: Priority Order of Implementation of Initiatives

6.0 Action Plan & Implementation

6.1 California Communications Interoperability Planning Lifecycle

Identified as a best practice model for Statewide Interoperability Planning, California intends to sustain this model by following a biennial planning lifecycle to update, implement, institutionalize, and measure the success of communications interoperability planning. While the vision, mission, goals, objectives, and milestones identified in this document represent long-term strategy, the initiatives and tasks are revised every two years; these updates continue to propel California towards the next phase of statewide interoperability planning. The statewide planning lifecycle (depicted in Figure 32) consists of four stages: Plan; Implement; Assess & Measure; and Buy-In, Compliance and Build-Out. The PSRSPC and CalSIEC governance structure and additional practitioners are leveraged in every stage of the lifecycle. The CalSCIP governance body, the interoperability coordinator, and OES are responsible for shepherding this lifecycle and coordinating the multitude of stakeholders in driving it clockwise.

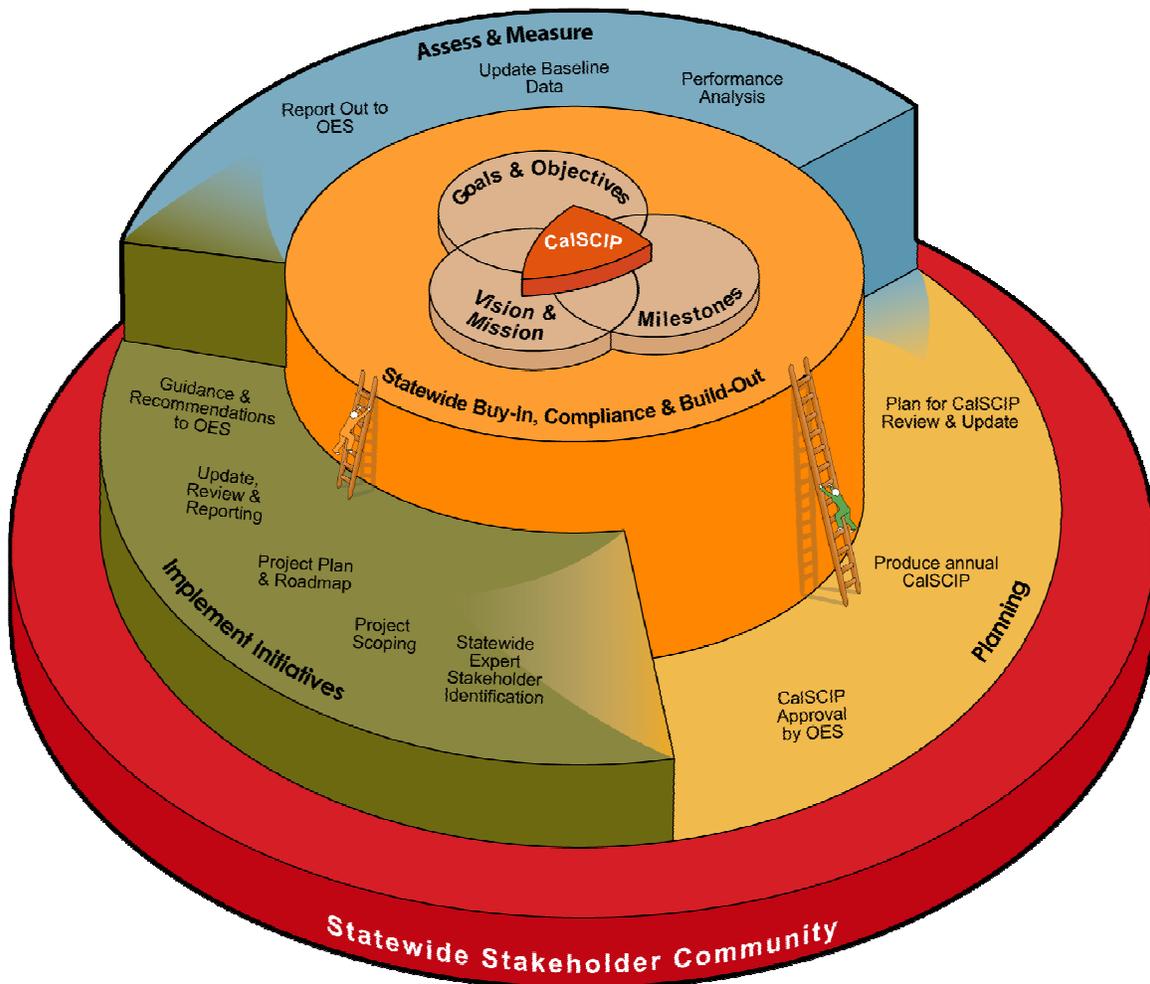


Figure 33: California's Communications Interoperability Planning Lifecycle

➤ **Plan**

During the planning stage, the CalSCIP will be updated and enhanced by the multi-jurisdictional multi-disciplinary members of the interoperability governance structure, UASI leadership, and regional groups. The CalSCIP governance structure and membership ensures a locally driven approach to statewide communications interoperability planning. Similar to the approaches taken in developing this CalSCIP, biennial planning will continue to obtain input across the state through regional planning sessions, baseline assessments, and executive input. To update the plan, members will consider recommendations identified from the previous cycle and the current political and technological environment to:

- Add new initiatives to be accomplished in the coming biennial cycle
- Identify, update, and carry over pertinent incremental initiatives and tasks from the previous plan
- Move on-going initiatives to the appropriate regional or state section within the plan
- Add new content to provide practitioners with the most current state information about the status of interoperability in California

Once developed by the stakeholders, the final draft of the CalSCIP will be sent to OES for consideration and approval. Once OES has signed-off on the CalSCIP, implementation of the plan's initiatives will begin.

➤ **Implement**

As the longest stage of the lifecycle, implementation will engage practitioners with the expertise and experience together to achieve the initiatives within the CalSCIP. Leveraging the CalSCIP governance model (Figure 11 in the Governance Section), implementation for all components of the CalSCIP occurs utilizing a practitioner driven approach. Subject matter expert practitioner stakeholders will be identified from the statewide resource pool to form initiative specific working groups. SME practitioners will receive information on initiatives and a call for support through various sources, including the CalSIEC and PSRSPC websites, extensive list-serves, regional governance bodies, and stakeholders' interpersonal networks. The stakeholder list found in Appendix C of this report provides an understanding of the vast stakeholder pool the CalSCIP governance and implementation lifecycle has at its disposal. The initiative working group findings, reports and/or recommendations will then be elevated through the governance body for refinement and approval. Within this phase, key activities include the following:

- At the statewide governance level – identify stakeholders to assist in the achievement of initiatives and make key recommendations on specific initiatives against all lanes of the Interoperability Continuum.
- At a local, regional, or state level – convene the necessary decision-makers and practitioners, including statewide governance bodies to move forward with key initiatives, including purchasing equipment, developing SOPs, acquiring funds, managing grants, and coordinating system build-out.

As recommendations are born out of the implementation phase and accepted by members of the statewide governance structure, they move towards institutionalization in the "Buy-In & Compliance" phase of the lifecycle. If recommendations are not approved or require additional work for acceptance, they will remain within the outer layers of the lifecycle to be measured and planned for in the following cycle. Complex initiatives may take multiple years to achieve buy-in and compliance while others may be institutionalized more quickly.

➤ **Assess & Measure**

Performance will be measured biennially for both long-term and short-term performance measures. As identified in the Strategy section, a detailed statewide capability assessment linked to the CASM tool will aid California in efficiently measuring performance. As explained within the strategy section of this report, performance is measured by the state's rightward mobility along the lanes of the Interoperability Continuum. This stage of the lifecycle requires California to:

- Measure and evaluate progress against the statewide baseline inventory of equipment and frequencies
- Reach out to stakeholders to receive input on the year's implementation
- Educate and encourage stakeholders to leverage the CASM tool and share its data
- Develop a brief report to demonstrate progress, set backs, and areas for continued improvement in the year(s) to come

➤ **Statewide Buy-In, Compliance, and Build-Out**

The process of achieving buy-in, compliance, and build-out will be continuous throughout the biennial process. It is the core of the interoperability planning and advancement process. Demonstrated in Figure 33, long-term milestones supported by the plan's biennial initiatives may not receive full statewide buy-in, compliance, and build-out until 2017.

Once recommendations are approved on a local, regional, or state level, and a course of action is determined, the process of achieving buy-in from all relevant stakeholders begins. For this stage, relevant stakeholders not only include governance body members but also emergency responders such as local sheriffs and fire chiefs. Political leaders, such as mayors, county officials and city councils, and industry leaders are also involved.

Federalism provides local governments with autonomy from many state edicts. As such, local buy-in, compliance, and build-out of CalSCIP's vision, strategies, and initiatives approved by the statewide effort can be lengthy. Encompassed within CalSCIP's outer rim planning process and supportive governance body, the effort's locally driven approach will help alleviate the lethargic nature of interoperable communications policy acceptance and compliance within local entities. Buy-in and compliance is pursued through the following approaches:

- Collaborative information sharing, outreach, and education
- Identification of best practice examples supporting the policy from across the state, from other states, or the Federal government
- Development of Executive Orders mandating compliance within State agencies
- Encouragement of local compliance through grant management
- Passage of legislation

6.2 Performance Measures

➤ Short-Term Measures

To track the CalSCIP's accomplishments, short-term measures were developed. The following measures link directly to one or more of the FY 2008-09 Initiatives and Tasks and align with the long-term outcome performance measures to support the effort's mission, vision, and goals:

- Established long-term, integrated statewide communications interoperability governance structure
- Established and supported position responsible for coordinating statewide communications interoperability and implementing the CalSCIP
- Enhanced and coordinated System of Systems approach
- Completed TICPs entered into CASM
- Improved operability
- Secure funding source
- Increased participation in the CalSCIP

➤ Long-term Measures

Two long-term performance measures have been developed to track progress towards the 2017 Vision. The following measures will be used in conjunction with the Interoperability Continuum along with the communications interoperability baseline assessment:

- Demonstrated improved ability and effectiveness of local, regional, tribal, state, Federal, and non-profit and private entities to communicate with voice and data
- Coordination of statewide interoperable communication efforts

Performance will be measured by maintaining and updating the baseline to assess rightward movement along each lane of the Interoperability Continuum, as seen in Figure 34.

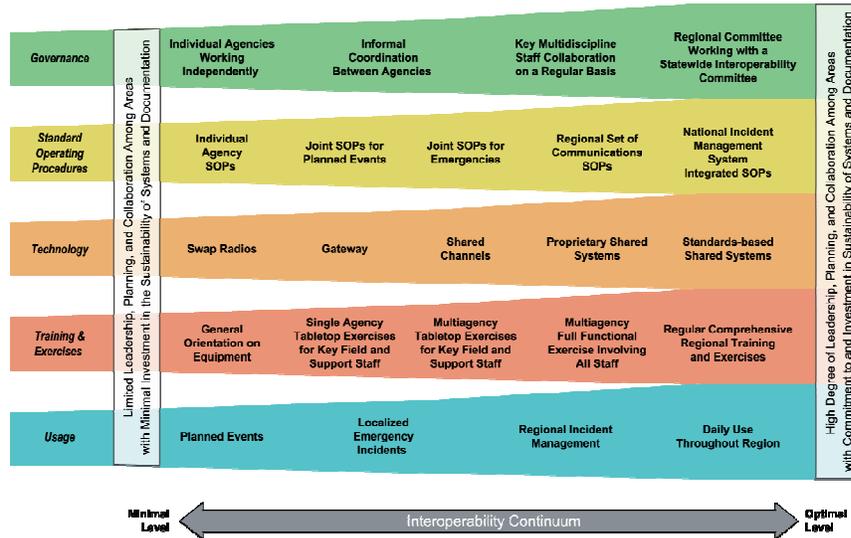


Figure 34: SAFECOM Interoperability Continuum

➤ Critical success factors

As stressed throughout this document, the Interoperability Continuum highlights the five equally important elements that contribute to the success of communications interoperability. Excelling in one lane of the Continuum does not equate to success; for fully interoperable communications, an agency must improve within all five lanes. For example, state of the art technology is not sufficient without proper training and SOPs in place. While each initiative previously mentioned is critical to the success of the FY 2008-09 CalSCIP and therefore important to the overall effort, there are critical factors that must be take place, without which the effort will be stifled. The critical success factors necessary to improve statewide communications interoperability in California are:

- Enhanced and maintained statewide communications interoperability governance
- Increased outreach and stakeholder engagement
- Established and supported Interoperable Communications Office
- Stable and sustainable long-term funding

7.0 Funding Strategy

Funding is essential for California to maintain communications operability and to improve interoperability throughout the state. Through grants and other resources, California has managed to obtain adequate funding for communications interoperability. However, the funding is not consistent or sustainable and the state does not have a line item appropriation for the support of communications interoperability. There is currently no sustainable model at the local or state level that meets long-term needs.

The State of California realizes the importance of securing stop-gap funding for interoperability across all the lanes of the Interoperability Continuum. To ensure that future radio systems serving California achieve robust interoperability, investment is needed to achieve the following goals:

- Achieve and sustain full operability over time
- Develop a new approach to improve statewide public safety radio and wireless components
- Establish ongoing modernization of local systems

The PSIC grant will assist in the funding for planning and other short term deliverables from the CalSCIP. However, implementing the CalSCIP will require an enormous amount of time and effort by OES, PSRSPC, and CalSIEC to work towards statewide communications interoperability.

The creation of a secure, revolving funding source is the single most important step to ensuring California's future public safety communications. Rather than continuing a piecemeal, ad-hoc approach to funding the state's public safety communications, the time is now to develop a secure funding source.

**Members of the PSRSPC
December 2007**

California considered funding models that could potentially support public safety communications interoperability at the local and regional levels. To that end, California is considering a variety of funding options as well as the funding methodologies of other states. Virtually every emergency response requires a multi-discipline, multi-agency response to be effective. It is critical that all levels of government be considered as California seeks a sustained funding mechanism to modernize and maintain its public safety communications infrastructure.

8.0 Public Safety Interoperable Communications (PSIC) Grant

The CalSIEC is the governing body regarding interoperable communications for local first responders in California. As discussed previously in the CalSCIP, this body has divided the state into four regions, referred to as planning areas (PA), for governance purposes: Northern, Capital/Bay Area, Central Valley, and Southern. The California Governor's Office of Homeland Security (OHS) has allocated 80% of California's PSIC funds among the four planning areas based on population and population density, as this methodology is highly representative of risk.

For the purposes of this grant, OHS is acknowledging six UASI entities; the five current UASI entities include Los Angeles/Long Beach, Anaheim/Orange, San Diego, Sacramento, and the Bay Area SUASI, with the sixth being Fresno based on its previous UASI status. Similar to the way in which DHS/DOC set a minimum for Tier I UASIs nationwide, OHS will allocate minimums to each of its recognized UASIs. These minimum allocations will be taken from the total allocation given to the PA that the UASI is located in. Any PA allocations remaining after meeting the UASI minimums will be awarded by the PA to any Operational Area(s) within the PA. All such allocations must be coordinated with the PA's CalSIEC Planning Area, as detailed below.

OHS will submit a total of eight investment justifications on behalf of California. An investment justification will be designated to each of the six acknowledged UASI entities, a selected OA within the Northern PA, and the State. Each PA was responsible for organizing itself and collaborating to ensure the needs of the region's public safety emergency responders and designated public service organizations are met in its respective IJ. Each UASI IJ, and the Northern PA OA, must be approved by the CalSIEC PA in which it is located to demonstrate regional collaboration. Any non-UASI entities within a PA that are allocated funds will be designated a UASI entity for administration purposes only. The non-UASI projects will be included in the designated UASI's IJ, but the non-UASI will remain the lead and be responsible for the match and CalSIEC PA coordination requirements.

The State's IJ will be coordinated through the PSRSPC and expenditures will be based upon need articulated by the PSRSPC body. The State plans on taking three percent of the total allocation allowed for Management and Administration (M&A), opting out of taking the five percent for statewide planning purposes. Because of this decision, no corresponding budget detail or description is included in this narrative regarding that use. California will also not use any of its allocation toward the Strategic Technology Reserve (STR) requirement as existing local and state assets already demonstrate this requirement and other potential projects present a higher priority.

The planning process for the CalSCIP effort is being facilitated through the CalSIEC structure, with a PA focus to ensure the acknowledgment of regional needs as well as all hazards mitigation. The sharing of information statewide regarding existing regional systems is ongoing through different interoperable communications forums to ensure the education of best practices and new technologies being implemented statewide.

Total Allocation

CA Award Total: \$94,034,510

Statewide Allocations:

Planning Area	Allocation
Northern	\$2,444,897.26
Capital-Bay	\$22,793,965.22
Central	\$5,431,433.30
Southern	\$44,557,312.22
State	\$18,806,902.00
Total Award:	\$94,034,510.00

UASI Minimums:

UASI	Minimum
Bay Area SUASI	\$14,943,723.60
Sacramento	\$3,845,341.93
Fresno	\$1,833,651.88
LA/LB	\$22,278,788.00
San Diego	\$6,532,101.97
Anaheim/Orange	\$6,189,010.67

PSIC Requirements

The PSIC requirements are intertwined throughout the CalSCIP. The Strategy section explains how California will plan and coordinate, acquire, deploy, and train on interoperable communications equipment, software, and systems that do the following:

- Utilize reallocated public safety spectrum – the public safety spectrum in the 700 MHz frequency band;
- Enable interoperability with communications systems that can utilize reallocated public safety spectrum for radio communications, or;
- Otherwise improve or advance the interoperability of public safety communications systems that utilize other public safety spectrum bands.

California opted out of the STR because the State already has the capability to establish and implement equipment and services to pre-position or secure interoperable communications in advance for immediate deployment in an emergency or major disaster. This is explained in more detail in the Technology section of the plan.

As articulated in the PSIC IJ methodology, each PA was responsible for organizing itself and collaborating to ensure the needs of the region’s public safety first responders and designated public service organizations are met in its respective IJ. Further, the CalSCIP Methodology explains in detail how local and tribal government entities were included in the planning process and how their interoperable communications needs are being addressed. Additionally, authorized non-governmental organizations were also included in the planning process and their interoperable communications needs are being addressed in the CalSCIP as appropriate.

Investment Justifications

Because of the outreach and stakeholder collaboration in the development of the CalSCIP, the projects included in the PSIC grant IJs will support the state towards its overall goal of statewide

communications interoperability. The PSIC grant funding is a one-time grant and must be committed by 2010. California's PSIC IJs can be found in detail below.

PSIC Investment Justification approved by the CalSIEC Central Planning Area

Overview

For the purposes of the PSIC grant program, the CalSIEC Central Planning Area (CPA) consists of seven counties and has a single UASI within its jurisdiction, Fresno. The Fresno UASI has submitted an Investment Justification approved by the CPA, representative of the collaborative effort to determine the most effective manner in which to spend \$5,431,433.30 allocated to the region to improve interoperability.

Prior to the PSIC grant program, the Fresno UASI had built an interoperable communications network allowing voice communications between all first responders in the county by incorporating four elements: 1) Zetron dispatch consoles throughout the county that patch disparate radio channels; 2) Either a microwave or fiber network to link these consoles; 3) Dual-band radios in all first responder vehicles; 4) Portable radio caches. The CPA has agreed to use PSIC funding to bolster the Fresno UASI system and begin the process of expanding the "Fresno model" throughout the region, tailoring it to local needs as necessary.

Bolstering of the Fresno UASI System:

The Fresno UASI will enhance their current network to include coverage in remote areas enhanced through the installation of additional towers, and will also install additional routers to allow automatic switching between fiber and microwave. Further, the UASI looks to bolster tactical interoperability by using funds to finalize its TICP and purchase a mobile communications vehicle. Mobile Data Terminals will be installed in all patrol vehicles enabling CAD data to be transmitted, and providing field automation of some functions.

Expansion of the Fresno UASI system throughout the CPA:

A contractor will be hired to conduct an analysis of the entire CPA to assess current communications capabilities, addressing the gaps that need to be filled incrementally to bring all counties to a common baseline. This analysis will also provide guidance for future expansion of each network, with the eventual goal of full interoperability within each county. Once interoperability at the county level is met, inherently each county will be able to link to their neighbors, thus providing full interoperability throughout the CPA.

Application to CalSCIP:

This initiative aligns with the CalSCIP by taking the initial steps in a "System of Systems" (SOS) approach to solving interoperability at the regional level. The CPA is leveraging the use of a best practice (the Fresno UASI communications system) and is aiming to extend it throughout the entire CPA. This will be done through bolstering an existing while simultaneously assessing and planning for the adoption of the system regionally. Further, this initiative looks to improve voice interoperability, the sharing of data, and create a communications back-up to ensure communications are maintained following catastrophic events.

