



CALIFORNIA STATEWIDE COMMUNICATION INTEROPERABILITY PLAN



August 2020

Developed by the California Governor's Office of Emergency Services &
California Statewide Interoperability Executive Committee with
Support from the Cybersecurity and Infrastructure Security Agency

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LETTER FROM THE STATEWIDE INTEROPERABILITY COORDINATOR

Greetings,

As the Statewide Interoperability Coordinator (SWIC) for the State of California, I am pleased to present to you the 2020 California Statewide Communication Interoperability Plan (CalSCIP). The CalSCIP represents the State's continued commitment to improving emergency communications interoperability and supporting the public safety practitioners throughout the state. In addition, this update meets the requirement of the current U.S. Department of Homeland Security grant guidelines.

Representatives from the California Governor's Office of Emergency Services (CalOES), California Statewide Interoperability Executive Committee (CalSIEC), and regional Planning Areas collaborated to update the CalSCIP with actionable and measurable goals and objectives that have champions identified to ensure completion. These goals and objectives focus on Governance, Technology, Training and Exercises, Outreach and Information Sharing, and Life Cycle Funding. They are designed to support our state in planning for new technologies and navigating the ever-changing emergency communications landscape. They also incorporate the state interoperability markers which describe California's level of interoperability maturity by measuring progress against 25 markers.

As we continue to enhance interoperability, we must remain dedicated to improving our ability to communicate among disciplines and across jurisdictional boundaries. With help from public safety practitioners statewide, we will work to achieve the goals set forth in the CalSCIP and become a nationwide model for statewide interoperability.

Sincerely,

A handwritten signature in blue ink, appearing to read "Budge Currier", is written over a horizontal line.

Budge Currier
Statewide Interoperability Coordinator
CalOES

INTRODUCTION



The CalSCIP is a one-to-three-year strategic planning document that contains the following components:

- **Introduction** – Provides the context necessary to understand what the CalSCIP is and how it was developed. It also provides an overview of the current emergency communications landscape.
- **Vision and Mission** – Articulates California’s vision and mission for improving emergency and public safety communications interoperability over the next one-to-three-years.
- **Governance** – Describes the current governance mechanisms for communications interoperability within California as well as successes, challenges, and priorities for improving it. The CalSCIP is a guiding document and does not create any authority or direction over any state or local systems or agencies.
- **Technology** – Outlines public safety technology and operations needed to maintain and enhance interoperability across the emergency communications ecosystem.
- **Training and Exercises** – Describes how training and exercises will be utilized to guarantee best practices in state interoperability.
- **Outreach and Information Sharing** – Describes the need to develop a comprehensive approach to share information with decision-makers, end users, and the public.
- **Life Cycle Funding** – Describes the funding sources and allocations that support interoperable communications capabilities within California along with methods and strategies for funding sustainment and enhancement to meet long-term goals.
- **Implementation Plan** – Describes California’s plan to implement, maintain, and update the CalSCIP to enable continued evolution of and progress toward the State’s interoperability goals.

The Emergency Communications Ecosystem consists of many inter-related components and functions, including communications for incident response operations, notifications and alerts and warnings, requests for assistance and reporting, and public information exchange. The primary functions are depicted in the 2019 National Emergency Communications Plan.¹

The Interoperability Continuum, developed by the Department of Homeland Security’s SAFECOM program and shown in Figure 1, serves as a framework to address challenges and continue improving operable/interoperable and public safety communications.² It is designed to assist public safety agencies and policy makers with planning and implementing interoperability solutions for communications across technologies.

