CALIFORNIA RADIO INTEROPERABLE SYSTEM

CRIS

Frequently Asked Questions (FAQs)

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CRIS Overview

What benefit does the CRIS provide?

The need to be able to communicate either intra-agency on a daily basis or inter-agency between cooperating agencies during an emergency is critical in providing public safety services. The CRIS, by utilizing a statewide trunked communications platform, provides public safety agencies the infrastructure to carry out their daily operations and be able to interoperate with other agencies when needed without the expenses of developing or maintaining an independent system. The CRIS is designed to provide mobile radio coverage on the majority of the State's major traffic arteries as well as 60% of the state's geographic area and 90% of the State's population.

Who will administer the CRIS implementation?

The CRIS is managed, designed, implemented and maintained by the California Governor's Office of Emergency Services/Public Safety Communications (Cal OES/PSC).

When will the CRIS be implemented?

The CRIS was approved by the California State Legislature and Governor in FY 2019-20. It is expected to take five years for all infrastructure equipment to be installed. However, subscribers will be added to the system as areas become operational. See the CRIS Budget Change Proposal (BCP) at www.caloes.ca.gov/CRIS.

Using CRIS

How does an agency join the CRIS?

The prospective subscriber should first review the CRIS system webpage at www.caloes.ca.gov/CRIS. It is recommended that prior to the subscriber completing the application for service (TDe-115), they should talk to their assigned Client Engineering Unit (CEU) to understand the benefits the system will provide. The link to the CEU representative's phone numbers are located on the CRIS webpage. If the agency does not know their assigned CEU, they can contact the CRIS outreach representative directly. The CRIS representative phone numbers are listed on the webpage. The agency would then fill out the application located on the CRIS webpage and submit to the CRIS. Upon review, the CEU will work with the subscriber to establish time frames for CRIS programming of the subscriber's equipment.

Is there a cost to utilize the CRIS?

Yes, current rates are published on the CRIS website.

Does the CRIS provide end user equipment?

Yes and No It is expected that subscribers will be responsible for acquiring, and maintaining the end user equipment (mobiles, portables, control stations etc.). A list of equipment authorized to be used on the CRIS can be found on the CRIS website. The CRIS does however have a limited supply of end user equipment mobiles that can be loaned to agencies on a short-term basis.

Can I program my own radios with the CRIS frequencies?

All state agency subscriber radios will be programmed for use on the CRIS system by Cal OES/PSC technician staff.

System keys may be provided to non-state subscriber agencies or independent private service shops for radio programming of the CRIS frequencies into non-state owned equipment. System key requests must be in writing. System keys must be surrendered immediately if or when requested by the State.

Are agencies required to provide their FCC licenses to the CRIS?

No, agencies using the CRIS infrastructure will operate off of the statewide public safety 700MHz FCC license, Call Sign WPTZ774 held by the California Governor's Office of Emergency Services, Public Safety Communications.

Will the CRIS provide dispatching services?

No, the CRIS will provide the trunked radio infrastructure to communicate with, but subscribers will be required to provide their own dispatch services or enter into an agreement with a cooperating subscriber to provide the needed services. The CRIS staff can assist by providing the name/s of a subscriber/s that currently have dispatch operations.

CRIS Technology

What Technology does CRIS use?

The CRIS is designed using the Project 25 (P25) phase 2 standards but will support P25 phase 1 equipment. P25 defines the standard on how interoperable digital two-way wireless communications products and systems operate. Project-25 works as an open standard rather than a proprietary standard. Radios produced by different manufacturers are be able to communicate with each other since they are built to the same technical standards. Project-25 is a suite of technical standards. Different standards address how different elements of a radio communications system should function with each other. Only radios that support Project 25 trunking will function on CRIS.

P25 Phase 2 is a more efficient way of providing digital voice communications than P25 Phase 1. Phase 2 utilizes Time Division Multiple Access (TDMA) to enable a 12.5 kHz channel to carry two voice communications versus the older Phase 1 technology, which utilizes Frequency Division Multiple Access (FDMA). FDMA allows only one voice communications for the same channel bandwidth. Subscribers currently operating on P25 Phase 1 should develop plans to migrate to P25 Phase 2. Phase 2 subscriber radios are highly recommended for channel utilization efficiency.

What is trunked radio?