- CalSCIP Goals Addressed: 1, 3, 4
- CalSCIP Objectives Addressed: 2, 3, 4, 6, 7

PSIC Investment Justifications Approved by the CalSIEC Capital-Bay Planning Area

Overview

The CalSIEC Capital-Bay Planning Area (CBPA) consists of twenty-two counties and has two UASI's within its jurisdiction, the Bay Area SUASI and the Sacramento UASI. The Bay Area SUASI and Sacramento UASI submitted investment justifications that, when taken in combination, account for the \$22,793,965.22 allocated to the region. In approving final investments for the PSIC grant program, the CBPA divided itself into three working groups, two based upon each of the UASI jurisdictions, and third group consisting of non-UASI entities. Representatives from each of the working groups then came together for final approval of the regional investments.

The collaboration of the CBPA created three initiatives, tailoring to the needs of each working group previously described. Within the Bay Area SUASI, the Bay Area Regional Communications System (BARCS) will continue to be built out, providing interoperable communications improvements to some of California's most at risk counties. The Sacramento UASI group will work with the Sacramento Regional Radio Communications System (SRRCS) Consortium to continue to bolster the SRRCS, while an effort of projects relatively smaller in scope of the non-UASI counties of Alpine, Calaveras, Stanislaus, Tuolumne, San Joaquin, and Placer will establish direct communications (voice, data, and video) in a part of the region not traditionally addressed through other funding programs.

Build Out of BARCS

When completed, BARCS will be a hybrid 150/700/800MHz P25 compliant network that will meet public safety needs for voice and data communications being pursued by the State. This initiative is proposing to apply PSIC grant funds to continue the build-out of the BARCS through deployment of 700MHz channels in the reallocated public safety spectrum. The Investment will provide three P25 master sites and twenty 700MHz radio sites with a total of 162 channels deployed. The deployment will focus on high-risk areas and transportation corridors in following Bay Area Counties: Marin, San Francisco, San Mateo, Santa Clara, Alameda, and Contra Costa.

Bolstering of SRRCS and Central Valley

The SRRCS Consortium will assess and plan for the migration from a 4.1 Smart Zone system to a P25 system. Such planning efforts will be coupled with technological improvements, including microwave upgrades, gateway implementation, and radio caches to address immediate interoperability needs. These investments will leverage relatively smaller projects in scope done by the aforementioned seven the Capital-Bay Planning Area counties. These projects all share the common thread of helping to prepare for a long term solution by migrating regional radio communications systems to the Project 25 standard.

Application to CalSCIP

The CBPA initiative aligns with the CalSCIP by addressing the "SoS" approach to interoperability by bolstering two of the predominant systems in the CBPA, the SRRCS and BARCS. BARCS has already taken steps towards building an SoS regionally as it incorporates three different systems within in the bay area. Beyond the build out of these systems the CBPA has worked together to address capabilities linking the two areas major metropolitan areas along the I-80 corridor, as Sacramento and the Bay Area realize they will be relying on each other during a major event. This realization is demonstrated in addressing the needs of non-

UASI entities, funding projects that improve voice and data interoperability while putting in place the tools necessary for regional communications.

- CalSCIP Goals Addressed: 1, 3, 4, 5
- CalSCIP Objectives Addressed: 2, 3, 4, 6, 7

PSIC Investment Justifications Approved by the CalSIEC Southern Planning Area

Overview

The CalSIEC Southern Planning Area (SPA) consists of 11 counties and has three UASI's within its jurisdiction, the San Diego, Los Angeles/Long Beach (LA/LB), and Santa Ana/Anaheim UASI's. These three UASI's submitted investment justifications that, in total, accounted for the \$44,557,312.22 allocated to the region. In approving the final investment justifications, the SPA gave discretion to the UASI decision making entities in choosing investments to account for their minimum allocations as given by the Governor's Office of Homeland Security, and solicited submittals from non-UASI entities for an approximate \$9.5 million allocation.

Due to established partnerships and logistical constraints of the grant process, expenditure of PSIC funds within the SPA was divided into three different initiatives. The LA/LB UASI will use funds to seed the development of their regional system the Los Angeles Regional Interoperable Communications System (LA RICS). The San Diego UASI along with neighboring Imperial County, will continue to bolster its two predominant regional systems, the San Diego Regional Communications System (RCS) and the city of San Diego Communications System (CITY). While Santa Ana/Anaheim UASI has teamed with the remaining, counties within the region Orange, Inyo, Mono, Riverside, San Bernardino, San Luis Obispo, Santa Barbara, Ventura to collectively address interoperability needs.

LA RICS Technical Design

The LA/LB Urban Area region has 31 fire, 39 law, and many public health/emergency medical services (EMS) entities, using incompatible voice radio systems operating in the VHF, UHF, & 800 MHz bands in analog, digital, conventional, & trunked modes. LA RICS combines these disparate systems into one regional voice (UHF) & data (700-800MHz) system. This investment will provide a complete detailed technical design for LA RICS. This is the first phase of completing the project, which will lead to the consolidated regional radio system used day in & out by all first responders within the region: local, state, & federal.

Bolstering SD RCS and CITY

This investment will address improving interoperability voice and data communications in the SD Urban Area between users of the RCS and CITY with users not equipped to operate on one of these two networks. This will be done by employing open standard, IP-based solutions to support voice and data connectivity between disparate first responder communications networks. This investment will strengthen interoperability between users of the San Diego systems and the Yuma (Arizona) Regional System; provide paths for international interoperable communications to reach US-Mexico cross-border gateways; and train first responders on the available capabilities and operating procedures to reduce operational interoperable gaps in accordance with national, statewide, and regional goals.

Santa Ana & Non UASI Entities

Within the jurisdiction covered in the Santa/Ana UASI investment justification exists a wide range of legacy systems, with only a small number of the current systems being P25 compliant. To address this and other interoperability needs, projects within this investment include installation of repeaters plus deployment of portable radios that are 700 MHz capable;

installation of P25 compliant dispatch consoles; developing inter county connectivity via microwave links, repeater systems, and CAD to CAD systems; and modernizing city to county data communications.

Application to CalSCIP

In making its investments the SPA has truly taken a regional approach with projects being funded that “touch” each one of the counties within the SPA. The SPA has complied with the SoS approach by looking to bolster its existing systems, and looking to begin the process of integrating multiple systems in the LA RICS. The proposed investments will improve voice and data interoperability in the region and also foster cross border interoperability between both Arizona and Mexico.

- CalSCIP Goals Addressed: 1, 3, 4, 5
- CalSCIP Objectives Addressed: 2, 3, 4, 6, 7, 8

PSIC Investment Justification Approved by the CalSIEC Northern Planning Area

Overview

The CalSIEC Northern Planning Area (NPA) consists of 18 counties but does not have a UASI. This planning area, being uniquely rural but large in geography, came together to submit a single investment justification accounting for the \$2,444,897.26 allocated to the region. In looking to use PSIC funding as catalyst for a regional approach to creating interoperability, the NPA put forth two initiatives. The first initiative is to fund a regional plan for interoperability, taking into account all NPA constituents. With remaining funds the NPA solicited projects from those within the region and selected 8 that best addressed communications needs within the region.

Northern Planning Area Interoperability Plan

In beginning steps to a regional system the NPA intends on funding a consultant to develop an Interoperable Planning document. The plan will be used by each entity in order to assure that local plans and acquisitions meet regional goals. Advanced technology and cost effectiveness will be its priority along with finding solutions that pre-position resources for emergency deployment.

NPA Entity Projects

After allocating a sufficient amount of funding to the regional plan, the NPA selected projects from the counties of Butte, Plumas, Shasta, Humboldt, Yuba, Mendocino, and Sutter, and the Yurok tribe. These projects address critical operability, in aims of building towards interoperability by adopting advance technologies such as P25 and voice over IP. Another common thread throughout the projects is to address tactical interoperability through the use of radio caches and gateway devices.

Application to CalSCIP

The NPA has implemented the SCIP into their investments by taking a regional approach to interoperability. This is expressly conveyed through the funding of a regional plan. Despite not bolstering any particular predominant system within the region, the NPA has adopted the SoS approach to interoperability as the group has stated it will be a focus of their plan. Further, the NPA has strategically funded key initiatives within their planning area to improve voice and data interoperability where critically needed. In addressing these initial communication gaps, and funding a plan for a regional system, the NPA is taking the initial steps necessary to create an SoS statewide.

- CalSCIP Goals Addressed: 1, 3, 4, 5

- CalSCIP Objectives Addressed: 2, 3, 4, 6, 7

PSIC Investment Justification Approved by the PSRSPC

Overview

The PSRSPC is made up of fourteen State agencies, either owning or having a vested interest in communications infrastructure, and is the lead committee in state government responsible for statewide integrated public safety communications systems development and planning. Due to its subject matter expertise, this group was tasked with developing and approving State agency investments. The group submitted an investment justification accounting for \$15,985,866.70.

The State has put forth several initiatives to account for its allocation of PSIC funds. Based on conclusions formulated by the PSRSPC, a planning initiative is necessary to achieve state agency interoperability by 2017 and to meet narrowbanding requirements mandated by the FCC. In developing the CalSCIP, the need for a statewide data assessment tool and an operations guide have been identified in which PSIC funds will be used to address. The State owns statewide infrastructure, which is leveraged by both local and state agencies for mutual aid response and interoperability; this infrastructure will be upgraded. To ensure statewide tactical interoperability, PSIC funds have been put towards tactical planning and communication unit leader (COML) training statewide. Finally, to address state agencies most immediate needs, after addressing the issues just discussed, remaining funds have been put towards critical operability needs.

10-year Plan for PSRSPC Agencies

PSIC funding will be used to create a 10-year plan for each PSRSPC member agency owning radio communications assets. To begin the adopted 10 year approach to State agency interoperability, a plan is necessary to implement efficient and cost effective measures. Implicit in the plan are narrowbanding requirements mandated by the FCC. The 10 year plan will also articulate how state agencies could better bolster existing systems at the federal, state and local levels for their usage where appropriate building on the System of Systems approach.

Identified CalSCIP Gaps

In developing the CalSCIP among other areas, gaps have been identified that call for the development of a Interoperability Field Operations Guide (I-FOG), and development of the statewide Communications Assets Survey and Mapping tool (CASM). PSIC funds have been allocated to directly address both these needs through the creation of an I-FOG and assistance in populating the CASM tool with data statewide.

Improvement of Statewide Infrastructure

PSIC funds will be used to improve mutual aid infrastructure and the Operational Area Satellite Information System (OASIS). In improving the statewide mutual aid system, funds will be allocated for the improvement of SMARS (Statewide Mutual Aid Radio System) which consists of five major interoperability systems: CALCORD, CESRS, CLEMARS, FIREMARS, OES Fire & NPSPAC. This includes enhancing the State's current capability to effectively utilize the International Tactical Channel (I-TAC) and International Calling Channel (I-CALL). In improving OASIS, this project will allocate specific funding for the Satellite Air Time, Operations, Wireless Voice, VOIP, Video services, Equipment Replacement and maintenance associated with the system. It will also allow initiation and completion of Phase 2 which includes replacement of out dated equipment and the procurement of long term Satellite Air Time.

Statewide Tactical Interoperability

To ensure statewide tactical interoperability by the end of 2008, PSIC funds have been allocated to support PSRSPC and CALSIEC outreach to help local jurisdictions complete Tactical Interoperability Plans (TICPs). Further, Communication Unit Leader (COML) training will be funded statewide. This funding will ensure that an adequate number of COML's will be trained in each county in order to provide interoperability leadership at the incident level. California will achieve complete tactical interoperability by the end of 2008.

Critical Operability of State Agencies

Based on prior assessment, a priority for State agencies has been to fund critical operability needs in aims of building towards interoperability. Funds put toward this initiative will not look at operability and interoperability as mutually exclusive, but instead will look to simultaneously build both capabilities.

Application to CalSCIP

The State investment justification implements the CalSCIP by directly funding against gaps found through development of the SCIP. Investments help to implement the SoS by improving statewide infrastructure and planning premised upon this approach to "solving" statewide interoperability. Further, through the use of this grant CA will be tactically interoperable by the end of 2008, and technical improvements can be leveraged by both State and local agencies through the mutual aid system.

- CalSCIP Goals Addressed: 1, 2, 3, 4, 5
- CalSCIP Objectives Addressed: 1, 2, 3, 4, 5, 6, 7, 8, 9

9.0 Closing

California has developed into a national leader in the field of homeland security. The State's information sharing systems, critical infrastructure protection programs, and training and exercise programs are all considered model programs and have been incorporated into many federal strategies and standards. This, coupled with an excellent mutual aid and incident management system run by OES, makes California one of the most prepared states in the nation. However, work remains to be done.

The completion of the first-ever statewide plan for communications interoperability across California marks a significant achievement for the State. With this plan, California demonstrates its willingness and ability to aggressively pursue the problem of interoperability through the development of a working System of Systems by 2017. In documenting a unified current state assessment of communications interoperability, California's public safety community can move forward together towards achieved marked improvement. California stands ready to proceed down the path of implementation – cohesively and with continued collaboration.

To further interoperable communications in California, the State will implement a roadmap addressing the strategic needs and practical actions required to address gaps identified in the current state assessment of California's interoperable communications. The roadmap will define a prioritized timeline of initiatives and dependencies for forward moving progress. The State envisions a communications infrastructure, which consists of technology, processes/protocols, and personnel and effectively addresses the broad set of requirements for communications among urban and rural communities, public safety first responders, and designated public service organizations. By moving towards the implementation of a well-managed interoperability infrastructure that aligns with national standards, the State will more effectively reach a common future state and prepare to serve the citizens of California.

In addition to on-going initiatives currently being implemented throughout the State, California will implement multiple initiatives in FY 2008–FY 2009. These initiatives denote the next steps necessary to propel the State forward towards its vision, as identified through a collaborative statewide process involving cross-disciplinary, multi-jurisdictional local, regional, tribal, and state representatives. To help implement these initiatives, action teams will be formed, as necessary, from the Stakeholder Resource Pool. Further, many projects included in the PSIC Grant Investment Justifications will support the State in achieving its overall goal of statewide communications interoperability. California intends to use a biennial planning lifecycle to update, implement, institutionalize, and measure the success of communications interoperability planning.

The CalSCIP's vision is to ensure all local, regional, tribal, state and Federal public safety first-responders and designated public service organizations operating within California will be able to communicate using compatible systems, in real time, and across disciplines and jurisdictions, to respond more effectively during day-to-day operations and major incidents by 2017. While the 2017 vision is statewide, most major cities and UASIs will achieve interoperability within their regions well before 2017 as funding and planning efforts are already well underway. However, the CalSCIP focuses on *statewide* interoperable communications and will pursue efforts until this is achieved.

Lastly, because public safety communications interoperability cannot be solved by any one entity, partnership is essential among local, tribal, state, and Federal public safety organizations and industry. Therefore, the implementation of the plan necessitates a high degree of local, regional, and state partnership. All public safety stakeholders must work together to achieve the goals and initiatives contained in this document.

Acronyms

A

AHS	American Homeland Solutions
ALP	Automatic Link Establishment
ANP	Advanced Network Processor
ANWC	Alternate National Warning Center
ARI	Agricultural Readiness Initiative

B

BART	Bay Area Rapid Transit
BARTECS	Bay Area Regional Tactical Emergency Communication System

C

CAD	Computer Aided Dispatch
CALCORD	California On-Scene Emergency Coordination System
CAL FIRE	California Department of Forestry and Fire Protection
CALFIRMS	California Fire Information Resource Management System
CalSCIP	California Statewide Communications Interoperability Plan
CalSIEC	California Statewide Interoperability Executive Committee
Caltrans	California Department of Transportation
CALWAS	California Warning Alert System
CAPSS	Community Action Plan for Seismic Safety
CASM	Communications Asset Survey and Mapping
CBO	Community Based Organizations
CCCS	Countywide Coordinated Communications System
CDCR	Department of Corrections and Rehabilitation
CDF	California Department of Forestry and Fire Protection
CDHS	Department of Health Services
CESRS	California Emergency Services Radio System
CHDS	Center for Homeland Defense and Security
CHP	California Highway Patrol
CHPERS	California Highway Patrol Enhanced Radio System
CICO	California Interoperability Coordinators Office
CLEMARS	California Law Enforcement Mutual Aid Radio System
CLERS	California Law Enforcement Radio System
CLETS	California Law Enforcement Telecommunications System
CMD	California Military Department
CMSC	California Maritime Security Council
COG	Continuity of Governance
COML	Communications Unit Leaders
CONOP	Concept of Operations
CONPLAN	Concept Plan
COOP	Continuity of Operations
COTS	Commercial off the Shelf
COWS	Cellular-on-Wheels
CPVE	Consolidated Patrol Vehicle Environment

CSTI California Specialized Training Institute
CSWC California State Warning Center
CTP Cyber-Terrorism Program

D

DFG Department of Fish and Game
DGS Department of General Services
DHS Department of Homeland Security
DOC Department Operation Centers
DOJ Department of Justice
DPH Department of Public Health
DPR Department of Parks and Recreation
DPW Department of Public Works
DWR Department of Water Resources

E

E-Comm Emergency Communications
EBRCS East Bay Regional Communications System
ECD Emergency Communications Division
ECS Emergency Communications Services
EDT Exercise Design Team
EMAC Emergency Management Assistance Compact
EMRTC Energetic Materials Research and Testing Center
EMS Emergency Management Services
EMSA Emergency Medical Services Authority
EOC Emergency Operations Center
ESA Emergency Services Act
ETO Exercise Training Officer

F

FCC Federal Communications Commission
FD Fire Department
FEMA Federal Emergency Management Agency
FFY Federal Fiscal Year
FIREMARS Fire Emergency Mutual Aid
FIRESCOPE Firefighting RESources of California Organized for Potential Emergencies
FSE Full-Scale Exercise
FUAWG Fresno Urban Area Working Group
FY Fiscal Year

G

GG Golden Guardian
GOES Geostationary Operational Environmental Satellite
GUI Graphical User Interface

H

HEAR Hospital Emergency Administrative Radio System
HLCC High Level Consultative Commission
HMMWV High Mobility Multipurpose Wheeled Vehicle

HSGP Homeland Security Grant Program
HSPD Homeland Security Presidential Directive

I

IAT Initiative Action Team
I-CALL International Call Channel
ICIS Interagency Communications Interoperability System
ICP Incident Command Post
ICRI Incident Commander's Radio Interface
ICS Incident Command System
ICTAP Interoperable Communications Technical Assistance Program
IC4U Incident Commander's Command, Control, and Communications Unit
I-FOG Interoperability Field Operations Guide
IJ Investment Justification
IP Internet Protocol

J

JISCC Joint Incident Site Communications Capability
JPA Joint Powers Authority
JNN Joint Network Node

L

LARTCS Los Angeles Regional Tactical Communications System
LA-RICS Los Angeles Regional Interoperable Communications System
LEIU Law Enforcement Investigative Unit
LMR Land Mobile Radio
LSI Large Stadium Initiative

M

MARAC Mutual Aid Regional Advisory Committee
MCS Multi-Agency Coordination System
MDT Mobile Data Terminal
MERA Marin Emergency Radio Authority
MOU Memorandum of Understanding
MTI Mass Transit Initiative

N

NALEMARS National Law Enforcement Mutual Aid Radio System
NAWAS National Warning Alert System
NCBRT National Center for Biomedical Research and Training
NCC National Coordination Committee
NGO Non-Governmental Organizations
NIFC National Interagency Fire Center
NIIX National Interoperability Information eXchange
NIMS National Emergency Management System
NIMSCAST NIMS Capability Assessment and Support Tool
NPG National Preparedness Goal
NPS Naval Postgraduate School
NPSPAC National Public Safety Planning Advisory Committee
NPSTC National Public Safety Telecommunications Council

NRF National Response Framework
NRP National Response Plans
NTIA National Telecommunications Information Administration

O

OA Operational Area
OASIS Operational Area Satellite Information System
OES Office of Emergency Services
OHS Governor's Office of Homeland Security
OHSTED Office of Homeland Security Training and Exercise Division
OSHA Occupational Safety and Health Administration

P

PA Planning Area
PD Police Department
POC Point of Contact
POST Peace Officer Standards and Training
PRI Ports Readiness Initiative
PSAP Public Safety Access Point
PSIC Public Safety Interoperable Communications
PSRSPC Public Safety Radio Strategic Planning Committee
PSTN Public Switched Telephone Network
PUC Public Utilities Commission

R

R&R Rough and Readiness Initiative
RCIT Riverside County Information Technology
REOC Regional Emergency Operations Center
RIIB Regional Interoperability Information Broker
RIMS Response Incident Management Systems
RISC Regional Interoperable Steering Committee
RMS Records Management System
RoIP Radio over Internet Protocol
RRV Rapid Response Vehicles
RSTWG Regional Transit Security Working Groups
RSVIP Regional Solution for Voice over Internet Protocol

S

SAA State Administrative Agent
SCI Small Counties Initiative
SD Sheriffs Department
SDRCS San Diego Regional Communications System
SEMS Standardized Emergency Management System
SFM State Fire Marshal
SFO San Francisco International Airport
SIEC State Interoperability Executive Committee
SIP Session Initiated Protocol
SME Subject Matter Expert
SOC State Emergency Operations Centers

SOP	Standard Operating Procedures
SRRCS	Sacramento Regional Radio Communications System
SSP	Single Side Band
STR	Strategic Technology Reserve
SUASI	Super Urban Area Security Initiative
SVRCS	Silicon Valley Regional Communications System
SVRIP	Silicon Valley Regional Interoperability Project

T

TDC-ICAP	Theater Deployable Communications Integrated Communication Access Packages
TICP	Tactical Interoperable Communications Plan
TTX	Table Top Exercise
TWG	Technical Working Group

U

UASI	Urban Area Security Initiative
UHF	Ultra High Frequency

V

VHF	Very High Frequency
VoIP	Voice over Internet Protocol
VSAT	Very Small Aperture Terminal

W

WAIS	Wide Area Interoperability System
WBRCS	West Bay Regional Communications System
WSD	Wireless Services Division

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Appendix A. California Public Safety Communications Act of 2002

California Codes
California Government Code
GOVERNMENT CODE SECTION 8592-8592.7

8592. This article shall be known and may be cited as the Public Safety Communication Act of 2002.

8592.1. For purposes of this article, the following terms have the following meanings:

(a) "Backward compatibility" means that the equipment is able to function with older, existing equipment.