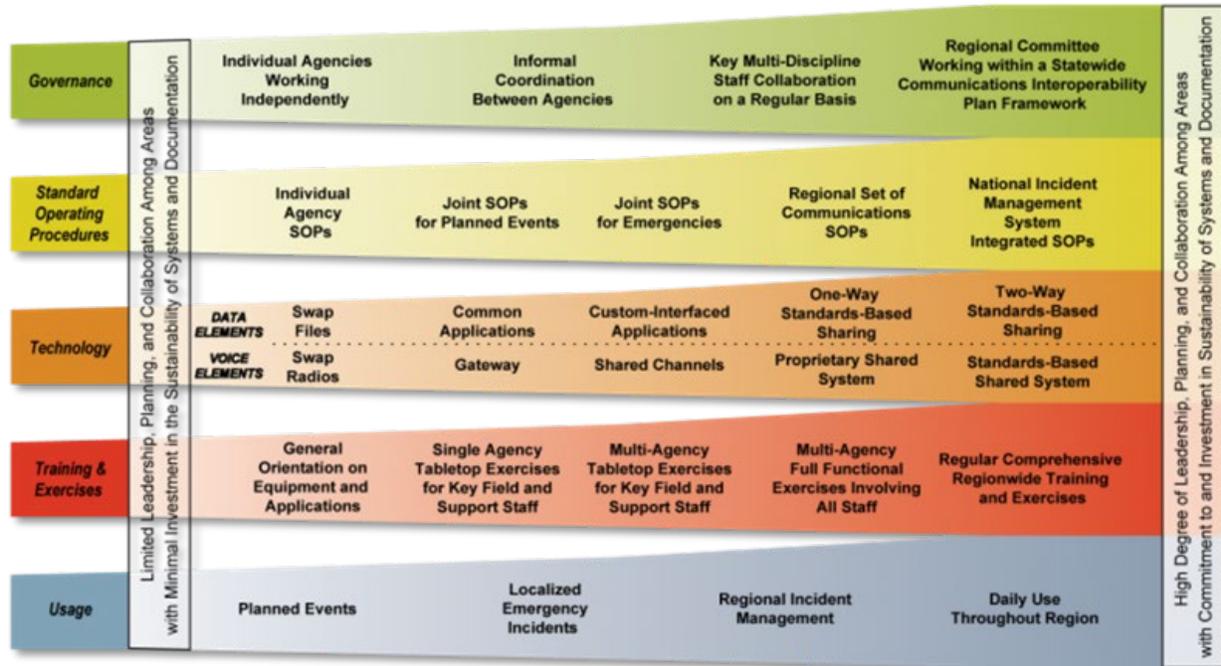


Figure 1: Interoperability Continuum

Interoperability and Emergency Communications Overview

Interoperability is the ability of emergency response providers and relevant government officials to communicate across jurisdictions, disciplines, and levels of government as needed and as authorized. Reliable, timely communications among public safety responders and between public safety agencies and citizens is critical to effectively carry out public safety missions, and in many cases, saving lives.

Traditional voice capabilities, such as land mobile radio (LMR) and landline 9-1-1 services have long been and continue to be critical tools for communications. However, the advancement of internet protocol-based technologies in public safety has increased the type and amount of information responders receive, the tools they communicate with, and complexity of new and interdependent systems. New technologies increase the need for coordination across public safety

¹ [2019 National Emergency Communications Plan](#)

² [Interoperability Continuum Brochure](#)

disciplines, communications functions, and levels of government to ensure emergency communications capabilities are interoperable, reliable, and secure.

An example of this evolution is the transition of public-safety answering points (PSAPs) to Next Generation 9-1-1 (NG9-1-1) technology that will enhance sharing of critical information in real-time using multimedia—such as pictures, video, and text — among citizens, PSAP operators, dispatch, and first responders. While potential benefits of NG9-1-1 are tremendous, implementation challenges remain. Necessary tasks to fully realize these benefits include interfacing disparate systems, developing training and standard operating procedures (SOPs) and ensuring information security.

VISION AND MISSION

This section describes California’s vision and mission for improving emergency and public safety communications interoperability:

Vision:

Achieve sustainable statewide interoperable communications

Mission:

Provide strategic direction for interoperable communications that addresses the unique requirements of emergency responders and designated public service organizations serving the people of California

GOVERNANCE

California has multiple governance boards that are all managed by CalOES, including the CalSIEC, 9-1-1 Advisory Board, and the Public Safety Radio Strategic Planning Committee (PSRSPC).

Firstly, the CalSIEC is the statewide governance body responsible for managing the interoperability spectrum and developing governance on behalf of all California public safety emergency responders. The CalSIEC consists of the planning chair/co-chairs from each of the Planning Areas (Northern, Capital-Bay, Central, and Southern). Secondly, the 9-1-1 Advisory Board oversees 9-1-1 related issues in the state, including the implementation of a comprehensive NG9-1-1 Plan. Finally, the PSRSPC is primarily responsible for developing and implementing a statewide integrated public safety communication system that provides interoperability among public safety agencies and first responders.

California’s regionally focused approach has resulted in the development of regional Tactical Interoperable Communications Plans (TICPs) for several Planning Areas. The CalSCIP is recognized as the strategic planning document within the state. CalOES, in conjunction with the CalSIEC, coordinates input, guidance, and recommendations for CalSCIP maintenance and implementation.

California’s governance structure is depicted in Figure 2.