(b) "Committee" means the Public Safety Radio Strategic Planning Committee, which was established in December 1994 in recognition of the need to improve existing public radio systems and to develop interoperability among public safety departments, and between state public safety departments and local or federal entities and which consists of representatives of the following state entities:

- (1) The Office of Emergency Services, who shall serve as chairperson.
- (2) The California Highway Patrol.
- (3) The Department of Transportation.
- (4) The Department of Corrections and Rehabilitation.
- (5) The Department of Parks and Recreation.
- (6) The Department of Fish and Game.
- (7) The Department of Forestry and Fire Protection.
- (8) The Department of Justice.
- (9) The Department of Water Resources.
- (10) The State Department of Health Services.
- (11) The Emergency Medical Services Authority.
- (12) The Department of General Services.
- (13) The Office of Homeland Security.
- (14) The Military Department.
- (15) Department of Finance.

(c) "First response agencies" means public agencies that, in the early states of an incident, are responsible for, among other things, the protection and preservation of life, property, evidence, and the environment, including, but not limited to, state fire agencies, state and local emergency medical services agencies, local sheriffs' departments, municipal police departments, county and city fire departments, and police and fire protection districts.

(d) "Nonproprietary equipment or systems" means equipment or systems that are able to function with another manufacturer's equipment or system regardless of type or design.

(e) "Open architecture" means a system that can accommodate equipment from various vendors because it is not a proprietary system.

(f) "Public safety radio subscriber" means the ultimate end user. Subscribers include individuals or organizations, including, for example, local police departments, fire departments, and other operators of a public safety radio system. Typical subscriber equipment includes end instruments, including mobile radios, hand-held radios, mobile repeaters, fixed repeaters,

transmitters, or receivers that are interconnected to utilize assigned public safety communications frequencies.

(g) "Public safety spectrum" means the spectrum allocated by the Federal Communications Commission for operation of interoperable and general use radio communication systems for public safety purposes within the state.

8592.2. (a) The committee shall have primary responsibility in state government for both of the following:

(1) Developing and implementing a statewide integrated public safety communication system that facilitates interoperability among state public safety departments listed in subdivision (b) of Section 8592.1 and other first response agencies, as the committee deems appropriate.

(2) Coordinating other shared uses of the public safety spectrum consistent with decisions and regulations of the Federal Communications Commission.

(b) In order to facilitate effective use of the public safety spectrum, the committee shall consult with any regional planning committee or other federal, state, or local entity with responsibility for developing, operating, or monitoring interoperability of the public safety spectrum.

(c) The committee shall meet at least twice a year, of which one meeting shall be a joint meeting with the California Statewide Interoperability Executive Committee to enhance coordination and cooperation at all organizational levels and a cohesive approach to communications interoperability.

8592.3. (a) The committee shall consult with the following organizations and entities:

- (1) California State Peace Officers Association.
- (2) California Police Chiefs Association.
- (3) California State Sheriffs' Association.
- (4) California Professional Firefighters.
- (5) California Fire Chiefs Association.
- (6) California State Association of Counties.
- (7) League of California Cities.
- (8) California State Firefighters Association.
- (9) California Coalition of Law Enforcement Associations.
- (10) California Correctional Peace Officers Association.
- (11) CDF Firefighters.
- (12) California Union of Safety Employees.

(b) Each organization or entity listed in subdivision (a) may designate a representative to work with the committee to develop agreements for interoperability or other shared use of the public safety spectrum between the state public safety departments listed in subdivision (b) of Section 8592.1 and local or federal agencies that operate a communication system on the public safety spectrum and that have capacity and technical ability for interoperability or other shared use.

(c) The committee shall develop a model memorandum of understanding that sets forth general terms for interoperability or other shared uses among jurisdictions, which may be modified as necessary for a particular agreement entered into pursuant to subdivision (b).

(d) A local agency may not be required to adopt the model memorandum of understanding developed pursuant to subdivision (c).

8592.4. (a) The committee shall determine which state public safety departments listed in subdivision (b) of Section 8592.1 need new or upgraded communication equipment and shall establish a program for equipment purchase.

In establishing this program, the committee shall recommend the purchase of public safety radio subscriber equipment that will enable state agencies to commence conforming to industry and governmental standards for interoperability as set forth in Section 8592.5. As technology continues to evolve, the committee shall recommend the purchase of nonproprietary equipment or systems that have open architecture and backward compatibility, and that are in compliance with paragraphs (1) and (2) of subdivision (a) of Section 8592.5.

(b) The committee may recommend to any other federal, state, regional, or local entity with responsibility for developing, operating, or monitoring interoperability of the public safety spectrum, the purchase of public safety radio subscriber equipment that will enable first response agencies to commence conforming to industry and governmental standards for interoperability as set forth in paragraphs (1) and (2) of subdivision (a) of Section 8592.5. As technology continues to evolve, the committee may recommend the purchase of nonproprietary equipment or systems that have open architecture and backward compatibility, and that are in compliance with paragraphs (1) and (2) of subdivision (a) of Section 8592.5.

(c) This section does not mandate that a state or local governmental agency affected by this section is required to compromise its immediate mission or ability to function and carry out its existing responsibilities.

8592.5. (a) Except as provided in subdivision (c), a state department that purchases public safety radio communication equipment shall ensure that the equipment purchased complies with applicable provisions of the following:

(1) The common system standards for digital public safety radio communications commonly referred to as the "Project 25 Standard," as that standard may be amended, revised, or added to in the future jointly by the Associated Public-Safety Communications Officials, Inc., National Association of State Telecommunications Directors and agencies of the federal government, commonly referred to as "APCO/NASTD/FED."

(2) The operational and functional requirements delineated in the Statement of Requirements for Public Safety Wireless Communications and Interoperability developed by the SAFECOM Program under the United States Department of Homeland Security.

(b) Except as provided in subdivision (c), a local first response agency that purchases public safety radio communication equipment, in whole or in part, with state funds or federal funds administered by the state, shall ensure that the equipment purchased complies with paragraphs (1) and (2) of subdivision (a).

(c) Subdivision (a) or (b) shall not apply to either of the following:

(1) Purchases of equipment to operate with existing state or local communications systems where the latest applicable standard will not be compatible, as verified by the Telecommunications Division of the Department of General Services.

(2) Purchases of equipment for existing statewide low-band public safety communications systems.

(d) This section may not be construed to require an affected state or local governmental agency to compromise its immediate mission or ability to function and carry out its existing responsibilities.

8592.6. (a) The committee shall report to the Legislature by January 1 of each year on the committee's progress in implementing this article.

(b) (1) The annual report shall serve as the state's strategic plan to establish a statewide integrated, interoperable public safety communications network. The report shall include, but not be limited to, implementation

strategies and timelines to achieve the goals and objectives set forth in the report. The implementation strategies and timelines may include identification of resource needs, including data formats, possible funding sources, prioritization of expenditures, and the development of common protocols that build upon industry and governmental standards for interoperability as set forth in paragraphs (1) and (2) of subdivision (a) of Section 8592.5 that will advance the integration of local, regional, and statewide interoperable public safety communication networks. The report shall be updated annually, as strategies, timelines, goals, and objectives are accomplished or changed.

(2) In developing the report, the committee, at its discretion, shall consult with any other local, regional, state, or federal entity with responsibility for developing, operating, or monitoring interoperability of the public safety spectrum, and other first response agencies. The report may include recommendations for local, regional, state, or federal entities to coordinate resources and the development of common protocols to advance the integration of local, regional, and statewide interoperable public safety communication networks.

(c) The report will include a complete listing of purchases by state departments of public safety radio communications equipment, for which a waiver of subdivision (a) of Section 8592.5 was granted by the committee.

8592.7. (a) A budget proposal submitted by a state agency for support of a new or modified radio system shall be accompanied by a technical project plan that includes all of the following:

- (1) The scope of the project.
- (2) Alternatives considered.
- (3) Justification for the proposed solution.
- (4) A project implementation plan.
- (5) A proposed timeline.
- (6) Estimated costs by fiscal year.

(b) The committee shall review the plans submitted pursuant to subdivision (a) for consistency with the statewide integrated public safety communication strategic plan included in the annual report required pursuant to Section 8592.6.

(c) The Telecommunications Division of the Department of General Services shall review the plans submitted pursuant to subdivision (a) for consistency with the technical requirements of the statewide integrated public safety communication strategic plan included in the annual report required pursuant to Section 8592.6.

Appendix B. Disaster and Civil Defense Master Mutual Aid Agreement

This agreement made and entered into by and between the STATE OF CALIFORNIA, its various departments and agencies, and the various political subdivisions, municipal corporations, and other public agencies of the State of California:

WITNESSETH:

WHEREAS, it is necessary that all of the resources and facilities of the State, its various departments and agencies, and all its political subdivisions, municipal corporations, and other public agencies be made available to prevent and combat the effect of disasters which may result from such calamities as flood, fire, earthquake, pestilence, war, sabotage, and riot; and

WHEREAS, it is desirable that each of the parties hereto should voluntarily aid and assist each other in the event that a disaster should occur, by the interchange of services and facilities, including, but not limited to, fire, police, medical and health, communication, and transportation services and facilities, to cope with the problems of rescue, relief, evacuation, rehabilitation, and reconstruction which would arise in the event of a disaster; and

WHEREAS, it is necessary and desirable that a cooperative agreement be executed for the interchange of such mutual aid on a local, countywide, regional, statewide, and interstate basis; **NOW, THEREFORE, IT IS HEREBY AGREED** by and between each and all of the parties hereto as follows:

1. Each party shall develop a plan providing for the effective mobilization of all its resources and facilities, both public and private, to cope with any type of disaster.
2. Each party agrees to furnish resources and facilities and to render services to each and every other party to this agreement to prevent and combat any type of disaster in accordance with duly adopted mutual aid operational plans, whether heretofore or hereafter adopted, detailing the method and manner by which such resources, facilities, and services are to be made available and furnished, which operational plans may include provisions for training and testing to make such mutual aid effective; provided, however, that no party shall be required to deplete unreasonably its own resources, facilities, and services in furnishing such mutual aid.
3. It is expressly understood that this agreement and the operational plans adopted pursuant thereto shall not supplant existing agreements between some of the parties hereto providing for the exchange or furnishing of certain types of facilities and services on a reimbursable, exchange, or other basis, but that the mutual aid extended under this agreement and the operational plans adopted pursuant thereto, shall be without reimbursement unless otherwise expressly provided for by the parties to this agreement or as provided in Sections 1541, 1586, and 1587, Military and Veterans Code; and that such mutual aid is intended to be available in the event of a disaster of such magnitude that it is, or is likely to be, beyond the control of a single party and requires the combined forces of several or all of the parties to this agreement to combat.

4. It is expressly understood that the mutual aid extended under this agreement and the operational plans adopted pursuant thereto shall be available and furnished in all cases of local peril or emergency and in all cases in which a STATE OF EXTREME EMERGENCY has been proclaimed.
5. It is expressly understood that the mutual aid extended under this agreement and the operational plans adopted pursuant thereto shall be available and furnished in all cases of local peril or emergency and in all cases in which a STATE OF EXTREME EMERGENCY has been proclaimed.
6. It is expressly understood that any mutual aid extended under this agreement and the operational plans adopted pursuant thereto, is furnished in accordance with the "California Disaster Act" and other applicable provisions of law, and except as otherwise provided by law that: "The responsible local official in whose jurisdiction an incident requiring mutual aid has occurred shall remain in charge at such incident including the direction of such personnel and equipment provided him through the operation of such mutual aid plans."

(Section 1564 Military & Veterans Code)

- a. Countywide and local mutual aid operational plans shall be developed by the parties thereto and are operative as between the parties thereto in accordance with the provisions of such operational plans. Such operational plans shall be submitted to the State Disaster Council for approval. The State Disaster Council shall notify each party to such operational plans of its approval, and shall also send copies of such operational plans to other parties to this agreement who did not participate in such operational plans and who are in the same area and affected by such operational plans. Such operational plans shall be operative as to such other parties 20 days after receipt thereof unless within that time the party by resolution or notice given to the State Disaster Council, in the same manner as notice of termination of participation in this agreement, declines to participate in the particular operational plan.
- b. Statewide and regional mutual aid operational plans shall be approved by the State Disaster Council and copies thereof shall forthwith be sent to each and every party affected by such operational plans. Such operational plans shall be operative as to the parties affected thereby 20 days after receipt thereof unless within that time the party by resolution or notice given to the State Disaster Council, in the same manner as notice of termination of participation in this agreement, declines to participate in the particular operational plan.
- c. The declination of one or more of the parties to participate in a particular operational plan or any amendment, revision or modification thereof, shall not affect the operation of this agreement and the other operational plans adopted pursuant thereto.
- d. Any party may at any time by resolution or notice given to the State Disaster Council, in the same manner as notice of termination of participation in this

agreement, decline to participate in any particular operational plan, which declination shall become effective 20 days after filing with the State Disaster Council.

- e. The State Disaster Council shall send copies of all operational plans to those state departments and agencies designated by the Governor. The Governor may, upon behalf of any department or agency, give notice that such department or agency declines to participate in a particular operational plan.
 - f. The State Disaster Council, in sending copies of operational plans and other notices and information to the parties to this agreement, shall send copies to the Governor and any department or agency head designated by him; the chairman of the board of supervisors, the clerk of the board of supervisors, the County Disaster Council, and any other officer designated by a county; the mayor, the clerk of the city council, the City Disaster Council, and any other officer designated by a city; the executive head, the clerk of the governing body, or other officer of other political subdivisions and public agencies as designated by such parties.
7. This agreement shall become effective as to each party when approved or executed by the party, and shall remain operative and effective as between each and every party that has heretofore or hereafter approved or executed this agreement, until participation in this agreement is terminated by the party. The termination by one or more of the parties of its participation in this agreement shall not affect the operation of this agreement as between the other parties thereto. Upon approval or execution of this agreement the State Disaster Council shall send copies of all approved and existing mutual aid operational plans affecting such party which shall become operative as to such party 20 days after receipt thereof unless within that time the party by resolution or notice given to the State Disaster Council, in the same manner as notice of termination of participation in this agreement, declines to participate in any particular operational plan. The State Disaster Council shall keep every party currently advised of whom the other parties to this agreement are and whether any of them has declined to participate in any particular operational plan.
8. Approval or execution of this agreement shall be as follows:
- a. The Governor shall execute a copy of this agreement on behalf of the State of California and the various departments and agencies thereof. Upon execution by the Governor a signed copy shall forthwith be filed with the State Disaster Council.
 - b. Counties, cities, and other political subdivisions and public agencies having a legislative or governing body shall by resolution approve and agree to abide by this agreement, which may be designated as "CALIFORNIA DISASTER AND CIVIL DEFENSE MASTER MUTUAL AID AGREEMENT." Upon adoption of such a resolution, a certified copy thereof shall forthwith be filed with the State Disaster Council.

- c. The executive head of those political subdivisions and public agencies having no legislative or governing body shall execute a copy of this agreement and forthwith file a signed copy with the State Disaster Council.
9. Termination of participation in this agreement may be effected by any party as follows:
 - a. The Governor on behalf of the State and its various departments and agencies, and the executive head of those political subdivisions and public agencies having no legislative or governing body, shall file a written notice of termination of participation in this agreement with the State Disaster Council and this agreement is terminated as to such party 20 days after the filing of such notice.
 - b. Counties, cities, and other political subdivisions and public agencies having a legislative or governing body shall by resolution give notice of termination of participation in this agreement and file a certified copy of such resolution with the State Disaster Council, and this agreement is terminated as to such party 20 days after the filing of such resolution.

IN WITNESS WHEREOF this agreement has been executed and approved and is effective and operative as to each of the parties as herein provided.

Signed by:

EARL WARREN
GOVERNOR
On behalf of the State of California and all its
Departments and Agencies

ATTEST:
November 15, 1950 Signed by: FRANK M. JORDAN
SECRETARY OF STATE

NOTE:
There are references in the foregoing agreement to the California Disaster Act, State Disaster Council, and various sections of the Military and Veterans Code. Effective November 23, 1970, by enactment of Chapter 1454, Statutes 1970, the California Disaster Act (Sections 1500 ff., Military and Veterans Code) was superseded by the California Emergency Services Act (Sections 8550 ff., Government Code), and the State Disaster Council was superseded by the California Emergency Council.

Section 8668 of the California Emergency Services Act provides:

- (a) Any disaster council previously accredited, the State Civil Defense and Disaster Plan, the State Emergency Resources Management Plan, the State Fire Disaster Plan, the State Law Enforcement Mutual Aid Plan, all previously approved civil defense and

disaster plans, all mutual aid agreements, and all documents and agreements existing as of the effective date of this chapter, shall remain in full force and effect until revised, amended, or revoked in accordance with the provisions of this chapter.

In addition, Section 8561 of the new act specifically provides:

"Master Mutual Aid Agreement" means the California Disaster and Civil Defense Master Mutual Aid Agreement, made and entered into by and between the State of California, its various departments and agencies, and the various political subdivisions of the state, to facilitate implementation of the purposes of this chapter.

Substantially the same provisions as previously contained in Section 1541, 1564, 1586 and 1587 of the Military and Veterans Code, referred to in the foregoing agreement, are now contained in Sections 8633, 8618, 8652 and 8643, respectively, of the Government Code.

Appendix C. Participating Agencies in the Development of the CalSCIP

CalSCIP Participating Agencies

Governor's Office

- Governor's Office of Emergency Services
- Governor's Office of Homeland Security

State and local elected officials

- Joint Committee on Emergency Services and Homeland Security

State and local emergency medical services

- Emergency Medical Services Authority
- Fresno County Emergency Medical Services
- Merced County Emergency Medical Services

State and local health officials

- California Department of Public Health

State and local fire response services

- CAL-FIRE
- California Fire Chiefs Association
- Clovis Fire
- Contra Costa County Fire
- Fairfield Fire Department
- Fresno Fire Department
- Los Angeles City Fire Department
- Los Angeles County Fire Department
- Los Banos Fire
- Paradise Fire Department
- Roseville Fire Department
- San Ramon Valley Fire
- Sanger Fire Department
- Stockton Fire

State and local law enforcement

- Arcadia Police Department
- Butte County Sheriff's Office
- California Highway Patrol
- California Highway Patrol-Bishop
- California State Police
- California Police Chiefs Association
- City of Palo Alto Police Department
- Clovis Police Department
- Colusa County Sheriff
- Contra Costa County Sheriff

- Fresno California Highway Patrol
- Fresno County Sheriff's Department
- Fresno Police Department
- Gridley-Biggs Police Department
- Humboldt Sheriff
- Huron Police Department
- Kings County Sheriff Department
- Long Beach Police Department
- Los Angeles County Sheriff
- Los Angeles Police Department
- Los Angeles Sheriffs department
- Los Banos Police Department
- Madera County Sheriff
- Mariposa Sheriff Department
- Merced Sheriff Department
- Orland Police Department
- Palo Alto Police Department
- Placer County Sherriff
- Plumas County Sheriff's Office
- Riverside Sheriff Department
- Sacramento Sheriff Department
- San Diego County Sheriff Department
- Santa Clara Police
- Santa Rosa Police Department
- Sutter County Sheriff's Office
- Tehama County Sheriff's Office
- Tulare County Sheriff Department
- Yuba City Police Department

State and local emergency management

- Butte County Office of Emergency Services
- California Office of Emergency Services
- California Office of Emergency Services Law Enforcement Branch
- Department of Emergency Management
- Fresno County Office of Emergency Services
- Mendocino County Office of Emergency Services
- Merced Office of Emergency Services
- San Luis Obispo County Office of Emergency Services
- Sierra County Office of Emergency Services
- Solano County Office of Emergency Services
- Tulare County Office of Emergency Services
- Yolo County Communications Emergency Service Agency
- Yuba County Office of Emergency Services

State and local homeland security offices

- California Office of Homeland Security

Tribal governments

- Department of Public Safety/San Manuel Band of Mission Indians
- Pechanga Fire Dept (Tribal)
- San Manuel Band of Mission Indians

State and local transportation agencies

- Port of Los Angeles
- CalTRANS
- BART

Military organizations operating in the state (DoD, National Guard, etc.)

- California National Guard

Federal agencies that need to be interoperable with state and local emergency responders

- Bureau of Indian Affairs
- Federal Emergency Management Administration (FEMA)
- U.S. Secret Service

Urban Area Security Initiative (UASI)

- Anaheim/Santa Ana UASI
- Bay Area Super UASI
- Los Angeles/Long Beach Super UASI
- Sacramento UASI
- San Diego UASI

Critical infrastructure

- Port of Los Angeles
- Caltrans

Other non-government organizations, such as the Red Cross and utility companies

- American Red Cross
- Center for Independent Living
- Norcal Center for Deafness

Other organizations with abilities and resources for prevention of or response and recovery from crises or disasters

- Alpine County, South
- Butte County Communications Department
- California Department of Corrections and Rehabilitation
- California Department of Fish and Game
- California Department of General Services Division
- City of Bakersfield
- City of Fairfield
- City of Fresno
- City of Hayward
- City of Long Beach
- City of Los Angeles
- City of Los Angeles Department of Disability

- City of Madera
- City of Napa, Public Works
- California State Parks
- City of Sacramento Division of Information Technology
- Contra Costa County- Division of Information Technology
- County of Fresno
- County of Kings
- County of Los Angeles - Information Services Department
- County of Sacramento Office of Communications & Information Technology
- County of San Mateo Information Services Department
- County of Santa Clara
- County of Sonoma, Information Services Department-Communications
- Department of Telecommunications & Information Services
- Department of Water Resources
- Dept of Telecommunications & Information Services
- El Dorado County
- Glendale Interagency Communications Interoperability System
- Kern County
- Lawrence Livermore National Lab
- Los Angeles City
- Marin County
- Monterey County
- Napa County
- San Diego Imp Regional Communications System (SDCD)
- San Diego State University Research Foundation
- SHASCOM 9-1-1
- Solano County
- Solano County IT/Communications
- Tulare County
- University of California Berkeley
- Yuba County Information Technologies

Regional planning committee chairpersons for 700 and 800 MHz

- CPRA Frequency Advisory Committee Chair
- Northern California APCO
- Region 5 700 MHz and TX

Appendix D. CA Emergency Services Act (§8550-8551)

The following excerpt from California's Government Code, Chapter 7, is known as the California Emergency Services Act and establishes OES.⁴³

8550. The state has long recognized its responsibility to mitigate the effects of natural, manmade, or war-caused emergencies which result in conditions of disaster or in extreme peril to life, property, and the resources of the state, and generally to protect the health and safety and preserve the lives and property of the people of the state. To insure that preparations within the state will be adequate to deal with such emergencies, it is hereby found and declared to be necessary:

(a) To confer upon the Governor and upon the chief executives and governing bodies of political subdivisions of this state the emergency powers provided herein; and to provide for state assistance in the organization and maintenance of the emergency programs of such political subdivisions;

(b) To provide for a state agency to be known and referred to as the Office of Emergency Services, within the Governor's office; and to prescribe the powers and duties of the director of that office;

(c) To provide for the assignment of functions to state agencies to be performed during an emergency and for the coordination and direction of the emergency actions of such agencies;

(d) To provide for the rendering of mutual aid by the state government and all its departments and agencies and by the political subdivisions of this state in carrying out the purposes of this chapter;

(e) To authorize the establishment of such organizations and the taking of such actions as are necessary and proper to carry out the provisions of this chapter.

It is further declared to be the purpose of this chapter and the policy of this state that all emergency services functions of this state be coordinated as far as possible with the comparable functions of its political subdivisions, of the federal government including its various departments and agencies, of other states, and of private agencies of every type, to the end that the most effective use may be made of all manpower, resources, and facilities for dealing with any emergency that may occur.

8551. This chapter may be cited as the "California Emergency Services Act."

⁴³ <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=gov&group=08001-09000&file=8550-8551>

Appendix E. SME Working Group Reviewers

CalSCIP Governance and Methodology SMEs

SME Working Group Member	Organization
Angela Azevedo	CA Dept. of Corrections & Rehabilitation
Don Casey	San Manuel Band of Mission Indians - Department of Public Safety
Reggie Chappelle	RChappelle@chp.ca.gov
Judith Christensen	OES/CA
Mary Cook	CA Dept of Fish and Game
Sony Fong	California Highway Patrol
Julia Lee	Center for Collaborative Policy
George Lowry	California Office of Emergency Services
Don Manzer	State Department of Justice
John Penido	City of San Marino
Sue Plantz	CA Office of Emergency Services
John Powell	CalSIEC Chair
Donald Root	San Diego Sheriff's Department
Sarah Rubin	Center for Collaborative Policy
Robert Samaan	CA Governor's Office of Homeland Security
Robert Sedita	Los Angeles County Sheriff's Department
Don Turos	CA National Guard

CalSCIP Technology SMEs

SME Working Group Member	Organization
Manuel Bergado	CA Dept. of Parks and Recreation
William De Camp	CA Dept. of General Services, Telecommunications Division
Bob Fasulkey	CA Highway Patrol
Gary Grootveld	CA DGS Telecom Division Office of PS Comms Services
Robert Levy	Alpine County
George Lowry	California Office of Emergency Services
John Powell	CalSIEC Chair
Donald Root	San Diego Sheriff's Department
Glen Savage	CAL FIRE
Mitch Sutton	City of San Francisco
Preston Thomson	Northern CA APCO

CalSCIP Training & Exercises and SOP SMEs

SME Working Group Member	Organization
Brent Finster	Contra Costa County Fire Protection District
Tonya Hines	Emergency Medical Services Authority
George Lowry	CA Office of Emergency Services
James Mesick	CA Department of Public Health
Fred Palidor	Palidor Radio Communications Consultants
John Powell	CalSIEC Chair
Donald Root	San Diego Sheriff's Department
Ken Chappelle	CA Dept. of Corrections and Rehabilitation
Michelle Elliott	CA Department of Public Health Services, Emergency Preparedness Office

CalSCIP Training & Exercises and SOP SMEs

SME Working Group Member	Organization
Brent Finster	Contra Costa County Fire Protection District
George Lowry	California Office of Emergency Services
Kenneth Mann	City of Los Angeles
John Penido	City of San Marino
John Powell	CalSIEC Chair
Donald Root	San Diego Sheriff's Department
Robert Sedita	Los Angeles County Sheriff's Department
Ron Wong	County of Los Angeles
Jason Keeling	Pechanga Fire Dept (Tribal)
Gary Gray	Southern CA APCO

Appendix F. Meeting Schedules for the CALSIEC and PSRSPC

The CALSIEC, CALSIEC Planning Areas, and PSRSPC meeting schedules for 2007 are provided in the tables listed in this Appendix.

2007 CALSIEC Meetings

CALSIEC	Southern Planning Area	Northern Planning Area	Central Planning Area	Capital-Bay Planning Area
February 26	August 22	January 31	October 15	January 16
July 10		March 6		February 15
August 16		April 26		September 10
		June 21		
		September 27		

2007 PSRSPC Meetings

PSRSPC	TWG
March 28	July 26
July 11	August 14
November 1	September 5
	October 1
	November 6

2007 Joint PSRSPC-CALSIEC Meetings

May 8
September 24
November 15

Appendix G. Memorandum: Establishment of CLEMARS into CALSIEC

STATE OF CALIFORNIA
MEMORANDUM

OFFICE OF EMERGENCY SERVICES

TO: MEMO FOR THE RECORD

FROM: Dallas Jones (*Original signed by Dallas Jones*)
Director

DATE: August 7, 2003

SUBJECT: ESTABLISHMENT OF THE CALIFORNIA STATEWIDE
INTEROPERABILITY EXECUTIVE COMMITTEE (CALSIEC)

Under the authorities of the California Emergency Services Act (Government Code §8550 et seq.), the Office of Emergency Services currently coordinates and manages Mutual Aid radio frequencies and systems to facilitate operations under California's Master Mutual Aid Agreement and subordinate Mutual Aid plans. These systems include (but are not limited to) the California Law Enforcement Mutual Aid Radio System (CLEMARS), the California On Scene Emergency Coordination Radio System (CALCORD), California Law Enforcement Radio System (CLERS), the "White" Fire Channels, and the California Emergency Services Radio System (CESRS). Policies and procedures for these systems have been developed by a number of current and former OES advisory committees, consisting of representatives of all levels (local, State, and Federal) of the Emergency Management structure in California.

The Federal Communications Commission (FCC)'s Docket 01-10, "*Fourth Report and Order, and Fifth Notice of Proposed Rule Making in the Matter of The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State, and Local Public Safety Communications Requirements Through The Year 2010 (WT Docket 96-86)*," adopted January 11, 2001, took action on recommendations received from the FCC's *Public Safety National Coordination Committee (NCC)* regarding technical and operational rules and policies for the use of the 2.6 MHz of Interoperability Spectrum in the new "700 MHz" band (764-776 MHz and 794-806 MHz). The FCC states at Paragraph 2 "We determine that the administrative and technical oversight of operations on the Interoperability spectrum should be performed at the state level. In the event a state declines to do so, we determine that such functions should be performed by the 700 MHz band regional planning committee for that state." (California has two FCC regional planning committees.) The Docket further gave each state until December 31, 2001 to agree to manage the Interoperability Spectrum, or the function would revert to the regional planning committee(s). Based on California's established history of Mutual Aid Communications management, the Department of General Services notified the FCC that OES would undertake the administration of the 700 MHz Interoperability Spectrum.

Based on recommendations of its NCC, the mechanism envisioned by the FCC was the creation of a State Interoperability Executive Committee (SIEC), although both the NCC and the FCC recognized that some states already have a mechanism in place to manage that could manage the Interoperability spectrum, and that requiring the creation of a new SIEC would be duplicative and overly burdensome.

The CLEMARS Executive Committee currently consists of operational and technical representatives of all levels of law enforcement agencies in California – Special District, City, County, State, and Federal. The CLEMARS Executive Committee currently manages Mutual Aid frequencies in five of the recognized ten Public Safety Communications bands, and has a process for the establishment of frequency use agreements in place, as coordinated by the OES Telecommunications Section. I concur with the FCC that the creation of a separate SIEC in California would be duplicative.

Therefore, under the authority granted by GC §8591, I direct that:

1. The CLEMARS Executive Committee reestablish itself as the California Statewide Interoperability Executive Committee (CALSIEC), with oversight responsibility delegated to the OES Telecommunications Section in coordination with the Law Enforcement and Fire & Rescue Branches.
2. The CALSIEC structure and membership is to be determined by the OES Telecommunications Section, following guidelines for SIECs established by the FCC, its Public Safety National Coordination Committee, or the National Public Safety Telecommunications Council (NPSTC).
3. The CALSIEC will have responsibility for the establishment of technical and operational policies for all current State Mutual Aid Radio frequencies now administered by OES, the new 700 MHz band, and any other spectrum recognized as being for Interoperability use by the FCC or the Public Safety community in California. In order to reduce the number of separate communications plans issued by OES, the CALSIEC is to develop an integrated Statewide Interoperability Communications Plan covering all Mutual Aid and Interoperability channels.
4. The CALSIEC and OES Telecommunications staff will work with other entities recognized by the state or the Federal government as having responsibility in the public safety communications field.
5. Signature Authority for frequency use agreements or Memorandums of Understanding involving Interoperability spectrum continues to be delegated to the OES Telecommunications Section.

Appendix H. CALSIEC Fact Sheet (DRAFT)

California Statewide Interoperability Executive Committee (CALSIEC)

BACKGROUND:

As California's Emergency Management agency, the Governor's Office of Emergency Services has administered Mutual Aid Communications channels and systems operating in California for almost 50 years. Over the years, a number of committees have been formed to establish operating policies and licensing procedures on the various Mutual Aid systems. These include (but are not limited to):

- CLEMARS Executive Committee (standing, but inactive)
- Telecommunications Industry Advisory Committee (disbanded)
- Los Angeles Basin UHF-TV Sharing Advisory Committee (inactive)

Over the last 10 years, the Federal Communications Commission (FCC) has been examining Public Safety Communications, and revising their Rules (47CFR Part 90) to increase the spectrum available to Public Safety for essential operations. These revisions have included the creation of many new "interoperability" channels.

In January of 2001 the FCC issued new regulations (Docket 01-10, Fourth Report & Order in the matter of WT Docket 96-86) regarding interoperability spectrum in the new 700 MHz band. At Paragraphs 9-11 of the Report & Order the FCC determined the States should administer the Interoperability channels in the new 700 MHz band, and in Paragraphs 12-13 recommends the states establish State Interoperability Executive Committees (SIECs) to develop operational plans and administer the new Interoperability channels.

In July of 2003, the Public Safety National Coordination Committee (NCC), a Federal Advisory Committee to the FCC charged with advising the FCC on 700 MHz and Interoperability matters, made a number of recommendations to the FCC, including:

- *State* Interoperability Executive Committees should be renamed *Statewide* Interoperability Executive Committees, to more accurately reflect their role in the administration of interoperability channels
- Mandatory establishment of SIECs, and that the SIECs should administer use of *all* interoperability channels in a state, not just those in the new 700 MHz band.
- Standardized names for all interoperability channels, and the establishment of a separate section of Part 90 of the FCC rules to address "Interoperability Channel Administration, Use, and Limitations."

The FCC is currently reviewing these recommendations.

As OES currently administers the non-700 MHz Mutual Aid / Interoperability channels in California, on 12/03/01 DGS Telecommunications Division (after consultation with OES) advised

the FCC that the State of California will coordinate the 700 MHz Interoperability channels, and that OES will administer the functions of the SIEC.

DISCUSSION:

To implement the FCC's administrative requirements, OES is establishing the California Statewide Interoperability Executive Committee (CALSIEC). CALSIEC will replace the various OES communications committees to provide a single focal point for Interoperability / Mutual Aid communications in California.

The functions of the CALSIEC are to:

1. Provide administration of all Public Safety Interoperability Communications frequencies recognized by the FCC as International, National, Statewide, or within a National Planning Region.
2. Establish operating procedures for the utilization of new Interoperability frequencies, and approve written plans outlining their utilization and how an eligible user obtains permission to participate.
3. Review existing Mutual Aid Communications systems plans and procedures; adopt revised operating procedures where necessary, and approve updated written plans.
4. Facilitate the development of new interoperability communications systems (both voice and data) in California, and provide a forum for the exchange of knowledge about these systems (on a need-to-know basis, when appropriate).

STRUCTURE:

The California Statewide Interoperability Executive Committee is a group of individuals representing all levels (Federal, State, County, Local, Special District) and aspects (Fire, Law Enforcement, Emergency Medical, Emergency Management, Public Works) of Public Safety and Public Service Communications. Administrative, operational, and technical viewpoints will be represented.

Collective meetings will be called as required, but not less than annually. It is anticipated the Committee will establish Working Groups of subject specialists and interested parties to complete the tasks of the Committee.

VOTING MEMBERSHIP

State Agencies

- Office of Emergency Services (Chair)
- OES Telecommunications (Executive Secretary, non-voting)
- California Highway Patrol
- Department of Corrections (includes CYA)
- Department of Forestry and Fire Protection
- Department of General Services – Telecommunications Division
- Department of Transportation
- Emergency Medical Services Authority
- Governor's Office of Homeland Security

- The Resources Agency (for DGF, DWR, and DPR)

Federal Agencies

- Department of Homeland Security
- Federal Law Enforcement
- Federal Fire

Regional Bodies

- APCO Frequency Coordinator – North
- APCO Frequency Coordinator – South
- FCC Region 5 (South) Regional Planning Committee 700 MHz Chair
- FCC Region 5 (South) Regional Planning Committee 800 MHz Chair
- FCC Region 6 (North) Regional Planning Committee 700 MHz Chair
- FCC Region 6 (North) Regional Planning Committee 800 MHz Chair

Local Agencies (Appointing Group)

- (CSSA) County Sheriff - North
- (CSSA) County Sheriff – South
- (CPCA) City Police – North
- (CPCA) City Police - South
- (CFCA) Urban Fire – North
- (CFCA) Urban Fire – South
- (CalRural) Rural Fire North
- (CalRural) Rural Fire – South
- (CA Tribal Federation) – Tribal North
- (CA Tribal Federation) – Tribal South
- (LOCC) General Government – City
- (CSAC) General Government - County
- Member-At-Large North
- Member-At-Large South

SPECIFIC TASKS:

1. Establish operational procedures for the new Interoperability Channels in the 150-174 and 450-512 MHz Public Safety bands.
2. Establish operational procedures for the new Interoperability Channels in the 700 MHz Public Safety Band.
3. Review and revise the operational procedures of the existing Mutual Aid channels in the 30-50, 150-174, 450-512, and 806-869 MHz Public Safety bands, for conformity with current FCC Rules (47 CFR Part 90, 47 CFR Part 80, etc.).
4. Review the various existing Agreement formats for use of Mutual Aid / Interoperability Channels, and consolidate them into a single Agreement format with specific Attachments for the various channels.
5. Draft and adopt a comprehensive Interoperability Communications Plan for California
6. Encourage the creation of regional Interoperability networks to integrate legacy channels into the new spectrum.
7. Encourage and facilitate Interoperability Technology projects around California, and provide a forum for the exchange of information about these projects.

Appendix I. PSRSPC Fact Sheet (DRAFT)



The Public Safety Radio Strategic Planning Committee (PSRSPC) was established by the Public Safety Communications Act of 2002 (Government Code section 8592 et seq.). It continues an ad hoc effort underway since 1994 to develop and implement an integrated statewide Public Safety communications system for state agencies that fosters shared use and interoperability with local and Federal Public Safety agencies. It will expand that effort to examine the need for communications among various Public Safety disciplines at all levels of government.

The following state agencies are members of the PSRSPC:

- The California Highway Patrol
- The Department of Corrections
- The Department of Fish and Game
- The Department of Forestry and Fire Protection
- The Department of General Services
- The Department of Justice
- The Department of Parks and Recreation
- The Department of Transportation
- The Department of Water Resources
- The Department of the Youth Authority
- The Emergency Medical Services Authority
- The Governor's Office of Emergency Services
- The Governor's Office of Homeland Security

The PSRSPC met for the first time in March 2003, and elected Dallas Jones, Director of the Governor's Office of Emergency Services to be the Chair. In order to achieve the objectives of the legislation by developing a blueprint for forward migration that meets the needs of California's Public Safety radio systems, the Committee is in the process of gathering information on existing Public Safety collaborative efforts around the state. The Committee will hear from several local and regional programs and from professional organizations representing Public Safety interests. The Committee will be reviewing and updating previous work efforts in this area, and will be developing model agreements for both shared use and incident interoperability systems.

This information is current as of July, 2003. For further information contact the Interoperability Programs Unit of the OES Telecommunications Section on (916) 845-8630.

Appendix J. 2006 Online Assessment Survey

This survey may also be accessed via the PSRSPC & CALSIEC Website ([2006 Online Assessment Survey](#)).