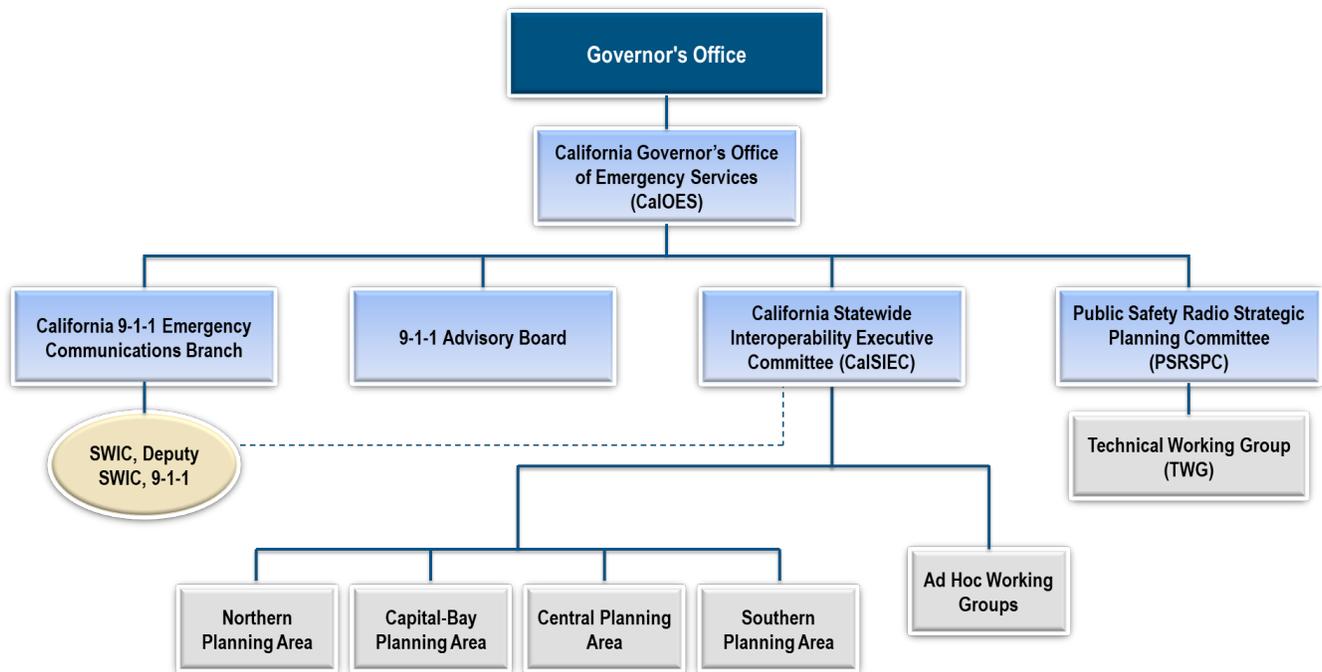


Figure 2: California’s Governance Structure

Governance goals and objectives include the following:

Governance	
Goal	Objectives
1. Continue to streamline interoperability planning efforts	1.1 Continue coordinated relationships across Planning Areas and with professional associations and other public safety organizations and identify points of contact

Goal	Objectives
	1.2 Identify and document technology needs
	1.3 Identify technology solutions
	1.4 Adopt technology to increase participation for information sharing to assess interoperability opportunities (e.g., webinar/video teleconference)
	1.5 Develop and/or implement planning efforts
2. Review, update, ensure consistency, and distribute policies and procedures as necessary, to all levels and disciplines including information technology (IT)	2.1 Conduct annual review of California Interoperability Field Operations Guide (Cal-IFOG), California Law Mutual Aid (CLMA) (Red and Blue Book), CalOES policy documents, and CalSIEC charters to ensure consistency across documents
	2.2 Review and update policies and procedures with Planning Areas
	2.3 Ensure communications annex of emergency operations plans are consistent with aforementioned documents

TECHNOLOGY

Land Mobile Radio

California is currently deploying a statewide interoperable system called the California Radio Interoperability System (CRIS) that will be 700 Megahertz (MHz) trunked system managed by CalOES. The state is still defining the Project 25 (P25) Inter RF Subsystem Interface (ISSI) systems and working to establish resource sharing. The Cal-IFOG provides emergency responders with guidelines of for the use of national and statewide interoperability channels.

Broadband

The California Network and Telecommunications (CALNET) Program has executed public safety broadband contracts with four major wireless providers. The state has already provided AT&T with their prioritized mobile broadband coverage needs and desires to provide similar information to other wireless carriers as well. California is also working to bring wireless services to rural areas for telehealth, telemedicine, and distance learning. Lastly, California is in the process of deploying a Cal-IFOG application.

9-1-1/Next Generation 9-1-1

California has recognized the urgent need to modernize their existing 9-1-1 system and is in the process of implementing NG9-1-1 statewide, including text-to-9-1-1. These efforts are led by CalOES' 9-1-1 Emergency Communications Branch and are expected to be complete by the end of 2021. In the meantime, California has already implemented outage notification regulations for all telecommunications providers and established a cadre of tactical dispatchers.

Alerts and Warnings

Emergency alerts and warnings in California are typically managed locally. CalOES has published statewide guidelines that jurisdictions and designated altering authorities can consult when implementing an alert and warning program.³

Technology goals and objectives include the following:

Technology	
Goal	Objectives
3. Deploy the CRIS that leverages existing technology and infrastructure, and provides a migration toward emerging technologies	3.1 Identify basic voice interoperability needs based on real-world events
	3.2 Establish CalSIEC Technology Working Group focusing on law enforcement and emergency medical services to: <ul style="list-style-type: none"> Develop 700 MHz interoperability channel plan and ISSI integration Guide the planning for state and local agencies to establish conventional/trunking mutual aid channel infrastructure Guide the planning for establishing mutual aid talk groups Monitor and encourage CAD/data interoperability standards, develop a white paper Expand interoperability channel plans
	3.3 Publish and distribute best practices document that outlines common interoperability platform
	3.4 Identify emerging technologies for potential integration
4. Continue to encourage collaboration between Operational Areas and provide opportunities to demonstrate innovative interoperability solutions	4.1 Identify planned events and communications exercises that can be used to support collaboration: <ul style="list-style-type: none"> Including IT departments Add Communications Unit training and certification to event
	4.2 Continue to reach out to Planning Areas and encourage participation in planned events between Operational Areas and Planning Areas to include law enforcement and EMS
5. Promote and leverage Communication Assets Survey and Mapping (CASM) and similar shared resources	5.1 Validate CASM applications to meet operational needs
	5.2 Establish representative in each Planning and Operational Area to serve as the CASM Coordinator
6. Expand border state communications interoperability	6.1 Develop a plan to establish a bi-state Tahoe Basin Communications Center
	6.2 Develop an interoperability plan with border states to share resources and information
	6.3 Synchronize border state SCIPs to establish common goals
7. Develop cybersecurity best practices throughout the emergency communications ecosystem	7.1 Develop a cybersecurity plan template for PSAPs

³ [California Statewide Alert and Warning Guidelines](#)

TRAINING AND EXERCISES

Training and exercises are critical to ensuring that gaps identified through after action reporting are addressed and encourages stakeholders to adopt and familiarize themselves with interoperable emergency communications technologies, operating procedures, and best practices.