1. Commenter Information

Comment Date: _____ Reference
Number: _____

First Name: _____

Last Name: _____

Address: _____

City: _____

Zip Code: _____

Email Address: _____

Phone Number: _____

County:

<input type="checkbox"/> State	<input type="checkbox"/> Agency	<input type="checkbox"/> Alameda	<input type="checkbox"/> Alpine
<input type="checkbox"/> Amador	<input type="checkbox"/> Butte	<input type="checkbox"/> Calaveras	<input type="checkbox"/> Colusa
<input type="checkbox"/> Contra Costa	<input type="checkbox"/> Del Norte	<input type="checkbox"/> El Dorado	<input type="checkbox"/> Fresno
<input type="checkbox"/> Glenn	<input type="checkbox"/> Humboldt	<input type="checkbox"/> Imperial	<input type="checkbox"/> Inyo
<input type="checkbox"/> Kern	<input type="checkbox"/> Kings	<input type="checkbox"/> Lake	<input type="checkbox"/> Los Angeles
<input type="checkbox"/> Lassen	<input type="checkbox"/> Madera	<input type="checkbox"/> Marin	<input type="checkbox"/> Mariposa
<input type="checkbox"/> Mendocino	<input type="checkbox"/> Merced	<input type="checkbox"/> Modoc	<input type="checkbox"/> Mono
<input type="checkbox"/> Monterey	<input type="checkbox"/> Napa	<input type="checkbox"/> Nevada	<input type="checkbox"/> Orange
<input type="checkbox"/> Placer	<input type="checkbox"/> Plumas	<input type="checkbox"/> Riverside	<input type="checkbox"/> Sacramento
<input type="checkbox"/> San Benito	<input type="checkbox"/> San Bernardino	<input type="checkbox"/> San Diego	<input type="checkbox"/> San Francisco
<input type="checkbox"/> San Joaquin	<input type="checkbox"/> San Luis Obispo	<input type="checkbox"/> San Mateo	<input type="checkbox"/> Santa Barbara
<input type="checkbox"/> Santa Clara	<input type="checkbox"/> Santa Cruz	<input type="checkbox"/> Shasta	<input type="checkbox"/> Sierra
<input type="checkbox"/> Siskiyou	<input type="checkbox"/> Solano	<input type="checkbox"/> Sonoma	<input type="checkbox"/> Stanislaus
<input type="checkbox"/> Sutter	<input type="checkbox"/> Tehama	<input type="checkbox"/> Trinity	<input type="checkbox"/> Tulare
<input type="checkbox"/> Tuolumne	<input type="checkbox"/> Ventura	<input type="checkbox"/> Yolo	<input type="checkbox"/> Yuba

Identify Primary Mutual Aid Region: 1, 2, 3, 4, 5, 6

Type of Commenter (Check Only One): Contractor, fed agency, local gov, non profit, state agency

Commenter's Agency/Business:

Agency Represented:

Secondary Contact Information:

First Name: _____

Last Name: _____

Phone Number: _____

Email Address: _____

2. Jurisdiction Overview and Agency Mission

Level of Government (Operator):

State

Regional (More than one county, may include JPA)

County

- City
- Special district
- Local interagency (within one county, may include JPA)
- Federal

Disciplines Served:

- Law Enforcement
- Fire and Rescue
- Emergency Medical Services – Fire
- Emergency Medical Services – non fire
- Incident Response
- Private Security
- Operational field staff (public works, building inspection, utilities etc.)
- Administrative (including radio systems staff use)

System Name:

Geographic Service Area

Included in a Tactical Interoperable Communication Plan? Yes No

3. Agency Operational and Radio System Overview

Number of radio system users:

- 1-100
- 100-250
- 250-500
- 500-1000
- 1000-2000
- 2000-5000
- 5000-10000
- 10000-15000

System Communicates with:

- Your agency only
- Your agency only-statewide
- Some allied agencies in your county
- All agencies in your county
- Allied agencies in a region including more than one county
- Allied agencies statewide

Are you a part of a shared system? Yes No

Name shared system (i.e. San Diego RCS, EBRCS, etc.)

Are you currently upgrading your system?

- Planning
- Procuring
- Implementing
- No current upgrade activities

4. System Radio Frequencies

Frequency bands used: (check all that apply)

HF VHF-Hi UHF 700 WHF-Lo 220 UHF-T 800

Do you use:

- Local License Frequencies
- State/Federal Interoperability Frequencies
- Federal Frequencies (NSTI)
- Military Frequencies
- Amateur Radio

System Configuration

- Trunked Signal Type: Analog Digital
- Trunked Proprietary System: Motorola LTR EDACS N/A
- Conventional Signal Type: Yes No
- Conventional not used
- Analog channel spacing wide
 - Analog channel spacing narrowband
 - Digital

Do you operate a mixed trunked /conventional system? Yes No
 What percentage trunked? _____

5. Agency Radio Facilities and Equipment - How Many:

Fixed Stations	Total	# of Obsolete/Failing
Mobile Relay:	_____	_____
Base Station:	_____	_____
Control Station:	_____	_____
Mobile Radios:	_____	_____
Portable (hand held):	_____	_____
Mobile Data Terminals:	_____	_____
Satellite Telephone:	_____	_____
Number of Mobile:	_____	_____
Number of Portable (hand held):	_____	_____
Number of Fixed:	_____	_____
Satellite Dispatch Radio	_____	_____
Number of Mobile:	_____	_____
Number of Portable (hand held):	_____	_____
Number of Fixed:	_____	_____
Satellite Data Terminal	_____	_____
Number of Mobile:	_____	_____
Number of Fixed:	_____	_____

6. Survivable Communications Systems (Cache/Reserve)

	Total	# of Obsolete/Failing
Hand Held Radios:	_____	_____
Cellular Telephones:	_____	_____
Portable/Mobile Repeaters:	_____	_____
Gateways (i.e. ACU):	_____	_____
Mobile Communications Unit:	_____	_____
Satellite Telephone:	_____	_____
Satellite Dispatch Radio	_____	_____
Satellite Data Terminal:	_____	_____

7. Audio Gateway Systems (i.e. ACU)

Do you operate gateway(s) _____ Yes _____ No

Number of Mobile: _____
 Number of Transportable: _____
 Number of Fixed: _____
 Geographic Area Served: _____
Is/are your gateway(s) available for mutual aid use? _____ Yes _____ No
 Interagency Governance Plan? _____ Yes _____ No
 Operated Frequencies: (Check all that apply)
 ___ HF ___ VHF-Hi ___ UHF ___ 700
 ___ VHF-Lo ___ 220 ___ UHF-T ___ 800

Are your frequencies included in other agency gateways? _____ Yes _____ No
 Number of Mobile: _____
 Number of Transportable: _____
 Number of Fixed: _____
 Geographic Area Served: _____
 Interagency Governance Plan? _____ Yes _____ No

Operated Frequencies: (Check all that apply)
 ___ HF ___ VHF-Hi ___ UHF ___ 700
 ___ VHF-Lo ___ 220 ___ UHF-T ___ 800

Do you have access to a gateways operated by other agencies? _____ Yes _____ No
 Agencies/Jurisdictions Interagency Governance Plan? _____ Yes _____ No

8. Dispatch Operations

Do you operate dispatch services? _____ Yes _____ No
 How many dispatch centers? _____

9. Advanced Capabilities

Please select all that apply:

- ___ VoIP Transport of Radio Traffic (RoIP)
- ___ Microwave System
- ___ Satellite Communications Systems (other than OES' OASIS)
- ___ Fixed Broadband Video/Data Capability
- ___ Mobile Broadband Video
- ___ Computer Aided Dispatch (CAD/Server)
- ___ Mobile Data Terminals/Computers (MTDs/MDCs)
- ___ Geographic Information Systems (GIS)
- ___ Automatic Vehicle Location (AVL)

Do you have Video Teleconferencing in your

Emergency Operations Center? Yes No

10. Current Needs and Requirements of the Agency Radio System

Briefly identify communications challenges:

Needs:

- Additional Channels
- Expanded System Coverage
- Funding
- Modernization
- FCC Compliance
- FCC Required Modernization

11. Future Directions and Initiatives for your System Develop plans for interoperability?

Yes No

Explain:

Attach Plan Here:

Attachments: to attach a file, push Browse and locate the file and press OPEN

Narrowband Transition Time Frame: _____
 Funded Unfunded

Project 25 Implementation Time Frame: _____
 Funded Unfunded

12. Interoperability Progress on Continuum (check one button per category) (Click View Continuum for Reference) View Continuum

Governance:

- Individual Agencies Working Independately
- Informal Coord. Between Agencies
- Key Multidiscipline Staff Collaboration on a Regular Basis
- Regional Committee Working with a Statewide Interop Committee

Standard Operating Procedures:

- Individual Agency SOPs
- Joint SOPs for Planned Events
- Joint SOPs for Emergencies
- Regional Set of Communications SOPs
- NIMS Integrated SOPs

Technology:

- Swap Radios
- Gateway
- Shared Channels
- Propriety Shared Systems
- Standards-based Shared System

Training and Exercise:

- General Orientation on Equipment
- Single Agency Tabletop Exercises for field and support staff
- Multiagency Tabletop Exercises for Field and Support Staff
- Multiagency Full Functional Exercise Involving All Staff
- Regular Comprehensive Regional Training and Exercises

Usage:

- Planned Events
- Localized Emergency Incidents
- Regional Incident Management
- Daily Use Throughout Region

13. Additional Comments about your System

Appendix K. Statement of Requirements Definition

Requirements Definition Goals & Objectives:

The evolving Statement of Requirements (SoR) must necessarily represent a comprehensive integrated public safety solution able to accommodate (to the greatest extent practicable) legacy, current, and future public safety wireless voice and data communications systems of those local, state, and federal government users having the wherewithal, willingness, and legitimacy to participate.

Remain ever cognizant of the SAFECOM Program mantra that states, "...to drive progress along the five elements of the continuum and improve interoperability, public safety practitioners should observe the following principles:

- Gain leadership commitment from all disciplines (Emergency Medical Services [EMS], Fire, Law Enforcement)].
- Foster collaboration across disciplines (EMS, Fire, Law Enforcement) through leadership support.
- Interface with policy makers to gain leadership commitment and resource support.
- Use interoperability solutions on a regular basis.
- Plan and budget for ongoing updates to systems, procedures, and documentation. and
- Ensure collaboration and coordination across all elements (Governance, Standard Operating Procedures [SOPs], Technology, Training/Exercises, Usage)."

To develop a System-of-Systems (SoS) based SoRs:

- Focused on the functional needs of public safety first responders—EMS personnel, firefighters, and law enforcement officers—to communicate and share information as authorized when it is needed, where it is needed, and in a mode or form that allows the practitioners to effectively use it. The communications mode may be voice, data, image, video, or multimedia that includes multiple forms of information.
- Rooted in the goal of improving the ability of public safety personnel to communicate among themselves, with the non-public safety agencies and organizations with whom they work, and with the public that they serve

To assist the telecommunication interoperability and information-sharing efforts by and among local, tribal, state, and federal government agencies, and regional entities, by delineating the critical operational functions and interfaces within public safety communications that would benefit from research and development investment and standardization.

Key Elements/Issues to be expanded upon:

- **Public Safety Requirements and Roles**, defines public safety communication needs and public safety roles and functions.
- **Communications Services Definition** defines communications services—interactive and non-interactive voice communications and interactive and non-interactive data communications.

- **Public Safety Wireless Communications Scenarios** outlines several public safety scenarios based on typical operations to provide a view of future public safety communications.
- **Operational Requirements of Public Safety for Wireless Communications and Information Capabilities** identifies the wireless communications operational needs of public safety.
- **Wireless Communications Functional Requirements** defines the wireless communications functional requirements.
- **Complete Glossary** of the terminology and acronyms used in the SoS-oriented SoR.
- **System Capabilities** including:
 - **Wireless Voice Capabilities**
 1. **Communications Regardless of Technologies, Infrastructures, and Frequency Bands**
Ability for users to transparently communicate, as authorized, among multiple agencies/jurisdictions – some of which may use different technologies, infrastructures and/or frequency bands – regardless of system. Includes the transitioning between commercial systems and private land mobile radio (LMR) systems.
 2. **Communication with Own Jurisdiction**
Ability to communicate with members of own agency/jurisdiction while using the infrastructure of another agency/jurisdiction.
 3. **Communication with Other Jurisdictions**
Ability to communicate with other agencies/jurisdictions using the infrastructure of that agency/jurisdiction.
 4. **One-to-One Communications**
Ability for users to transparently communicate, as authorized, with members of other agencies/jurisdictions on a unit-to-unit (one-to-one) basis.
 5. **One-to-Many Communications**
Ability for users to transparently communicate, as authorized, with members of other agencies/jurisdictions on a unit-to-group (one-to-many) basis.
 6. **Communications Outside Wireless Infrastructure Coverage**
Provide direct communications (talk around) between user radios where wireless infrastructure is unable to support communications (e.g., in some rural areas, underground parking garages, tunnels, and inside some buildings).
 7. **Jurisdictional Signal Coverage**
Provide jurisdictional-wide signal coverage to system users; optionally, provide ways to enhance or improve jurisdictional coverage into rural areas, underground parking garages, tunnels, and inside buildings that are usually not sufficiently covered.
 8. **Identification and Authorization**

Ability to initiate wireless voice communications by requiring the user to enter (on his/her radio) a user identification that authenticates and validates the user and loads the user's profile. This profile defines talkgroups for the user and completes all radio network administration for the user's voice communications with other members of the user's agency/jurisdiction and with other agencies/jurisdictions, as authorized.

9. Priority Levels for Access and System Use

Ability of the agency/jurisdiction to administer the priority for voice communications of particular users and particular public safety applications (such as task force operations, incidents, etc.).

10. Emergency Voice Communication

Ability to communicate an emergency voice message (e.g. after pressing a panic button) that has priority over other voice communications.

11. Emergency Signal

Ability to broadcast an emergency signal (e.g. via a panic button) that has priority over other communications.

12. Secure Communications

Ability to have secure (encrypted) voice communications to fit users' environment and which satisfies applicable laws, regulations, policies of the agencies, and jurisdictions of the users.

13. System Administration

Ability to effectively initiate and sustain flexible and dynamic system administration for purposes of multi-agency interoperability, including administration of talkgroups, encryption key management, emergency alerts, networks, and channels for mutual aid.

14. Remotely Re-Program User Radios

Ability to remotely (over-the-air) re-program a radio's parameters (i.e., frequency channels, talkgroups, squelch control, encryption keys, etc.) and/or modify functionality (e.g., encryption algorithms, waveforms, etc.)

15. Resilient Operations

Ability to sustain resilient operations including tolerance to individual system failures, redundant coverage from adjacent sites, resistance to impact of catastrophic events, etc.

16. Reliable System Performance

Ability to maintain reliable system performance over disparate interconnected systems.

• **Wireless Data Capabilities**

17. On-scene Wireless Data Networks

Ability to quickly and transparently establish and maintain on-scene wireless data networks (e.g., on-scene to include in-building).

18. On-scene Exchange of Data

Ability of on-scene personnel to transparently exchange data.

19. High-Speed Data Transfer

Capability of high-speed data transfer with ability to sustain performance at network interconnections.

20. Communication with Own Jurisdiction
Ability to exchange data with members of own agency/jurisdiction while using the infrastructure of another agency/jurisdiction.
21. Communication with Other Jurisdictions
Ability to exchange data with members of other agencies/jurisdictions using the infrastructure of that agency/jurisdiction.
22. Sensor Networks
Ability to exchange data involving sensors (e.g., biometric, environmental, personnel location).
23. Identification and Authorization
Ability to initiate wireless data communications by requiring the user to enter (on his/her terminal/radio) a user identification that authenticates and validates the user and loads the user's profile. This profile defines data resource capabilities for the user and completes all radio network administration for the user's data communications with other members of the user's agency/jurisdiction and with other agencies/jurisdictions, as previously authorized.
24. System Administration
Flexible and dynamic system administration (includes administration of wireless data networks, adding users, giving permissions).
25. Data Security
Ability to ensure secure exchange of information.
26. Information Protection
Ability to protect information according to applicable laws and statutes.
27. Resilient Operations
Ability to sustain resilient operations including tolerance to individual system failures, redundant coverage from adjacent sites, resistance to impact of catastrophic events, etc.
28. Reliable System Performance
Ability to maintain reliable system performance over disparate interconnected systems.

- **Information Systems Capabilities**

29. Rapid Information Source Access
Ability to provide the exchange of information in a timely fashion to support critical decision points from both field and base locations, including but not limited to information regarding identification (photos, fingerprints, etc.) and activity (criminal history, wants/warrants, reporting/contact history, CAD info, building diagrams, building sensors, transportation info, etc.).
30. Query/Access Multiple Data Sources with One Request
Ability to query/access multiple data sources using one request that is routed to multiple entities simultaneously.

31. "Enter Once – Reuse Forever" Approach to Data Gathering
Ability to enter validated information once, then share and reuse that information among authorized entities.
32. Data Exchange with Computer-Aided Dispatch
Ability to exchange information with Computer-Aided Dispatch (CAD) and Record Management Systems (RMS).
33. Data Access to Logistical Resource Information
Capability to obtain logistical resource information on all personnel and equipment responding to an incident.
34. Emergency Notifications
Ability to broadcast critical information by means such as text messaging to multiple organizations.
35. Formatting
Ability to effectively and efficiently exchange data between agencies/jurisdictions (e.g., by employing common data representation structures and exchange formats and protocols).
36. Open Source Formatting
Ability to effectively and efficiently exchange data between agencies/jurisdictions, e.g., by encouraging open source format.
37. Data Security
Capability of maintaining the security requirements of any entity within a broader security framework.
38. Field Image Capture and Distribution
Capability of field image capture and distribution.
39. Data Access to Background Information Sources
Ability to access information related to hazardous materials, water sources, floor and building plans, fire pre-plans, utility maps, weather forecasts, topographic terrain, transportation, and other background data to support public safety incident management.
40. Data Access to Medical Information
Ability to manage medical information.
41. Data Access to Legal Information
Ability to access legal information such as investigation/litigation records, court scheduling records, disposition data, and charge data.

Note: Includes extracts from SAFECOM/AGILE/NIST Summit on Interoperable Communications for Public Safety, held at the National Institute of Standards and Technology (NIST)

Appendix L. California's Current or Planned Regional Systems

System	Point of Contact	TICP	Status	URL	Participating Agencies
LA-RTCS	Lt. Stephen Webb	Los Angeles/Long Beach	Under development	www.lartcs.org/html/lartcs.html	<ul style="list-style-type: none"> ○ LA County Sheriff's Department ○ LA Area Fire Chiefs Association ○ LA County Chiefs of Police Association ○ LA County Fire Department ○ LA Police Department ○ LA County Health Department ○ LA City Fire Department ○ United States Secret Service, which serves representing all Federal agencies ○ California Highway Patrol, representing all State agencies
ICIS	Don Wright	Los Angeles/Long Beach	Current system	http://www.icisradio.org/correspondence.asp	<ul style="list-style-type: none"> ○ Beverly Hills ○ Burbank ○ Culver City ○ Glendale ○ Montebello ○ Pomona
CCCS	Robert Stoffel	Anaheim/Santa Ana	Current system	http://www.ocsd.org/	<ul style="list-style-type: none"> ○ 34 Orange County cities ○ District Attorney ○ Health Care Agency ○ Integrated Waste Management ○ John Wayne Airport ○ Probation ○ Sheriff-Coroner ○ Resources & Development Management ○ Orange County Fire Authority ○ Orange County Transportation Authority
SDRCS	RCS Management Office Wireless Services Division (WSD)	San Diego	Current	rcs800mhz@sdsheiff.org http://www.rcs800mhz.org	<ul style="list-style-type: none"> ○ Over 200 local, state, and federal agencies
PSEC	Alex Harris	Riverside	Under development	www.riversidesheriff.org	TBD
Riverside County Public Safety Intercom	Dan Nila	Riverside		http://www.riversidecountyit.org	<ul style="list-style-type: none"> ○ Riverside County Fire Department ○ Riverside County ○ Hemet City Fire & Police ○ Desert Hot

System	Point of Contact	TICP	Status	URL	Participating Agencies
					<ul style="list-style-type: none"> Sheriff's Department ○ Corona & Norco Cities Fire / Corona City Police ○ Riverside City Fire & Police ○ Murrieta City Fire & Police Springs Police ○ Banning Police ○ Beaumont Police ○ Palm Springs Fire & Police ○ Cathedral City Fire & Police ○ California Highway Patrol-Indio
San Bernardino ECS	Tim Trager	San Bernardino	Current system	http://www.sbcecs.org/	<ul style="list-style-type: none"> ○ Volunteers who hold an FCC issued HAM Radio license
Ventura County System	Scott Allison	Ventura	Under development to be fully operational in July 2008	N/A	<ul style="list-style-type: none"> ○ Potential authorized users include private ambulance services, military installations, private company security, Federal agencies, and local area universities ○ Ventura Sheriff's and Fire Departments
LA-RICS	Frederick W. Latham	Los Angeles/Long Beach	Under development	www.la-rics.org	TBD
Fresno Urban Area	Lt. Phil Caporale	Fresno	Current system	N/A	<ul style="list-style-type: none"> ○ Fresno Police Department ○ Fresno Fire Department ○ Fresno County Sheriff's Office ○ Fresno County EMS ○ Fresno County Fire ○ Clovis Police Department ○ Clovis Fire Department ○ North Central Fire Protection District ○ Sanger Police Department ○ Selma Police Department ○ Fowler Police Department ○ Reedley Police Department ○ Reedley Fire Department ○ Kingsburg Police Department ○ Kingsburg Fire Department ○ Coalinga Police Department ○ Coalinga Fire Department

System	Point of Contact	TICP	Status	URL	Participating Agencies
					<ul style="list-style-type: none"> ○ California State University Fresno Police Department
Madera County Sheriff	Michael Salvador	N/A	Current system	N/A	<ul style="list-style-type: none"> ○ 8 area agencies and city, county, federal and school districts
Merced County Sheriff's Department	Mike Harris	N/A	Current system	N/A	<ul style="list-style-type: none"> ○ Sheriff's Department
BARTECS	Jeff Georgevich	San Francisco	Current system	N/A	<ul style="list-style-type: none"> ○ 9 Bay Area counties
BAM	Mitch Sutton	San Francisco		N/A	<ul style="list-style-type: none"> ○ West Bay Regional Communications System (WBRCS) ○ East Bay Regional Communications System (EBRCS) ○ Silicon Valley Regional Communications System (SVRCS)
EBRCS	Bill McCammon	Oakland	Under development	N/A	<ul style="list-style-type: none"> ○ Alameda County and Contra Costa County agencies
San Francisco DOJ "25 Cities" Project	Mitch Sutton	San Francisco	Under development to be fully operational in December 2007	N/A	<ul style="list-style-type: none"> ○ Responding federal, state, local agencies
San Francisco P25 Voice/Data Communications Project	Mitch Sutton	San Francisco	Upgrade to current system	N/A	<ul style="list-style-type: none"> ○ Expand the system to accommodate transportation agencies and other federal, state, and local agencies which have executed Memorandums of Understanding for usage of the system ○ All federal, state, and local agencies which adhere to the APCO Project 25 Common Air Interface standard
SVRIP		San Jose		N/A	<ul style="list-style-type: none"> ○ 18 Santa Clara County jurisdictions, representing some thirty law enforcement, fire and

System	Point of Contact	TICP	Status	URL	Participating Agencies
					emergency medical services agencies
SRRCS	Kent Eldridge	Sacramento	Current system	N/A	<p>System includes 83 users. Primary users include:</p> <ul style="list-style-type: none"> ○ CalTrans ○ Grant Joint Union High School District Police Services ○ City of Citrus Heights Police Department ○ City of Citrus Heights Local Government ○ City of Folsom Fire Department ○ Los Rios Community College District ○ City of Folsom Local Government ○ City of Folsom Police Department ○ City of Sacramento Fire Department ○ City of Sacramento Local Government ○ City of Sacramento Police Department ○ City of Sacramento Siren System ○ City of West Sacramento Fire Department ○ Sacramento District Attorney ○ City of West Sacramento Parks ○ Sacramento Metropolitan Fire District ○ City of West Sacramento Police Department ○ Sacramento Regional <ul style="list-style-type: none"> ○ Consumes Services District (Elk Grove and Galt Fire Departments) ○ Sacramento Regional Waste Water Treatment Plant ○ County of Sacramento Communication s Center ○ Sacramento Sheriff's Department ○ County of Sacramento Coroner ○ Sacramento Transportation Authority (Freeway Service Patrol) ○ County of Sacramento Department of Airports ○ County of Sacramento Emergency Operations ○ County of Sacramento Park Rangers and Park Maintenance

System	Point of Contact	TICP	Status	URL	Participating Agencies
					<ul style="list-style-type: none"> Fire/EMS Dispatch Center ○ Sacramento Regional Transit ○ Wilton Fire Department ○ City of West Sacramento Public Works ○ County of Sacramento Probation ○ County of Sacramento Public Works ○ County of Sacramento Water Resources ○ County of Sacramento Human Assistance Investigations (Welfare Fraud) ○ Walnut Grove Fire Department
SECA	Ross Cardno	N/A	Under development to be fully operational in December 2007	N/A	<ul style="list-style-type: none"> ○ All public safety agencies of Solano County
MERA	Richard Chuck	San Francisco	Current system	N/A	<ul style="list-style-type: none"> ○ City of Belvedere ○ Bolinas Fire Protection District ○ Town of Corte Madera ○ Town of Fairfax ○ Inverness Public Utility District ○ Kentfield Fire Protection District ○ City of Larkspur ○ County of Marin ○ Marin County Transit District ○ Ross Valley Fire Service ○ Town of Tiburon ○ Town of San Anselmo ○ City of San Rafael ○ City of Sausalito ○ Stinson Beach Fire Protection District ○ Southern Marin Fire District ○ Tiburon Fire Protection

System	Point of Contact	TICP	Status	URL	Participating Agencies
					<ul style="list-style-type: none"> ○ Marin Community District ○ College District ○ Marin Municipal Water District ○ Marin Community Services District ○ Twin Cities Police Department ○ City of Mill Valley ○ City of Novato ○ Novato Fire Protection District ○ Town of Ross
TriMAC	Bert Hildebrand	San Jose	Current system	N/A	<ul style="list-style-type: none"> ○ Santa Cruz County ○ Monterey County ○ San Benito County ○ City of San Jose ○ Santa Clara County
Placer County	Heinz Klose	N/A	In final phase of development	N/A	<ul style="list-style-type: none"> ○ Law enforcement agencies, fire services and medical services from local cities, neighboring Counties and the State of Nevada
SHASCOM	Steve Peach	Shasta	Current system	N/A	<ul style="list-style-type: none"> ○ Police, Sheriff, Fire, and EMS agencies in Shasta County and the City of Redding
Humboldt Data Project	Phil Daastol	Humboldt		N/A	<ul style="list-style-type: none"> ○ California Law Enforcement Telecommunications System (CLETS)
Sutter County	Sutter County Sheriff's Department	Sutter	Current system	N/A	<ul style="list-style-type: none"> ○ Sutter County Sheriff's Department
Yuba City	Joe Oates or Chief Doscher	N/A	Currently in planning and engineering stages	N/A	<ul style="list-style-type: none"> ○ Any agency in the State

Appendix M. Executive Order Establishing NIMS Compliance

Executive Order



EXECUTIVE ORDER S-2-05
by the
Governor of the State of California

WHEREAS, the President in Homeland Security Directive-5, directed the Secretary of the Department of Homeland Security to develop and administer a National Incident Management System, which would provide a consistent nationwide approach for federal, state, local, and tribal governments to work together more effectively and efficiently to prevent, prepare for, respond to, and recover from disasters, regardless of cause, size, or complexity; and

WHEREAS; California local and state government pioneered the development of standardized incident management systems to respond to a variety of catastrophic disasters, including fires, earthquakes, floods, and landslide; and

WHEREAS, in the early 1970s, the California fire service, in partnership with the federal government, developed the seminal emergency incident command system that has become the model for incident management nationwide; and

WHEREAS; in 1993, California was the first state to adopt a statewide Standardized Emergency Management System for use by every emergency response organization, and implemented a system involving local and state agencies to ensure the continual improvement of the Standardized Emergency Management System; and

WHEREAS, California local and state emergency management professionals have contributed their expertise to the development of the new National Incident Management System; and

WHEREAS, it is essential for responding to disasters and securing the homeland that federal, state, local, and tribal organizations utilize standardized terminology, standardized organizational structures, interoperable communications, consolidated action plans, unified command structures, uniform personnel qualification standards, uniform standards for planning, training, and exercising, comprehensive resource management, and designated incident facilities during emergencies or disasters; and

WHEREAS, the California Standardized Emergency Management System substantially meets the objectives of the National Incident Management System, and

WHEREAS, the National Commission on Terrorist Attacks (9-11 Commission) recommended adoption of a standardized Incident Command System nationwide.

NOW, THEREFORE, I, Arnold Schwarzenegger, Governor of the State of California, by virtue of the power vested in me by the Constitution and Statutes of the State of California, do hereby direct the following:

1. My Office of Emergency Services and Office of Homeland Security, in cooperation with Standardized Emergency Management System Advisory Board, will develop a program to integrate the National Incident Management System, to the extent appropriate, into the state's emergency management system.
2. The Office of Emergency Services will identify any statutes or regulations that need to be eliminated or amended to facilitate implementation of the National Incident Management System.
3. The Office of Emergency Services will report on the status of the implementation of the National Incident Management System to my Emergency Council no later than June 1, 2005.

IN WITNESS WHEREOF I have here unto set my hand and caused the Great Seal of the State of California to be affixed this the eighth day of February 2005.

/s/ Arnold Schwarzenegger
Governor of California



Appendix N. Letter of Support for NPSTC Standard Channel Nomenclature



June 6, 2007

Marilyn Ward, Executive Director
National Public Safety Telecommunications Council
8191 Southpark Lane, Unit 205
Littleton, CO 80120

Mrs. Ward:

The California Statewide Interoperability Executive Committee (CalSIEC) is composed of public safety representatives from local, county, tribal and state agencies across California. It also includes public safety representatives from associations, 700 and 800 MHz Regional Planning Committees, special districts and universities, as well as public safety support representation from critical infrastructure providers and the California National Guard. It represents this nation's largest state from its dense population centers to its most remote mountainous regions.

It is our privilege to congratulate NPSTC on an important effort to seek public comment on the FCC's 700 MHz National Coordination Committee's Interoperability Channel Naming proposal, arrive at an acceptable compromise during an amazing show of consensus building at a meeting in Orlando on February 5, 2007 and then publicly vet the final report of that meeting during the intervening months. As you know, the California Fire Services sent a delegation to the Orlando meeting and participated actively in building the consensus naming proposal. A member of CalSIEC representing the FIRESCOPE Communications Specialist Group, Brent Finster, offered the following formal comment to NPSTC on the consensus report:

"FCSG/CalChiefs believes that the process as conducted by NPSTC was a fair, equitable process that allowed for a maximum amount of vetting by the public safety agencies that will be most affected by this decision. FCSG/CalChiefs submitted a proposal and were in attendance at the Channel Naming Task Force meeting in Orlando. We saw a great deal of cooperation and collaboration during that meeting and an understanding on the part of the committee as to our specific issues and concerns. FCSG/CalChiefs believes that any radio channel naming plan adopted should address the end users' needs primarily. We feel that our comments were heard and understood. At the conclusion of the day, we reviewed the consensus. Although FCSG/CalChiefs was not successful in all of the aspects of our submission, we feel that we achieved 95% of what we set out to accomplish. FCSG/CalChiefs understands the diversity of interests in this issue, both geographically as well as the various levels of experience regarding the usage of interoperability channels within this country. We believe that California, and especially the California Fire Service, has the most experience in regards to the actual use of mutual

aid/interoperability channels based on our activity and the sophistication of our systems and processes.”

The California Fire Service went beyond a paper review of the proposal and actually programmed a variety of radios and field tested the new nomenclature, something we do not believe was done by any other party. Based on the consensus agreement reached in Orlando and the actual field tests by first responders, CalSIEC offers its full support to the consensus NPSTC Channel Naming Task Group Report of Committee published following the Orlando meeting.

Finally, CalSIEC notes that a number of the initially proposed modifications, as well as comments offered during the recent vetting process, originated within managerial and technical components of public safety agencies. We are concerned that significant weight might be given to comments from public safety support staff who do not now, nor may ever have, actually worked as a first responder in the field. Beyond the constraints placed upon all areas of public safety with regard to training (or retraining where different naming has been used in the past), once the technical discussions around radio programming and those of cost were addressed in detail and generally resolved by NPSTC, this became wholly an operational issue. Thus, NPSTC’s final decision must be based on what is best from an operational perspective. Is the proposal workable and are the names understandable and usable by first responders actually working on day-to-day incidents, as well as the many major emergencies that strike our nation all too often? California’s field trials of the consensus proposal tell us it is the right one. Thus, we strongly urge you to move forward not only with its adoption by NPSTC as a consensus standard, but bringing it back to the FCC for enactment into Part 90 of their Rules & Regulations as a requirement for use of the nationally designated interoperability channels covered by the proposal according to the time frame, and with the stipulations, proposed in the NPSTC Report of Committee. Once adopted by NPSTC it must be widely circulated, including to all parties involved in 800 MHz rebanding since this is the most time sensitive of the no-cost programming opportunities for implementing the new names.

For decades, almost every after-action report following a major incident, be it a California wildfire, the 9/11 Terrorist Attacks, or Hurricane Katrina, has highlighted a lack of standard names for interoperability channels as a major impediment to effective use of public safety communications by responding agencies, often coming from hundreds or thousands of miles away. NPSTC has afforded the national first responder community an opportunity to use the current momentum for improving interoperability and resolve the single most pressing and long-standing operational detriment to effective interagency communications that exists. We all must seize this moment and use it to our collective benefit.

Sincerely,
Robert N. Sedita, Commander
Los Angeles County Sheriff’s Department
Vice-Chair, California Statewide Interoperability Executive Committee

Appendix O. NCC/NPSTC Standard Channel Nomenclature for the Public Safety Interoperability Channels Sorted by Band in Frequency or Channel Order

FREQ / FCC CHANNEL (SUBSCRIBER LOAD)		BASE,MOBILE, OR FIXED (CONTROL)	ELIGIBILITY / PRIMARY USE	COMMON NAME	LIMITATIONS (47 CFR Part 90)
RECEIVE	TRANSMIT				
MHz	MHz	FCC 30 MHz Public Safety Band			
39.4600	SIMPLEX	Base-Mobile	Law Enforcement	LLAW1	90.20(c)(3) [15]
39.4800	SIMPLEX	Base-Mobile	Fire Proposed	LFIRE2	Prop. 90.20(c)(3) [19]
45.8600	SIMPLEX	Base-Mobile	Law Enforcement	LLAW3	90.20(c)(3) [15]
45.8800	SIMPLEX	Base-Mobile	Fire	LFIRE4	90.20(c)(3) [19]
MHz	MHz	FCC 150 - 162 MHz Public Safety Band			
155.7525	SIMPLEX	Base-Mobile	Any Public Safety Eligible	VCALL10	90.20(c)(3) [80,83]
151.1375	SIMPLEX	Base-Mobile	Any Public Safety Eligible	VTAC11	90.20(c)(3) [80]
154.4525	SIMPLEX	Base-Mobile	Any Public Safety Eligible	VTAC12	90.20(c)(3) [80]
158.7375	SIMPLEX	Base-Mobile	Any Public Safety Eligible	VTAC13	90.20(c)(3) [80]
159.4725	SIMPLEX	Base-Mobile	Any Public Safety Eligible	VTAC14	90.20(c)(3) [80]
161.8500	157.2500	Fixed-Mobile	Allocated for Public Safety Use in 33 Inland VPCAs/EAs	VTAC17	90.20(g)
	SIMPLEX	Base-Mobile		VTAC17D	
161.8250	157.2250	Fixed-Mobile	Allocated for Public Safety Use in 33 Inland VPCAs/EAs	VTAC18	90.20(g)
	SIMPLEX	Base-Mobile		VTAC18D	
161.8750	157.2750	Fixed-Mobile	Allocated for Public Safety Use in 33 Inland VPCAs/EAs	VTAC19	90.20(g)
	SIMPLEX	Base-Mobile		VTAC19D	
154.2800	SIMPLEX	Base-Mobile	Fire	VFIRE21	90.20(c)(3) [19]
154.2650	SIMPLEX	Base-Mobile	Fire	VFIRE22	90.20(c)(3) [19]
154.2950	SIMPLEX	Base-Mobile	Fire	VFIRE23	90.20(c)(3) [19]
154.2725	SIMPLEX	Base-Mobile	Fire	VFIRE24	90.20(c)(3) [19]
154.2875	SIMPLEX	Base-Mobile	Fire	VFIRE25	90.20(c)(3) [19]
154.3025	SIMPLEX	Base-Mobile	Fire	VFIRE26	90.20(c)(3) [19]
155.3400	SIMPLEX	Base-Mobile	EMS	VMED28	90.20(c)(3) [40]
155.3475	SIMPLEX	Base-Mobile	EMS	VMED29	90.20(c)(3) [40]
155.4750	SIMPLEX	Base-Mobile	Law Enforcement	VLAW31	90.20(c)(3) [41]
155.4825	SIMPLEX	Base-Mobile	Law Enforcement	VLAW32	90.20(c)(3) [41]
MHz	MHz	NTIA VHF Law Enforcement Channels			
Use of the NTIA Interoperability Channels by FCC licensees is subject to the conditions specified in FCC Public Notice DA 01-1621. There are discrepancies between DA 01-1621 and the current NTIA "Red Book." NPSTC is working with our Federal partners to clarify the discrepancies and develop a revised name plan for the NTIA channels.					
MHz	MHz	NTIA VHF Incident Response Channels			
Use of the NTIA Interoperability Channels by FCC licensees is subject to the conditions specified in FCC Public Notice DA 01-1621. There are discrepancies between DA 01-1621 and the current NTIA "Red Book." NPSTC is working with our Federal partners to clarify the discrepancies and develop a revised name plan for the NTIA channels.					
MHz	MHz	NTIA UHF Law Enforcement Channels			
Use of the NTIA Interoperability Channels by FCC licensees is subject to the conditions specified in FCC Public Notice DA 01-1621. There are discrepancies between DA 01-1621 and the current NTIA "Red Book." NPSTC is working with our Federal partners to clarify the discrepancies and develop a revised name plan for the NTIA channels.					
MHz	MHz	NTIA UHF Incident Response Channels			
Use of the NTIA Interoperability Channels by FCC licensees is subject to the conditions specified in FCC Public Notice DA 01-1621. There are discrepancies between DA 01-1621 and the current NTIA "Red Book." NPSTC is working with our Federal partners to clarify the discrepancies and develop a revised name plan for the NTIA channels.					
MHz	MHz	FCC 450 - 470 MHz Public Safety Band			
453.2125	458.2125	Fixed-Mobile	Any Public Safety Eligible	UCALL40	90.20(c)(3) [80,83]
	SIMPLEX	Base-Mobile		UCALL40D	
453.4625	458.4625	Fixed-Mobile	Any Public Safety Eligible	UTAC41	90.20(c)(3) [80]
	SIMPLEX	Base-Mobile		UTAC41D	
453.7125	458.7125	Fixed-Mobile	Any Public Safety Eligible	UTAC42	90.20(c)(3) [80]
	SIMPLEX	Base-Mobile		UTAC42D	
453.8625	458.8625	Fixed-Mobile	Any Public Safety Eligible	UTAC43	90.20(c)(3) [80]