California's approach to training and exercises ensures that emergency responders are familiar with interoperable and emergency communications equipment and procedures and are better prepared for response, management, and mitigation of real-world incidents.

The training and exercise need of the four CalSIEC Planning Areas vary due to geography, population density, and existing mutual aid agreements. Regular training and usage of interoperable systems and assets is important to maintain equipment in serviceable condition, as well as to keep users fully trained on available equipment in preparation for a real-world incident.

California will continue to leverage best practices for stakeholder professional development. These efforts include continued participation of COMMU personnel in exercises and training opportunities, the establishment of a training cadre and the desire to provide additional opportunities with onsite and online learning for emergency communications call takers and dispatchers.

Training and exercises goals and objectives include the following:

Training and Exercises	
Goal	Objectives
8. Expand framework to incorporate remote operational areas and regularly test interoperability equipment across all disciplines and encourage local adoption	8.1 Identify best practices for training, exercises, and usage
	8.2 Evaluate relevance for Planning Areas' mutual aid, and define areas of responsibility
	8.3 Develop a testing and operational scenario based on exercise document to address deficiencies and opportunities identified in after-action reports
	8.4 Review and approve framework
	8.5 Develop messaging and distribution
9. Provide interoperable communications training opportunities using qualified instructors	9.1 Leverage ICTAP Technical Assistance to train additional instructors based in California
	9.2 Provide facilities for training
	9.3 Identify and establish a cadre of trained instructors

OUTREACH AND INFORMATION SHARING

Educational outreach and information sharing are major components of California's interoperability strategy because it is integral to ensuring that relevant information filters down to the necessary end users. California's initiative to provide local entities with training materials, job aids, and videos is reflected in its efforts to promote and increase the utilization of CASM by stakeholders within the Planning and Operational Areas.

Outreach is also an important aspect of succession planning when used to recruit and retain qualified personnel along with a training cadre of instructors to increase the sustainability of California's interoperable emergency communications systems and institutions.

California is seeking to enhance regional coordination and collaboration with border states. This will be accomplished through planning efforts, to include the synchronization of common goals, and the sharing of resources and information.

To support legislative awareness, the SWIC conducts ongoing briefings on the status of interoperability in the state. However, there currently is no protocol for content dissemination and the SWIC seeks to enhance and streamline methods of communication by developing a targeted approach, with concise and consistent language to engage the state legislature.

Outreach and information sharing goals and objectives include the following:

Outreach and Information Sharing	
Goal	Objectives
10. Continue to maintain and enhance outreach program to leverage interoperability-related activities, including social media	10.1 Raise the state legislature's awareness of the need for interoperable communications support and funding
	10.2 Provide local entities with training materials, job aids, and videos
	10.3 Encourage social media participation in regional and local areas
	10.4 Provide a portal or working environment for Planning Areas to share interoperability information
11. Identify a framework and develop a template succession plan	11.1 Invest in recruitment and retention. Identify and recruit personnel to engage in interoperability programs and initiatives
	11.2 Succession planning across the Planning Areas

LIFE CYCLE FUNDING

Interoperability efforts in California are typically funded locally and as needed. Funding for 9-1-1 comes from the State Emergency Telephone Number Account (SETNA). There is also funding available through the Homeland Security Grant Program, which includes the Urban Area Security Initiative. There is a desire to identify a sustainable funding source that is resistant to future budget deficits, health crisis, etc.

Life cycle funding goals and objectives include the following:

Funding and Sustainability	
Goal	Objectives
12. Develop a funding roadmap to support the following priorities: <ul style="list-style-type: none"> • Training • CalSIEC efforts • Planning Area support 	12.1 CalSIEC activities to meet CalSCIP goals
	12.2 Identify the risk of not having trained personnel in the event of a statewide emergency
	12.3 Develop Interoperable Communications SOPs to follow in the event of a statewide emergency

IMPLEMENTATION PLAN

Each objective has a timeline with a target completion date, and one or multiple owners that will be responsible for overseeing and coordinating its completion. Accomplishing goals and objectives will require the support and cooperation from numerous individuals, groups, or agencies, and will be added as formal agenda items for review during regular CalSIEC meetings. Additionally, the following table will be updated on an annual basis with the results of that year's progress. The Cybersecurity and Infrastructure Security Agency (CISA) Interoperable Communications Technical Assistance Program (ICTAP) has a catalog⁴ of technical assistance available to assist with the implementation of the SCIP. Technical assistance requests are to be coordinated through the SWIC.