FREQ / FCC CHANNEL (SUBSCRIBER LOAD)		BASE,MOBILE, OR FIXED (CONTROL)	ELIGIBILITY / PRIMARY USE	COMMON NAME	LIMITATIONS (47 CFR Part 90)
RECEIVE	TRANSMIT				
	SIMPLEX	Base-Mobile		UTAC43D	
CHANNEL	CHANNEL	FCC 700 MHz Public Safety Band (TV 63 + 68)			
39-40	999-1000 SIMPLEX	Fixed-Mobile Base-Mobile	Calling Channel	7CALL50 7CALL50D	90.531(a)(1)(ii)
23-24	983-984 SIMPLEX	Fixed-Mobile Base-Mobile	General Public Safety Service (secondary trunked)	7TAC51 7TAC51D	90.531(a)(1)(iii)
103-104	1063-1064 SIMPLEX	Fixed-Mobile Base-Mobile	General Public Safety Service (secondary trunked)	7TAC52 7TAC52D	90.531(a)(1)(iii)
183-184	1143-1144 SIMPLEX	Fixed-Mobile Base-Mobile	General Public Safety Service (secondary trunked)	7TAC53 7TAC53D	90.531(a)(1)(iii)
263-264	1223-1224 SIMPLEX	Fixed-Mobile Base-Mobile	General Public Safety Service (secondary trunked)	7TAC54 7TAC54D	90.531(a)(1)(iii)
CHANNEL	CHANNEL	FCC 700 MHz Public Safety Band (TV 63 + 68) (Cont'd)			
119-120	1079-1080 SIMPLEX	Fixed-Mobile Base-Mobile	General Public Safety Service	7TAC55 7TAC55D	
199-200	1159-1160 SIMPLEX	Fixed-Mobile Base-Mobile	General Public Safety Service	7TAC56 7TAC56D	
319-320	1279-1280 SIMPLEX	Fixed-Mobile Base-Mobile	Other Public Service	7GTAC57 7GTAC57D	
303-304	1263-1264 SIMPLEX	Fixed-Mobile Base-Mobile	Mobile Repeater (M03 Use Primary)	7MOB59 7MOB59D	
223-224	1183-1184 SIMPLEX	Fixed-Mobile Base-Mobile	Law Enforcement	7LAW61 7LAW61D	
239-240	1199-1200 SIMPLEX	Fixed-Mobile Base-Mobile	Law Enforcement	7LAW62 7LAW62D	
143-144	1103-1104 SIMPLEX	Fixed-Mobile Base-Mobile	Fire	7FIRE63 7FIRE63D	
159-160	1119-1120 SIMPLEX	Fixed-Mobile Base-Mobile	Fire	7FIRE64 7FIRE64D	
63-64	1023-1024 SIMPLEX	Fixed-Mobile Base-Mobile	EMS	7MED65 7MED65D	
79-80	1039-1040 SIMPLEX	Fixed-Mobile Base-Mobile	EMS	7MED66 7MED66D	
279-280	1239-1240 SIMPLEX	Fixed-Mobile Base-Mobile	Mobile Data	7DATA69 7DATA69D	90.531(a)(1)(i)
CHANNEL	CHANNEL	FCC 700 MHz Public Safety Band (TV 64 + 69)			
681-682	1641-1642 SIMPLEX	Fixed-Mobile Base-Mobile	Calling Channel	7CALL70 7CALL70D	90.531(a)(1)(ii)
657-658	1617-1618 SIMPLEX	Fixed-Mobile Base-Mobile	General Public Safety Service (secondary trunked)	7TAC71 7TAC71D	90.531(a)(1)(iii)
737-738	1697-1698 SIMPLEX	Fixed-Mobile Base-Mobile	General Public Safety Service (secondary trunked)	7TAC72 7TAC72D	90.531(a)(1)(iii)
817-818	1777-1778 SIMPLEX	Fixed-Mobile Base-Mobile	General Public Safety Service (secondary trunked)	7TAC73 7TAC73D	90.531(a)(1)(iii)
897-898	1857-1858 SIMPLEX	Fixed-Mobile Base-Mobile	General Public Safety Service (secondary trunked)	7TAC74 7TAC74D	90.531(a)(1)(iii)
761-762	1721-1722 SIMPLEX	Fixed-Mobile Base-Mobile	General Public Safety Service	7TAC75 7TAC75D	
841-842	1801-1802 SIMPLEX	Fixed-Mobile Base-Mobile	General Public Safety Service	7TAC76 7TAC76D	
937-938	1897-1898 SIMPLEX	Fixed-Mobile Base-Mobile	Other Public Service	7GTAC77 7GTAC77D	
881-882	1841-1842 SIMPLEX	Fixed-Mobile Base-Mobile	Mobile Repeater (M03 Use Primary)	7MOB79 7MOB79D	
801-802	1761-1762 SIMPLEX	Fixed-Mobile Base-Mobile	Law Enforcement	7LAW81 7LAW81D	
857-858	1817-1818 SIMPLEX	Fixed-Mobile Base-Mobile	Law Enforcement	7LAW82 7LAW82D	
721-722	1681-1682 SIMPLEX	Fixed-Mobile Base-Mobile	Fire	7FIRE83 7FIRE83D	
777-778	1737-1738 SIMPLEX	Fixed-Mobile Base-Mobile	Fire	7FIRE84 7FIRE84D	

FREQ / FCC CHANNEL (SUBSCRIBER LOAD)		BASE,MOBILE, OR FIXED (CONTROL)	ELIGIBILITY / PRIMARY USE	COMMON NAME	LIMITATIONS (47 CFR Part 90)
RECEIVE	TRANSMIT				
641-642	1601-1602	Fixed-Mobile	EMS	7MED86	
	SIMPLEX	Base-Mobile		7MED86D	
697-698	1657-1658	Fixed-Mobile	EMS	7MED87	
	SIMPLEX	Base-Mobile		7MED87D	
921-922	1881-1882	Fixed-Mobile	Mobile Data	7DATA89	90.531(a)(1)(i)
	SIMPLEX	Base-Mobile		7DATA89D	
MHz	MHz	FCC 800 MHz NPSPAC Band (Post-Rebanding)			
851.0125	806.0125	Fixed-Mobile	Any Public Safety Eligible	8CALL90	90.16
	SIMPLEX	Base-Mobile		8CALL90D	
851.5125	806.5125	Fixed-Mobile	Any Public Safety Eligible	8TAC91	90.16
	SIMPLEX	Base-Mobile		8TAC91D	
852.0125	807.0125	Fixed-Mobile	Any Public Safety Eligible	8TAC92	90.16
	SIMPLEX	Base-Mobile		8TAC92D	
852.5125	807.5125	Fixed-Mobile	Any Public Safety Eligible	8TAC93	90.16
	SIMPLEX	Base-Mobile		8TAC93D	
853.0125	808.0125	Fixed-Mobile	Any Public Safety Eligible	8TAC94	90.16
	SIMPLEX	Base-Mobile		8TAC94D	

Appendix P. CALSIEC Interoperability Channels Authorization Process

LEGACY OES / FCC CHANNEL LABEL	DESCRIPTION	Mobile Receive FREQUENCY (MHz)	Mobile Transmit FREQUENCY (MHz)	ELIGIBILITY	USAGE	FCC LICENSEE	APPROVAL PROCESS
CALCORD	California On-Scene Emergency Coordination Channel	156.0750	Simplex	Any CA Local Govt.	Mobile only	State of California	Email to 'interop@oes.ca.gov' - Subject: "CALCORD"
CESRS	California Emergency Services Radio System	153.7550	154.9800	OES, Op Area Emer. Mgmt., other authorized users	Repeater	State of California	Email to 'interop@oes.ca.gov' - Subject: "CESRS"
CESRS D		153.7550	Simplex		Base/Mobile		
CLEMARS 1	California Law Enforcement Mutual Aid Radio System	154.9200	Simplex	Law Enforcement	Base/Mobile	State of California	Email to 'interop@oes.ca.gov' - Subject: "CLEMARS"
CLEMARS 2		154.9350	Simplex		Mobile only-Low Power		
CLEMARS 4		460.0250	Simplex		Base/Mobile		
CLEMARS 5		460.0250	465.0250		Repeater		
CLEMARS 6		39.4600	Simplex		Base/Mobile		
CLEMARS 7		39.4600	45.8600		Repeater		
CLEMARS 8		868.5125	Simplex		Base/Mobile		
CLEMARS 9		868.5125	823.5125		Repeater		
CLEMARS 20		866.2000	Simplex		NorCal/Base & Mobile		
CLEMARS 21		866.2000	821.2000		NorCal/Repeater		
CLEMARS 22		484.2375	Simplex		Within 50Mi of LA City Hall - Base & Mobile		
CLERS 1	California Law Enforcement Radio System	158.7900	155.4300	Law Enforcement	Point-to-point	Local Govt. Agency	Email to interop@oes.ca.gov Subject: "CLERS"
CLERS 2		155.0700	159.0300				

LEGACY OES / FCC CHANNEL LABEL	DESCRIPTION	Mobile Receive FREQUENCY (MHz)	Mobile Transmit FREQUENCY (MHz)	ELIGIBILITY	USAGE	FCC LICENSEE	APPROVAL PROCESS
CLERS 3		154.7100	155.6700				
CLERS 4		155.9100	158.7300				
CLERS 5		155.7000	154.8150				
CLERS 6		453.6750	458.6750				
CLERS 7		453.8750	458.8750				
CLERS 8		453.8250	458.8250				
FIREMARS	Fire Emergency Mutual Aid Radio System	868.9875	823.9875	Fire & Rescue & EMS	Repeater	State of California	Contact OES Fire & Rescue
FIREMARS D		868.9875	Simplex		Base/Mobile		
FIREMARS 2		866.9125	821.9125		NorCal/Repeater		
FIREMARS 2D		866.9125	Simplex		NorCal/Base & Mobile		
HEAR	Hospital Emergency Administrative Radio System	155.3400	Simplex	EMS	Base/Mobile	Local Govt. Agency	Contact EMSA, FCC licensing process
ICALL	NPSPAC International Interoperability Channels	866.0125	821.0125	Any Public Safety	Repeater	Mobiles - none Base/Repeaters - State of California	Any Part 90 licensee may use these channels for portable and mobile use without an FCC license or authorization. For base and repeater licensing, contact OES T-Comm via email to 'interop@oes.ca.gov' - Subject: "NPSPAC"
ICALL D		866.0125	Simplex		Base/Mobile		
ITAC 1		866.5125	821.5125		Repeater		
ITAC 1D		866.5125	Simplex		Base/Mobile		
ITAC 2		867.0125	822.0125		Repeater		
ITAC 2D		867.0125	Simplex		Base/Mobile		
ITAC 3		867.5125	822.5125		Repeater		
ITAC 3D		867.5125	Simplex		Base/Mobile		
ITAC 4		868.0125	823.0125		Repeater		
ITAC 4D		868.0125	Simplex		Base/Mobile		

LEGACY OES / FCC CHANNEL LABEL	DESCRIPTION	Mobile Receive FREQUENCY (MHz)	Mobile Transmit FREQUENCY (MHz)	ELIGIBILITY	USAGE	FCC LICENSEE	APPROVAL PROCESS
LA SCMA	Los Angeles Small City Mutual Aid	484.2125	487.2125	LA Law Enforcement	Repeater	State of California	Email to 'interop@oes.ca.gov' - Subject: "LA SCMA"
	Los Angeles Small City Mutual Aid	487.2125	Simplex	LA Law Enforcement	Base/Mobile	State of California	Email to 'interop@oes.ca.gov' - Subject: "LA SCMA"
LA FDUMA	Los Angeles Fire Department Mutual Aid	487.2375	Simplex	LA Fire & Rescue	Mobile only	State of California	Email to 'interop@oes.ca.gov' - Subject: "LA FDUMA"
NALEMARS	National Law Enforcement Mutual Aid Radio System	155.4750	Simplex	Law Enforcement	Base/Mobile	State of California	Email to 'interop@oes.ca.gov' - Subject: "NALEMARS"
OES FIRE 1	Office of Emergency Services Fire & Rescue Radio System	154.1600	Simplex	Fire & Rescue Operational Area & Regional Coordinators	Mobile only	State of California	Letter to OES Fire & Rescue
OES FIRE 1A		154.1600	159.1350		Repeater		
OES FIRE 1B		154.1600	159.1950		Repeater		
OES FIRE 2		154.2200	Simplex		Mobile only		
OES FIRE 2A		154.2200	159.1350		Repeater		
OES FIRE 2B		154.2200	159.1950		Repeater		
UCALL	UHF Interoperability Channels	453.2125	458.2125	Any Public Safety	Repeater	Mobiles - none Base/Repeaters - State of California	Any Part 90 licensee may use these channels for portable and mobile use without an FCC license or authorization. For base and repeater licensing, send an email to 'interop@oes.ca.gov' - Subject: "UTAC"
UCALLa		453.2125	Simplex		Base/Mobile		
UTAC1		453.4625	458.4625		Repeater		
UTAC1a		453.4625	Simplex		Base/Mobile		
UTAC2		453.7125	458.7125		Repeater		
UTAC2a		453.7125	Simplex		Base/Mobile		
UTAC3		453.8625	458.8625		Repeater		
UTAC3a		453.8625	Simplex		Base/Mobile		

LEGACY OES / FCC CHANNEL LABEL	DESCRIPTION	Mobile Receive FREQUENCY (MHz)	Mobile Transmit FREQUENCY (MHz)	ELIGIBILITY	USAGE	FCC LICENSEE	APPROVAL PROCESS
VCALL	VHF Interoperability Channels	155.7525	Simplex	Any Public Safety	Base/Mobile	Mobiles - none Base/Repeaters - State of California	Any Part 90 licensee may use these channels for portable and mobile use without an FCC license or authorization. For base and repeater licensing, send an email to 'interop@oes.ca.gov' - Subject: "VTAC"
VTAC 1		151.1375	Simplex				
VTAC 2		154.4525	Simplex				
VTAC 3		158.7375	Simplex				
VTAC 4		159.4725	Simplex				
WHITE 1	Fire White	154.2800	Simplex	Fire	Base/Mobile	Local Govt. Agency	Review FIREScope Ops Bulletin 28, go thru FCC licensing process
WHITE 2		154.2650	Simplex		Mobile only		
WHITE 3		154.2950	Simplex				

Appendix Q. San Francisco Catastrophic Exercise

1.0 PURPOSE / CONCEPT

San Francisco Earthquake 2006 Functional Exercise

Functional Exercise Definition: The Functional Exercise (FE), also known as a command post exercise (CPX), is designed to test and evaluate individual capabilities, multiple functions or activities within a function. FE's are generally focused on exercising plans, policies, procedures, and staffs of the direction and control nodes (EOC, DOC's) of Incident Command and Unified Command. Generally, events are projected through an exercise scenario with event updates that drive activity at the management level. Movement of personnel and equipment is simulated.

The purpose of this Functional emergency management exercise is to evaluate the City and County of San Francisco's readiness and capability to establish and operate the CCSF Emergency Operations Center (EOC), and agency Department Operations Centers (DOC) in order to accomplish the following objectives in accordance with Homeland Security Presidential Directive 8 (HSPD8) and Homeland Security Exercise and Evaluation Plan planning and evaluation guidelines:

- Command, control, and coordinate emergency resources
- Establish and maintain communications
- Evaluate adequacy of plans, policies, procedures and roles
- Evaluate individual and system performance
- Evaluate the individual and group decision-making process
- Evaluate allocation of resources and personnel (EOC Logistics Section)
- Evaluate overall adequacy of resources to meet the emergency situation
- Train and indoctrinate 2nd and subsequent operational period EOC/DOC emergency response staff.

The following agencies/departments will participated in this Functional Exercise and have/will participated in the exercise design, control and evaluation:

- Port of San Francisco (PSF)
- San Francisco International Airport (SFO)
- Department of Public Works (DPW)
- Public Utilities Commission (PUC)
- Fire (SFFD)
- Police (SFFD)
- Medical Examiner (ME)
- Department of Public Health (DPH)
- San Francisco Office of Emergency Services (SFOES&HS)
- San Francisco Sheriff's Department (SFSD)
- MUNI / MTA
- Emergency Communications Department (ECD)
- San Francisco Department of Traffic and Enforcement (DPT)
- San Francisco Human Resources Agency

2.0 SCENARIO AND DATA

The simulation earthquake is a 6.5 magnitude earthquake on the Peninsula segments of the San Andreas Fault at 0845, Wednesday April 19, 2006. Weather conditions are Wind 270@05K, sky clear, temp 65F, and dew point 55F, humidity 78%. This scenario will result in the following impact to the City and County (based on the Department of Building Inspection Community Action Plan for Seismic Safety (CAPSS) projection/ Fire After Earthquake Study. Additional planning Reference is National Planning Scenario #9, Major Earthquake.

IMPACT AREA	SCALE OF IMPACT
Buildings Destroyed (all types)	7,500–18,250
Total \$ Building Damage	\$8-10 billion
Estimated Number of Large Fires*	200
Number of People Injured (based on time)	1900-4450
Displaced Households (average 2.4 per hh)	78,600
Number of People Requiring Sheltering	15,000-21,000
Number of People Killed	40-99
Number of People Requiring Hospitalization	340-860
GGB, Bay Bridge, San Mateo, Richmond - San Rafael	Probably Closed
US-101 / San Francisco	Probably Closed

*Large fires are those out of control at first arrival of FD that cannot be suppressed by a single engine company. Estimate of fire more uncertain because of Wx conditions, especially wind.

NUMBER OF PRIVATELY OWNED BUILDINGS SUSTAINING COMPLETE ECONOMIC LOSS FROM SHAKING EFFECT, PLUS FIRES FOLLOWING A 6.5 MAGITUDE SAN ANDREAS FAULT EARTHOUAKE (CAPSS)

Neighborhood	Number of Buildings
Bayview	309
Downtown, SOMA, Civic Center	774
Excelsior	2,507

Ingleside	964
Marina	393
Merced	466
Mission, Castro, Glen Park, Noe Valley	1,422
North Beach	285
Pacific Heights	705
Richmond	2,102
Sunset	6,002
Twin Peaks	1,355
Western Addition	805
TOTAL	18,242

OTHER BAY AREA CRITICAL INFRASTRUCTURE PROBLEMS CAUSED BY SAN ANDREAS
FAULT EVENT

(ARC EQ Risk Plan)

Structure	Initial Impact
SF– Oakland Bay Bridge	Closed
Golden Gate Bridge	Closed
San Mateo Bridge	Closed
Dumbarton Bridge	Closed
Richmond San Rafael Bridge	Closed
SFO, OAK Airports	Closed
BART	Non Operational
H-101 San Francisco, Marin, Peninsula	Closed
I-280 San Mateo	Closed
H-92 San Mateo	Closed

FEMA HAZUS EQ Model Impact Data:

Number of privately owned buildings sustaining complete economic loss from shaking effect, plus fires following a 6.5 Magnitude San Andreas Fault earthquake:

Neighborhood	Number of Buildings
Bayview	309
Downtown, SOMA, Civic Center	774
Excelsior	2,507
Ingleside	964
Marina	393
Lake Merced	466
Mission, Castro, Glen Park, Noe Valley	1,422
North Beach	285
Pacific Heights	705
Richmond	2,102
Sunset	6,002
Twin Peaks	1,355
Western Addition	805
TOTAL	18,242

3.0 OBJECTIVES:

All participating Departments and Agencies have submitted objectives to the Exercise Design Team. All objectives will effectively exercise emergency management command, control, communications, planning, damage assessment and resource requests. Additionally participating entities will validate emergency plans and policies. These broad objectives have been matched with corresponding individual Universal Tasks (UTL) and the Target Capability Response Mission Area, sub-category Emergency Operations Center Management (See Appendix "A").

4.0 ASSUMPTIONS AND ARTIFICIALITIES

All major agencies participants and equipment can respond with normal staffing. All personnel going off duty remain on duty.

Exercise damage is based on FEMA HAZUS/DBI CAPPs (Loss Estimation Earthquake Model) earthquake estimate of damage in San Francisco.

Exercise simulators, located in a remote building away from exercise play, will represent all persons and organizations outside the EOC and participating DOCs. To talk to field units, other departmental offices, or state agencies, or private business, exercise participants should call the appropriate listed number in the Exercise Communications Administration Plan, commonly known as the "Yellow Pages".

All intra-EOC and inter-EOC/DOC communications will take place via FM radio, METS, E-Team or Auxiliary Communications System (HAM).

The exercise begins at the onset of the event and the 1st operational period. Shift change and 2nd operational period will take place during the course of the exercise. The transitions will be conducted in a manner in which second shift personnel have an opportunity to observe and get familiar with the operations prior to taking over primary responsibility with mentorship from the primary staff. A Situation Report and IAP will be developed by the 1st OP staff and briefed at the shift change and/or operational period change.

All participating Operations Centers facilities have operational generators and do not lose power.

5.0 ARTIFICIALITIES:

This is a test of the Emergency Operations Center and specific Departmental Operations Centers only. No field units will be used. No casualties will be used.

Department may chose to exercise specific field operations with players. The supporting Department/Agency will manage these field exercises with appropriate exercise staff (controllers, evaluators, simulators).

Exercise simulators, located in a remote building away from exercise play, will represent all persons and organizations outside the EOC and participating DOCs. The simulators will pass exercise play messages to the exercise players via pre-assigned phone numbers. The messages are arranged in a manner to drive the exercise based on the Master Events Scenario List (MESL). Exercise controllers have the capability to adjust the message flow to speed up or slow the play thus helping ensure the exercise stays in the planned timeline.

Exercise messages based on the MESL will be sent by the simulation cell (representing field units and other agencies) to the DOC, and if necessary to the EOC. The exercise pace will be regulated by controllers.

All intra-EOC and inter-EOC/DOC communications will take place via telephone, METS, FM radios, or Auxiliary Communications System (HAM/ACS).

Appendix R. FY2006 Interoperable Communications Projects

**State of California
June 2007 Biannual Strategy Implementation Report (BSIR)
Grants Reporting Tool (GRT)
Total Funding - \$41,795,343
(Operational Areas/Counties - \$17,739,596)
(Urban Areas - \$24,055,747)**

Alameda County

Project C Interoperable Communications Equipment (\$1,800,000)

Project is a multi year, regional interoperability communication system project based on ICTAP'S P25 communication program

Alpine County

Interoperable Communications System (\$80,694)

Interoperable Communications system will tie all radio repeater sites together along with data services for mobile data terminals, "black boxes" (future) for interoperability and add other state agency radio repeater capability.

Amador County

Project A: Replace/Upgrade Radio Equipment for Law Enforcement (\$28,982)

Replace and upgrade radio equipment for law enforcement. Purchase new mobile and portable radios for the City Police Departments. Add two new base stations in the Sheriff's Office Dispatch in order to communicate with the school district and rapid transit busses when used for mass evacuations.

Project B: Replace/upgrade the City Police Departments radio repeater (\$19,361)

Replace/upgrade the City Police Departments radio repeater system

Project D: Replace/Upgrade Radio Equipment for fire and public works (\$27,453)

Replace/upgrade mobile and portable radio equipment for fire and public works departments

Calaveras County

Project A - Replace and Upgrade Radio Equipment (\$40,500)

Purchase new mobile and portable radios and pagers for eleven (11) fire agencies.

Project H - Purchase Interoperable Communications Equipment (\$10,000)

This project will purchase equipment and systems necessary to provide connectivity between multiple agencies during an emergency incident.

City/County San Francisco

Project E- Expand and Enhance Interoperable Communications (\$42,000)

This project funds interoperable communications needs. Through planning, training, exercises, and equipment, San Francisco will increase its capabilities to communicate with our regional partners

Contra Costa County

PROJECT A - East Bay Regional Interoperable Communications System (\$624,905)

Establish an interoperable communications system between the County, adjacent Counties, and local jurisdictions

El Dorado County

Interoperability Communication Equipment (\$147,849)

Create a cache of radios, expand tactical frequency capability, and acquire micro-wave and digital communication systems for remote surveillance capability. Acquire radios for new mobile communications vehicle, and acquire video-conferencing equipment for EOCs.

Humboldt County

Project D - Enhance Public Safety Interoperable Communications (\$193,394)

Multi-year project already supported with local funding and HSGP grants. The goal of this project is to ensure the systems in this Operational Area are compatible and interoperable with other systems throughout this region and the state

Imperial County

Interoperable Communications System (\$329,372)

Interoperable communications equipment

Inyo County

Project D - Equipment - Multi-Band Mobile Radios (\$33,000)

Purchase multi-band (high and low frequency) mobile radios so that key personnel of emergency services agencies can communicate via radio

Kern County

Bear Valley Springs Police Department Response & Communications Project (\$77,970)
Enhance capabilities of Bear Valley Springs Police Department to respond to disaster events

Shafter Police Department Communications Project (\$215,701)
Enhance communications capability of Shafter Police Department

Los Angeles County

Project C - Strengthen the flow and security of real-time data, voice, and video across agencies, disciplines, and jurisdictions (\$5,919,422)

These projects continue incremental improvements to infrastructure that support the long-term vision for the region's communication plan, fills specific critical gaps in capabilities and achieves progress towards a comprehensive regional communication infrastructure. This investment was developed collaboratively through a series of meetings involving nearly 400 stakeholders from approximately 100 jurisdictions throughout Los Angeles County.

Madera County

C. EQUIPMENT- INTEROPERABLE COMMUNICATIONS (\$21,230)

Additional Equipment needed to implement Madera County Consolidated Dispatch System

Mariposa County

Enhance Communications Interoperability- Project A (\$19,522)

Develop Interoperability communications systems linking all responding agencies including Federal, State and local government

Mendocino County

Project D - Fire Portable Repeater (\$11,354)

This project would help us obtain a fixed repeater to be deployed on any mountain top to ensure interoperable communications and redundancy

Project F - EMS Radio Repeater (\$16,821)

The EMS radio repeater will be installed on Sanel Mountain, located in the southern part of Mendocino County, to enhance interoperable communications

Merced County

Project E 800mhz Radio System Upgrades (\$68,983)

The Operational Area will expand/upgrade the 800 MHz emergency radio system previously implemented

Modoc County

C - Upgrade Communications Center (\$83,853)

Upgrade county communications center: 6.11.1 Computer-aided dispatch (CAD) System; 6.11.2/6.11.3 Automated Dialing & Notification system/Public Notification and Warning; 4.1.2.2 Geospatial Data - all addressed structures in the County with associated attribute tables & other data needed for CAD system

Mono County

Install Interoperable Communications System and Tower in June Lake, CA - Southern Mono County (\$29,937)

Install an inter-operable communications system in June Lake, CA located in the southern part of our county. This equipment will include tower, antenna, radio, etc. that will enhance our CBRNE-type communications capabilities

Monterey County

Project K - Operational Area Communications Interoperability (\$194,000)

This project is to upgrade and enhance the OA voice and data communications, and to ensure full interoperability during CBRNE events. The equipment specified will be the cornerstone of the OA's quest for a new telecommunications system for all agencies in Monterey County

Orange County

Project A - Interoperable Communication (\$1,840,029)

800 MHz communication tower upgrades are for satellite radio network links. 2. Orange County Fire Authority is using a portion of the 20% of SHSGP funds to coordinate a wireless Mobile Data Command network to allow information to link from the Incident Command location to the fire stations. Combined with UASI funds, they are also working on a countywide GIS program to link Fire and Law CAD to CAD dispatch information. Combining two current systems into one cohesive system

Placer County

A Strengthen Interoperable Communications Capabilities (Rev 911) (\$20,000)

Enhance dissemination of emergency public information in the most densely populated cities and unincorporated areas of the County by acquiring a Reverse 911 server. The need for delivering safety and threat information is critical to mitigating all-hazard incidents, controlling panic, and increasing public confidence.

E Strengthen Interoperable Communications Capabilities (800MHz) (\$21,000)

Provide the Roseville police department with a redundant communications system. The Department already uses Nextel phones, and with the addition of the 800 MHz interface, it has the ability to use the phones as radios in the case of a catastrophic failure of its normal radio system.

Plumas County

Project Plumas County Radio Interoperability (\$120,570)

This is an ongoing project - this portion adds new equipment for project completion

Riverside County

Project B - Mobile Command Post Interoperability (\$60,000)

Purchase and install interoperable communications equipment into new mobile Command Post

Project K - Sheriff Interoperable Communication Equipment (\$203,500)

Purchase equipment to enhance interoperable communications

San Benito County

A. Portable Repeater (\$25,000)

Enhance interoperable communications by purchase and install portable repeater system for county communications

C. County-wide Interoperability - GIS Networking (\$117,473)

Enhance the fiber optic project for wireless service, network and GIS project

San Diego County

Project A: Strengthen Interoperable Communications (\$1,538,273)

This project will enhance and strengthen the interoperable communications systems within the San Diego OA by purchasing communications equipment, providing training and development/enhancement of plans and protocols

San Joaquin County

Project A: Interoperable Communications (\$1,202,508)

Implementation of San Joaquin Operational Area Master Communications Plan to allow interoperable communications between disciplines during a WMD event; equipment will support common trunking system for public safety agencies and a new communications system for hospitals and ambulances. New mobile command post for Sheriff's Department will enhance interoperability in field operations. Operational Area EOC

communications enhanced with surrounding counties through installation of video conferencing system

San Luis Obispo County

Project A: Radio System Integrator (\$10,000)

This project primarily involves an equipment project to purchase and place in use a device to allow dissimilar radio frequencies to be linked together so users from other agencies and disciplines can communicate with each other via radio.

Project E: Integrated Communications: CAD Interface (\$299,500)

Interoperable communications project that will allow 9-1-1 answering points and related dispatch centers to automatically communicate via computer related systems in place of slower human interaction

Santa Barbara County

Computer Aided Dispatch system (\$351,405)

Installation of CAD

Santa Clara County

E - Interoperability Communications Project (\$50,000)

3 - Portable Police Radios

Santa Cruz County

Project L - First Responders Interoperability Equipment (\$138,815)

Interoperability Communications Equipment

Shasta County

Project "A" Interoperable Communications Equipment (\$125,000)

Update and complete Shasta County Mobil Command vehicle

Siskiyou County

Project A: Develop/enhance Interoperable Communication (\$159,445)

Improve public safety communications systems to enable communication across disciplines and jurisdictions encompassing the entire operational area and multiple agencies to be in compliance with State narrow band frequency requirement by 2013. This is a multi-year plan. Allowing for communication through City, Fire and Sheriff Department across the operational area.

Solano County

County Radio Interoperable Project (\$200,000)

Completion of gateway system that will allow non-compatible radios to communicate with each other

Sonoma County

Radio Interoperability Solutions Project (\$363,081)

Enhance radio interoperability, including cross band repeat capability, communication vehicle chassis

Stanislaus County

Project A - Strengthen Interoperable Communication Capabilities (\$530,322)

A comprehensive engineering study to provide future direction for a countywide, interoperable communication system. (b) Upgrade CAD. The CAD is not compatible with interoperable systems as its technology is outdated.

Sutter County

Project A - Strengthen Interoperable Communications Capabilities (\$166,049)

Purchase Interoperable Communications Equipment for Responders throughout the OA. Purchase equipment to enhance existing capabilities and continue the regional communication coverage

Tuolumne County

Interoperable Communication Systems (\$39,308)

Purchase 5 tough books with maptect software that will be installed in fire engines

Ventura County

Interoperable Communications (\$122,015)

Replace existing handheld radios with ones that are compatible with other units and agencies

City of San Diego UASI

C) Interoperable Communications and Connectivity (\$3,116,499)

The purpose of this investment is to enhance regional communications and data connectivity. It will provide consulting expertise to support facilitation of regional communications infrastructure and information systems, updated and interoperable voice communications, and replacement communications networks and equipment. This

will be in accordance with the long range SDUA plan for interoperable sharing agreements and the Tactical Interoperable Communications (TIC) Plan. Regional Command, Control and Communications System (3Cs Project) will connect dispatch/emergency operations centers across the southwest region. The project will leverage existing efforts, ultimately spanning San Diego County (CA) and Imperial County (CA), and reaching Orange (CA) and Yuma (AZ) counties, linking public safety agencies via high-speed, secure microwave and fiber network. An Interoperable Communications Manager will be hired under contract to develop the regional strategy and ensure an integrated plan.

Bay Area SUASI

PROJECT G: Interoperable Communications (\$6,500,000)

Projects include 1) Develop a strategic plan for the establishment of the Bay Area Regional Tactical Communications System (BARTCS) that uses the Regional Microwave Backbone as a host, 2) Continue building out regional microwave system, 3) Improve Silicon Valley System & BARTCS based on strategic plan 4) Build additional cell site (prime and two others) of the East Bay Regional Communication System to connect to Bay Area wide system.

City of Anaheim/Santa Ana SUASI

Enhance Interoperable Communications (Project A - IJ #2) (\$2,886,248)

To achieve interoperable communications capabilities among local, State, and Federal Public Safety (PS) agencies that conduct day-to-day radio and other systemic communications, including the 800 MHz Countywide Coordinated Communications System (CCCS) and the primary radio system used by OC PS & service entities in Orange County

City of Los Angeles/Long Beach SUASI

Project C - Regional Interoperable Communications (\$11,553,000)

Strengthen the flow and security of real-time data, voice, and video across agencies, disciplines, and jurisdictions in order to manage and coordinate response to terrorist attack, major disasters, and other all-hazard emergencies

Appendix S. Concept for Statewide Interoperability Coordinator's Office

California's Interoperability Coordinator's Office (CICO) as Managed by OES

The CICO, as managed by OES, will be responsible for the daily operations of California's interoperability efforts. Primarily, the CICO's implementation effort will be guided by the initiatives outlined in the CalSCIP. As implementation proceeds, the CICO will seek guidance, input, and recommendations from the joint effort of the CALSIEC, PSRSPC, S/UASIs, and regional governance bodies. The CICO duties involve developing and delivering reports and briefings, coordinating interoperability and communications projects, maintaining governance, and assembling Initiative Action Teams to develop key recommendations.

Draft Responsibilities

The CICO shall:

- Liaise among the local and regional public safety community, state agencies and officials, and the federal government
- Drive and coordinate the effort to implement the CalSCIP by setting timelines and project plans for making progress against the Initiatives
- Guide the CALSIEC and PSRSPC in chartering Working Groups and Initiative Action Teams (IATs) to develop materials, presentations, issue summaries, etc.
- Measure progress and results, and revise the CalSCIP, as needed or every 3 years at a minimum
- Develop and measure long-term and annual performance measures to show progress towards improved interoperability
- Coordinate the compilation of state investment justifications and grants for communications interoperability
- Coordinate with OHS to monitor California's interoperable communications grant opportunities, review potential projects, and provide documentation to the CALSIEC for consideration for endorsement
- Write endorsement letters for approved projects on behalf of the CALSIEC for grant applications
- Work to inform Federal interoperability projects, programs, and initiatives, where possible
- Ensure that OES coordinates the CALSIEC and PSRSPC meeting schedules, agendas, and information, as needed to maximize integration and collaboration
- Maintain records for the effort including, but not limited to, charters, meeting minutes, correspondence, current membership enrollment, recommendations reports, and the Interoperability in CALSIEC website
- Escalate recommendations to the Director of OES for consideration by the Governor's Office

- Gather any overarching comments from the SME Working Group

Appendix T. Local Respondents to Baseline Survey

1. Alpine County
2. Amador County
3. Amador County Sheriff's Office
4. American Medical Response, Ventura
5. Anderson Valley Ambulance Service
6. Arcata Police Department
7. Bakersfield Fire Department
8. Baldwin Park School Police Department
9. Barona Fire Protection District
10. Benicia Police and Fire Departments
11. Berkeley Police/Fire Communications
12. Butte County District Attorney
13. Butte County Fire
14. Butte County Public Health
15. Butte County Public Works
16. Butte County Sheriff
17. Butte County Telecommunications
18. Cal Poly Pomona
19. Calaveras County Sheriff's Department
20. California State University Fresno
21. California State University, Northridge
22. Carlsbad Fire Department
23. Chowchilla Police Department
24. City of Alhambra
25. City of Anaheim
26. City of Anaheim, Police Department
27. City of Azusa Police Department
28. City of Banning, Police Department
29. City of Barstow, Police Department
30. City of Bellflower
31. City of Berkeley (Police Department)
32. City of Beverly Hills Police Department
33. City of Blythe, Police Department
34. City of Bradbury
35. City of Brea Police and Fire
36. City of Buena Park, Police Department
37. City of Calabasas
38. City of Chino
39. City of Chula Vista
40. City of Chula Vista, Southwestern College
41. City of Compton Fire Department
42. City of Corona Fire Department
43. City of Coronado, Police Department
44. City of Cypress Police Dept.
45. City of Downey, Fire Department
46. City of Downey, Police Department
47. City of Duarte (Admin & Local Gov.)
48. City of El Monte
49. City of El Monte, Police Department
50. City of Fountain Valley
51. City of Garden Grove Police Dept.
52. City of Glendale (Fire & EMS)

53. City of Glendora Police Department
54. City of Hesperia
55. City of Huntington Park, Police Department
56. City of Indio Police Department
57. City of Industry
58. City of Irvine, Police Department
59. City of La Mesa, Police Department
60. City of La Mirada
61. City of La Puente
62. City of Lemon Grove Fire Department
63. City of Lomita
64. City of Long Beach (Law, Fire, EMS, Admin)
65. City of Los Angeles Police Department
66. City of Los Angeles Port Police
67. City of Los Angeles, Emergency Preparedness Department
68. City of Los Angeles, Information Technology
69. City of Manteca Police
70. City of Monrovia, Police Department
71. City of Monterey Park Police Department
72. City of Murrieta Police Department
73. City of National City
74. City of Oakland
75. City of Oceanside Police Department
76. City of Ontario, Communications
77. City of Orange, Fire Department
78. City of Palm Springs
79. City of Pasadena, Police Department
80. City of Paso Robles
81. City of Pico Rivera
82. City of Pomona, Police Department
83. City of Poway Fire Department
84. City of Redlands
85. City of Redondo Beach, Police Department
86. City of Ripon Police
87. City of San Diego
88. City of San Gabriel, Fire Department
89. City of San Marcos, Fire Department
90. City of Santa Ana, Fire Department
91. City of Santa Clarita
92. City of Sierra Madre
93. City of Signal Hill, Police Department
94. City of South Gate
95. City of South Pasadena, Fire Department
96. City of Vacaville
97. City of Vernon, Fire Department
98. City of Vista Fire Department
99. City of West Covina
100. City of Whittier Police Department
101. Clayton Police Department
102. Colusa County
103. Contra Costa Comm. College Dist. Police Department
104. Contra Costa County Fire Protection District
105. Contra Costa Sheriff's Office
106. Counties of San Diego-Imperial, Regional Communications System
107. County of Fresno
108. County of Imperial

109. County of Imperial, Imperial Irrigation District
110. County of Kern
111. County of Lassen Sheriff Department, Office of Emergency Services (OES)
112. County of Marin
113. County of Mono County Sheriff
114. County of Napa
115. County of Nevada, OES
116. County of Orange Fire Authority
117. County of Orange Health Care Agency
118. County of Orange, All City & County Law, Fire, Lifeguard and Public Works organizations
119. County of Placer
120. County of Riverside Emergency Services (OES)
121. County of Riverside Fire Department
122. County of Riverside Sheriff Department
123. County of Riverside, EMS Agency
124. County of San Bernardino Sheriff
125. County of San Bernardino, Fire Department
126. County of San Diego, (3Cs) Network, Communications Command and Control
127. County of San Diego, Grossmont Cuyamaca College District
128. County of San Diego, Mutual Aid Radio System
129. County of San Francisco
130. County of San Francisco, Communications
131. County of San Luis Obispo, Emergency Medical Services Authority (EMSA)
132. County of San Luis Obispo, Office of Emergency Services
133. County of Santa Cruz
134. County of Siskiyou, Communication Dept
135. County of Siskiyou, Sheriff's Department
136. County of Tulare
137. County of Ventura, Fire
138. CSU Long Beach Police Department
139. CSU San Bernardino
140. Department of Fish and Game
141. Department of General Services
142. Downieville Fire Protection District
143. Department of Water Resources
144. El Cerrito Police Department
145. Eldorado County
146. Emergency Medical Services Authority
147. Foster City Police Department
148. Fresno Police Department
149. General Services
150. Glenn County Sheriff's Department
151. Health and Human Services Agency
152. Huntington Beach Union High School District
153. Information Services Department
154. Kerman Police Department
155. Kings County
156. Kings County Fire Department
157. La Verne Police
158. Liberty Ambulance, Kern County
159. LifeLine Medical Transport, Ventura
160. Lincoln Police and Fire
161. Livermore Police
162. Madera Sheriff's Office
163. Mariposa County Fire Department

164. Martinez Police Department
165. Meeks Bay Fire Protection District
166. Mendocino County
167. Merced County Fire Department
168. Merced Police Department
169. Modesto Police Department
170. Modoc County
171. Mt. San Antonio Community College Dist.
172. Mt. Shasta Police Department
173. Mt. San Jacinto College Police
174. Napa County
175. Napa Valley College Police Department
176. National City Fire Department
177. National City Police Department
178. Nevada County Sheriff
179. Oroville Police Department
180. Pacific Union College Public Safety
181. Pacifica Police Department
182. Pleasant Hill Police Department
183. Plumas County Sheriff
184. Reedley Police Department
185. Sacramento Regional Radio Communications System
186. San Benito Sheriff - Hollister Police/fire
187. San Diego Harbor Police Department (Port of San Diego)
188. San Gabriel Fire Department
189. San Mateo
190. San Rafael Police Department
191. Santa Barbara General Services
192. Santa Clara County EMS Agency
193. Santa Clara County OES
194. Shasta County Fire
195. Shasta County Sheriff
196. Shasta Lake Fire Protection District
197. Sierra County
198. So Lake Tahoe Police Department
199. Solano Community College District Police Department
200. Sonoma Co Op Area
201. Stanislaus County OES
202. Susanville Police Department
203. Sutter County Emergency Services
204. Tehama Sheriff
205. Tuolumne Fire, Law, EMS
206. Trinity County Sheriff
207. Tule Lake Police Department
208. Twin Cities Police Department (Larkspur)
209. UC Los Angeles Police Department (UCLA)
210. UC Merced Police Department
211. UC Riverside Police Department
212. Ukiah Fire Department
213. University of California, Santa Cruz Police
214. University Police, Kern County
215. Vallejo Police & Fire Departments
216. Ventura EMS Agency
217. Viejas Fire Department
218. Walnut Creek Police
219. West Valley-Mission Community College District Police Department

- 220. Winters Police Department
- 221. Yolo County Communications Emergency Services Agency
- 222. Yolo County Consortium
- 223. Yolo County Probation Department