Goals	Objectives	Owners	Completion Date
1. Continue to streamline interoperability planning efforts	1.1 Continue coordinated relationships across Planning Areas and with professional associations and other public safety organizations and identify points of contact	CalOES	Ongoing
	1.2 Identify and document technology needs	CalSIEC, CalOES	Ongoing
	1.3 Identify technology solutions	CalOES, CalSEIC	Ongoing
	1.4 Adopt technology to increase participation for information sharing to assess interoperability opportunities (e.g., webinar/video teleconference)	Stakeholder Community	July 2021; Annually thereafter
	1.5 Develop and/or implement planning efforts	Stakeholder Community	July 2021; Annually thereafter
2. Review, update, ensure consistency, and distribute policies and procedures as necessary, to all levels and disciplines including IT	2.1 Conduct annual review of Cal-IFOG, CLMA (Red and Blue Book), CalOES policy documents, and CalSIEC charters to ensure consistency across documents	CalOES, CalSIEC	Annually
	2.2 Review and update policies and procedures with Planning Areas	Planning Areas	Ongoing
	2.3 Ensure communications annex of emergency operations plans are consistent with aforementioned documents	CalOES	Annually
3. Deploy the CRIS that leverages existing technology and	3.1 Identify basic voice interoperability needs based on real-world events	CalOES, CalSIEC, PSRSPC	Ongoing

⁴ [Emergency Communications Technical Assistance Planning Guide](#)

Goals	Objectives	Owners	Completion Date
infrastructure, and provides a migration toward emerging technologies	3.5 Establish CalSIEC Technology Working Group focusing on law enforcement and emergency medical services to: <ul style="list-style-type: none"> • Develop 700 MHz interoperability channel plan and ISSI integration • Guide the planning for state and local agencies to establish conventional/trunking mutual aid channel infrastructure • Guide the planning for establishing mutual aid talk groups • Monitor and encourage CAD/data interoperability standards, develop a white paper • Expand interoperability channel plans 	CalOES, CalSIEC	Establish working group by October 2020; Ongoing thereafter
	3.2 Publish and distribute best practices document that outlines common interoperability platform	CalOES	February 2021
	3.3 Identify emerging technologies for potential integration	CalOES, CalSIEC	Ongoing
4. Continue to encourage collaboration between Operational Areas and provide opportunities to demonstrate innovative interoperability solutions	4.3 Identify planned events and communications exercises that can be used to support collaboration: <ul style="list-style-type: none"> • Including IT departments • Add Communications Unit training and certification to event 	CalSIEC, CalOES	Ongoing
	4.1 Continue to reach out to Planning Areas and encourage participation in planned events between Operational Areas and Planning Areas to include law enforcement and EMS	CalOES	Quarterly
5. Promote and leverage CASM and similar shared resources	5.1 Validate CASM applications to meet operational needs	CalOES, County Representation	Ongoing
	5.2 Establish representative in each Planning and Operational Area to serve as the CASM Coordinator	Planning Areas	Ongoing
6. Expand border state communications interoperability	6.1 Develop a plan to establish a bi-state Tahoe Basin Communications Center	CalOES	October 2021
	6.2 Develop an interoperability plan with border states to share resources and information	CalOES	July 2022
	6.3 Synchronize border state SCIPs to establish common goals	CalOES	July 2022
7. Develop cybersecurity best practices throughout the emergency communications ecosystem	7.1 Develop a cybersecurity plan template for PSAPs	CalOES	July 2021
8. Expand framework to incorporate remote operational areas and	8.1 Identify best practices for training, exercises, and usage	CalOES, Local Agencies	Ongoing

Goals	Objectives	Owners	Completion Date
regularly test interoperability equipment across all disciplines and encourage local adoption	8.2 Evaluate relevance for Planning Areas' mutual aid, and define areas of responsibility	Planning Areas	Ongoing
	8.3 Develop a testing and operational scenario based on exercise document to address deficiencies and opportunities identified in after-action reports	CalOES, Local Agencies	Ongoing
	8.4 Review and approve framework	CalSIEC	Ongoing
	8.5 Develop messaging and distribution	CalOES	Ongoing
9. Provide interoperable communications training opportunities using qualified instructors	9.1 Leverage ICTAP Technical Assistance to train additional instructors based in California	CalSIEC, CalOES	Annually
	9.2 Provide facilities for training	CalSEIC, CalOES	Ongoing
	9.3 Identify and establish a cadre of trained instructors	CalSIEC, CalOES	January 2021 to identify need; Ongoing thereafter
10. Continue to maintain and enhance outreach program to leverage interoperability-related activities, including social media	10.1 Raise the state legislature's awareness of the need for interoperable communications support and funding	CalOES, Local Agencies	Ongoing
	10.2 Provide local entities with training materials, job aids, and videos	CalOES	Ongoing
	10.3 Encourage social media participation in regional and local areas	Local Agencies	Ongoing
	10.4 Provide a portal or working environment for Planning Areas to share interoperability information	Local Agencies	Ongoing
11. Identify a framework and develop a template succession plan	11.1 Invest in recruitment and retention. Identify and recruit personnel to engage in interoperability programs and initiatives	CalOES, Local Agencies	Ongoing
	11.2 Succession planning across the Planning Areas	Planning Areas	Ongoing
12. Develop a funding roadmap to support the following priorities: • Training • CalSIEC efforts • Planning Area support	12.1 CalSIEC activities to meet CalSCIP goals	CalOES	December 2021; Ongoing
	12.2 Identify the risk of not having trained personnel in the event of a statewide emergency	CalOES, Planning Areas	July 2022
	12.3 Develop Interoperable Communications SOPs to follow in the event of a statewide emergency	CalOES, Planning Areas	July 2022

APPENDIX A: STATE MARKERS

In 2019 CISA supported states and territories in establishing an initial picture of interoperability nationwide by measuring progress against 25 markers. These markers describe a state or territory's level of interoperability maturity. Below is California's assessment of their progress against the markers.

Marker #	Best Practices / Performance Markers	Initial	Defined	Optimized
1	State-level governing body established (e.g., SIEC, SIGB). Governance framework is in place to sustain all emergency communications	Governing body does not exist, or exists and role has not been formalized by legislative or executive actions	Governing body role established through an executive order	Governing body role established through a state law
2	SIGB/SIEC participation. Statewide governance body is comprised of members who represent all components of the emergency communications ecosystem.	Initial (1-2) Governance body participation includes: <input type="checkbox"/> Communications Champion/SWIC <input type="checkbox"/> LMR <input type="checkbox"/> Broadband/LTE <input type="checkbox"/> 9-1-1 <input type="checkbox"/> Alerts, Warnings and Notifications	Defined (3-4) Governance body participation includes: <input type="checkbox"/> Communications Champion/SWIC <input type="checkbox"/> LMR <input type="checkbox"/> Broadband/LTE <input type="checkbox"/> 9-1-1 <input type="checkbox"/> Alerts, Warnings and Notifications	Optimized (5) Governance body participation includes: <input checked="" type="checkbox"/> Communications Champion/SWIC <input checked="" type="checkbox"/> LMR <input checked="" type="checkbox"/> Broadband/LTE <input checked="" type="checkbox"/> 9-1-1 <input checked="" type="checkbox"/> Alerts, Warnings and Notifications
3	SWIC established. Full-time SWIC is in place to promote broad and sustained participation in emergency communications.	SWIC does not exist	Full-time SWIC with collateral duties	Full-time SWIC established through executive order or state law
4	SWIC Duty Percentage. SWIC spends 100% of time on SWIC-focused job duties	SWIC spends >1, <50% of time on SWIC-focused job duties	SWIC spends >50, <90% of time on SWIC-focused job duties	SWIC spends >90% of time on SWIC-focused job duties
5	SCIP refresh. SCIP is a living document that continues to be executed in a timely manner. Updated SCIPs are reviewed and approved by SIGB/SIEC.	No SCIP OR SCIP older than 3 years	SCIP updated within last 2 years	SCIP updated in last 2 years and progress made on >50% of goals
6	SCIP strategic goal percentage. SCIP goals are primarily strategic to improve long term emergency communications ecosystem (LMR, LTE, 9-1-1, A&W) and future technology transitions (5G, IoT,	<50% are strategic goals in SCIP	>50%<90% are strategic goals in SCIP	>90% are strategic goals in SCIP

Marker #	Best Practices / Performance Markers	Initial	Defined	Optimized
	<p>UAS, etc.). (Strategic and non-strategic goals are completely different; strategy -- path from here to the destination; it is unlike tactics which you can "touch"; cannot "touch" strategy)</p>			
7	<p>Integrated emergency communication grant coordination. Designed to ensure state / territory is tracking and optimizing grant proposals, and there is strategic visibility how grant money is being spent.</p>	<p>No explicit approach or only informal emergency communications grant coordination between localities, agencies, SAA and/or the SWIC within a state / territory</p>	<p>SWIC and/or SIGB provides guidance to agencies and localities for emergency communications grant funding but does not review proposals or make recommendations</p>	<p>SWIC and/or SIGB provides guidance to agencies and localities for emergency communications grant funding and reviews grant proposals for alignment with the SCIP. SWIC and/or SIGB provides recommendations to the SAA</p>
8	<p>Communications Unit process. Communications Unit process present in state / territory to facilitate emergency communications capabilities. Check the boxes of which Communications positions are currently covered within your process:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> COML <input checked="" type="checkbox"/> COMT <input checked="" type="checkbox"/> ITSL <input checked="" type="checkbox"/> RADO <input checked="" type="checkbox"/> INCM <input checked="" type="checkbox"/> INTD <input checked="" type="checkbox"/> AUXCOM <input checked="" type="checkbox"/> TERT 	<p>No Communications Unit process at present</p>	<p>Communications Unit process planned or designed (but not implemented)</p>	<p>Communications Unit process implemented and active</p>
9	<p>Interagency communication. Established and applied interagency communications policies, procedures and guidelines.</p>	<p>Some interoperable communications SOPs/SOGs exist within the area and steps have been taken to institute these interoperability procedures among some agencies</p>	<p>Interoperable communications SOPs/SOGs are formalized and in use by agencies within the area. Despite minor issues, SOPs/SOGs are successfully used during responses and/or exercises</p>	<p>Interoperable communications SOPs/SOGs within the area are formalized and regularly reviewed. Additionally, NIMS procedures are well established among agencies and disciplines. All needed procedures are effectively utilized during responses and/or exercises.</p>

Marker #	Best Practices / Performance Markers	Initial	Defined	Optimized
10	TICP (or equivalent) developed. Tactical Interoperable Communications Plans (TICPs) established and periodically updated to include all public safety communications systems available	Regional or statewide TICP in place	Statewide or Regional TICP(s) updated within past 2-5 years	Statewide or Regional TICP(s) updated within past 2 years
11	Field Operations Guides (FOGs) developed. FOGs established for a state or territory and periodically updated to include all public safety communications systems available	Regional or statewide FOG in place	Statewide or Regional FOG(s) updated within past 2-5 years	Statewide or Regional FOG(s) updated within past 2 years
12	Alerts & Warnings. State or Territory has Implemented an effective A&W program to include Policy, Procedures and Protocol measured through the following characteristics: (1) Effective documentation process to inform and control message origination and distribution (2) Coordination of alerting plans and procedures with neighboring jurisdictions (3) Operators and alert originators receive periodic training (4) Message origination, distribution, and correction procedures in place	<49% of originating authorities have all of the four A&W characteristics	>50%<74% of originating authorities have all of the four A&W characteristics	>75%<100% of originating authorities have all of the four A&W characteristics
13	Radio programming. Radios programmed for National/Federal, SLTT interoperability channels and channel nomenclature consistency across a state / territory.	<49% of radios are programed for interoperability and consistency	>50%<74% of radios are programed for interoperability and consistency	>75%<100% of radios are programed for interoperability and consistency
14	Cybersecurity Assessment Awareness. Cybersecurity assessment awareness. (Public safety communications networks are defined as covering: LMR, LTE, 9-1-1, and A&W)	Public safety communications network owners are aware of cybersecurity assessment availability and value (check yes or no for each option) <input checked="" type="checkbox"/> LMR <input checked="" type="checkbox"/> LTE <input checked="" type="checkbox"/> 9-1-1/CAD <input checked="" type="checkbox"/> A&W	Initial plus, conducted assessment, conducted risk assessment. (check yes or no for each option) <input type="checkbox"/> LMR <input type="checkbox"/> LTE <input type="checkbox"/> 9-1-1/CAD <input type="checkbox"/> A&W	Defined plus, Availability of Cyber Incident Response Plan (check yes or no for each option) <input type="checkbox"/> LMR <input type="checkbox"/> LTE <input type="checkbox"/> 9-1-1/CAD <input type="checkbox"/> A&W

Marker #	Best Practices / Performance Markers	Initial	Defined	Optimized
15	<p>NG9-1-1 implementation. NG9-1-1 implementation underway to serve state / territory population.</p>	<p>Working to establish NG9-1-1 governance through state/territorial plan.</p> <ul style="list-style-type: none"> • Developing GIS to be able to support NG9-1-1 call routing. • Planning or implementing ESInet and Next Generation Core Services (NGCS). • Planning to or have updated PSAP equipment to handle basic NG9-1-1 service offerings. 	<p>More than 75% of PSAPs and Population Served have:</p> <ul style="list-style-type: none"> • NG9-1-1 governance established through state/territorial plan. • GIS developed and able to support NG9-1-1 call routing. • Planning or implementing ESInet and Next Generation Core Services (NGCS). • PSAP equipment updated to handle basic NG9-1-1 service offerings. 	<p>More than 90% of PSAPs and Population Served have:</p> <ul style="list-style-type: none"> • NG9-1-1 governance established through state/territorial plan. • GIS developed and supporting NG9-1-1 call routing. • Operational Emergency Services IP Network (ESInet)/Next Generation Core Services (NGCS). • PSAP equipment updated and handling basic NG9-1-1 service offerings.
16	<p>Data operability / interoperability. Ability of agencies within a region to exchange data on demand, and needed, and as authorized. Examples of systems would be:</p> <ul style="list-style-type: none"> - CAD to CAD - Chat - GIS - Critical Incident Management Tool (- Web EOC) 	<p>Agencies are able to share data only by email. Systems are not touching or talking.</p>	<p>Systems are able to touch but with limited capabilities. One-way information sharing.</p>	<p>Full system to system integration. Able to fully consume and manipulate data.</p>
17	<p>Future Technology/Organizational Learning. SIEC/SIGB is tracking, evaluating, implementing future technology (checklist)</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> LMR to LTE Integration <input checked="" type="checkbox"/> 5G <input checked="" type="checkbox"/> IoT (cameras) <input checked="" type="checkbox"/> UAV (Smart Vehicles) <input checked="" type="checkbox"/> UAS (Drones) <input checked="" type="checkbox"/> Body Cameras <input checked="" type="checkbox"/> Public Alerting Software <input checked="" type="checkbox"/> Sensors <input checked="" type="checkbox"/> Autonomous Vehicles 	<ul style="list-style-type: none"> <input type="checkbox"/> Wearables <input checked="" type="checkbox"/> Machine Learning/Artificial Intelligence/Analytics <input checked="" type="checkbox"/> Geolocation <input checked="" type="checkbox"/> GIS <input checked="" type="checkbox"/> Situational Awareness Apps-common operating picture applications (i.e. Force Tracking, 	<ul style="list-style-type: none"> <input type="checkbox"/> HetNets/Mesh Networks/Software Defined Networks <input checked="" type="checkbox"/> Acoustic Signaling (Shot Spotter) <input checked="" type="checkbox"/> ESInet <input type="checkbox"/> 'The Next Narrowbanding' <input checked="" type="checkbox"/> Smart Cities

Marker #	Best Practices / Performance Markers	Initial	Defined	Optimized
		☒ MCPTT Apps	Chat Applications, Common Operations Applications)	
18	Communications Exercise objectives. Specific emergency communications objectives are incorporated into applicable exercises Federal / state / territory-wide	Regular engagement with State Training and Exercise coordinators	Promote addition of emergency communications objectives in state/county/regional level exercises (target Emergency Management community). Including providing tools, templates, etc.	Initial and Defined plus mechanism in place to incorporate and measure communications objectives into state/county/regional level exercises
19	Trained Communications Unit responders. Communications Unit personnel are listed in a tracking database (e.g. NQS One Responder, CASM, etc.) and available for assignment/response.	<49% of public safety agencies within a state / territory have access to Communications Unit personnel who are listed in a tracking database and available for assignment/response	>50%<74% of public safety agencies within a state / territory have access to Communications Unit personnel who are listed in a tracking database and available for assignment/response	>75%<100% of public safety agencies within a state / territory have access to Communications Unit personnel who are listed in a tracking database and available for assignment/response
20	Communications Usage Best Practices/Lessons Learned. Capability exists within jurisdiction to share best practices/lessons learned (positive and/or negative) across all lanes of the Interoperability Continuum related to all components of the emergency communications ecosystem	Best practices/lessons learned intake mechanism established. Create Communications AAR template to collect best practices	Initial plus review mechanism established	Defined plus distribution mechanism established
21	Wireless Priority Service (WPS) subscription. WPS penetration across state / territory compared to maximum potential	<9% subscription rate of potentially eligible participants who signed up WPS across a state / territory	>10%<49% subscription rate of potentially eligible participants who signed up for WPS a state / territory	>50%<100% subscription rate of potentially eligible participants who signed up for WPS across a state / territory
22	Outreach. Outreach mechanisms in place to share information across state	SWIC electronic communication (e.g. SWIC email, newsletter, social media, etc.) distributed to relevant stakeholders on regular basis	Initial plus web presence containing information about emergency communications interoperability, SCIP, trainings, etc.	Defined plus in-person/webinar conference/meeting attendance strategy and resources to execute
23	Sustainment assessment. Identify interoperable component system sustainment needs;(e.g. communications infrastructure, equipment,	< 49% of component systems assessed to identify sustainment needs	>50%<74% of component systems assessed to identify sustainment needs	>75%<100% of component systems assessed to identify sustainment needs

Marker #	Best Practices / Performance Markers	Initial	Defined	Optimized
	<p>programs, management) that need sustainment funding.</p> <p>(Component systems are emergency communications elements that are necessary to enable communications, whether owned or leased - state systems only)</p>			
24	<p>Risk identification. Identify risks for emergency communications components.</p> <p>(Component systems are emergency communications elements that are necessary to enable communications, whether owned or leased. Risk Identification and planning is in line with having a communications COOP Plan)</p>	<p>< 49% of component systems have risks assessed through a standard template for all technology components</p>	<p>>50%<74% of component systems have risks assessed through a standard template for all technology components</p>	<p>>75%<100% of component systems have risks assessed through a standard template for all technology components</p>
25	<p>Cross Border / Interstate (State to State) Emergency Communications. Established capabilities to enable emergency communications across all components of the ecosystem.</p>	<p>Initial: Little to no established:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Governance <input type="checkbox"/> SOPs/MOUs <input type="checkbox"/> Technology <input type="checkbox"/> Training/Exercises <input type="checkbox"/> Usage 	<p>Defined: Documented/established across some lanes of the Continuum:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Governance <input type="checkbox"/> SOPs/MOUs <input type="checkbox"/> Technology <input type="checkbox"/> Training/Exercises <input type="checkbox"/> Usage 	<p>Optimized: Documented/established across all lanes of the Continuum:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Governance <input checked="" type="checkbox"/> SOPs/MOUs <input checked="" type="checkbox"/> Technology <input checked="" type="checkbox"/> Training/Exercises <input checked="" type="checkbox"/> Usage

APPENDIX B: ACRONYMS

Acronym	Definition
Cal-IFOG	California Interoperability Field Operations Guide
CALNET	California Network and Telecommunications
CalOES	California Governor's Office of Emergency Services
CalSIEC	California Statewide Interoperability Executive Committee
CASM	Communication Assets Survey and Mapping
CISA	Cybersecurity and Infrastructure Security Agency
CLMA	California Law Mutual Aid (Red and Blue Book)
CRIS	California Radio Interoperability System
FOG	Field Operations Guide
ISSI	Inter-RF Subsystem Interface
IT	Information Technology
LMR	Land Mobile Radio
MHz	Megahertz
NG9-1-1	Next Generation 9-1-1
PSRSPC	Public Safety Radio Strategic Planning Committee
PSAP	Public Safety Answering Point
P25	Project 25
SCIP	Statewide Communication Interoperability Plan
SETNA	State Emergency Telephone Number Account
SOP	Standard Operating Procedure
SWIC	Statewide Interoperability Coordinator
TICP	Tactical Interoperable Communications Plans
WPS	Wireless Priority Service