A trunked system allows a small number of communications channels (a pair of transmit and receive frequencies) to be shared by a large number of subscribers. A trunking system controller manages the assignment of communication paths automatically. The controller is a computerized switch which makes channel assignments and other decisions normally made by the subscriber.
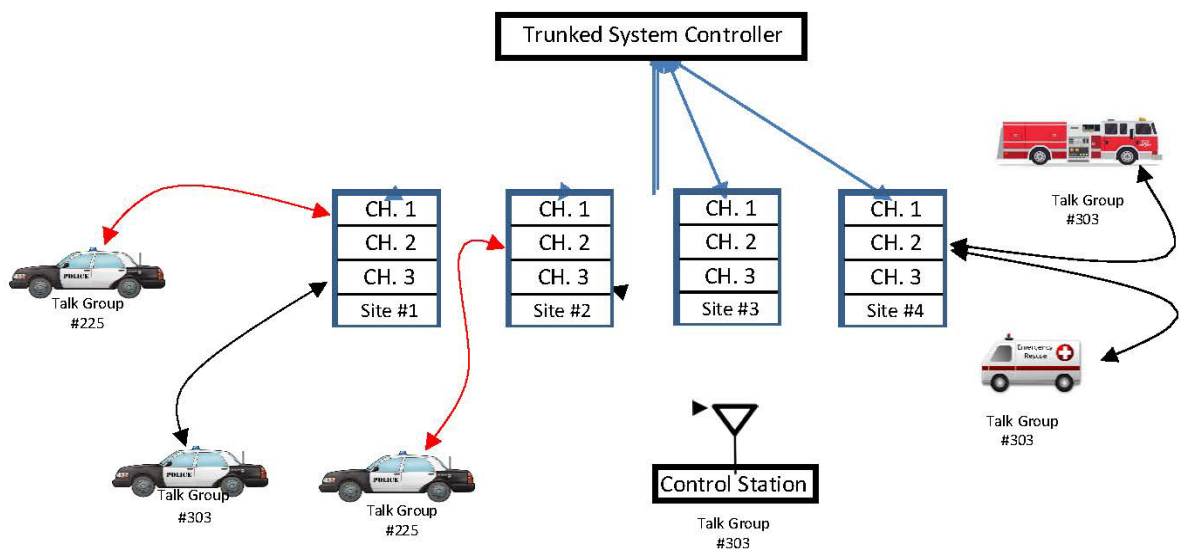
Channel assignments are automatic and transparent to the individual subscribers. When a subscriber needs to speak, the subscriber's radio requests access to the system, a channel is assigned by the controller from the pool of available channels and used for the call. When that subscriber is finished with their call, the channel can be reassigned for use by another subscriber. By having the system controller monitor and assign channels the use of channels and air time is maximized so users do not have to wait for another user to finish prior to their ability to use the system.

Advantages of utilizing trunked communications.

- Management Flexibility - The System Controller provides the CRIS the ability to:
    - Add/remove talk groups
    - Reconfigure channel assignments at a specific site
    - Add and remove end user equipment
- These operations can be completed though the System Controller without the need to physically touch each piece of equipment, saving time and expense.
- Spectrum Efficiency — Radio frequencies/channels are a limited resource. By having a site controller monitor when channels are in use or not then assigning them as requested, the number of channels required at a site is minimized while maximizing user access to the channels. Therefore, the number of required channels at a site is a function of traffic loading.
- System Reliability — the system controller can automatically identify any faults in the system, reconfigure communications paths if needed to maintain operation, and sends alarm notifications to technicians so they can respond as needed.

Will CRIS support encryption?

Yes. Project-25 includes standards for encryption.

Is there a backup if a failure occurs in the CRIS radio system?

The CRIS is designed to avoid any single point-of-failure. The system employs multiple levels of hardware and software redundancy to maintain operation in the event of a computer failure.

The trunked repeater sites are connected to the system controller via the state's CAPSNET (California Public Safety Microwave Network) microwave backhaul system utilizing MPLS (Multiprotocol Label Switching) technology, allowing the system to automatically identify loss of connectivity and automatically reroute traffic to maintain access to the site. In this mode, the repeater sites operate in wide-area trunking, allowing subscribers that operate in the same talk group from the same or different repeater sites to communicate with each other.

If loss of connection between a trunked repeater site and the system controller cannot be avoided, the repeater site will automatically go into site trunking mode, allowing radio communication to be maintained between subscribers in the same talk group that are on the same repeater site.

If the site controller itself fails, the trunked repeater site will go into fail soft mode, reverting to conventional mode of operation, with the subscriber radios utilizing pre-assigned conventional frequencies.

If the radio site itself fails, the radios can still be used in repeater talk around mode, allowing direct mobile-to-mobile communication, albeit with limited range.

How far can I communicate on the CRIS system?

The CRIS is built to provide wide area trunking allowing a call to be set up regardless of the sending and receiving unit's location on the system. As subscribers automatically affiliate or "log in" to a radio site, they are assigned to their selected talk group. When a call is initiated on that talk group, the system will identify all subscribers on the talk group regardless of where a subscriber is within the CRIS radio coverage area allowing talk group members to communicate system-wide at any time.

How do I communicate if all channels at a site are in use and I have an emergency?

If an emergency situation occurs, the system has preassigned priorities for talk groups so that first responder subscribers can communicate. In addition, subscriber radios are equipped with an emergency button. All subscriber radios communicate with the system on a "control channel," to receive channel assignments. When a subscriber presses the emergency button on their radio, that information is communicated on the control channel and the system assigns that user the highest priority. If necessary, in this situation, the system may actually drop a low priority caller in order to establish the call for the unit that has declared an emergency.

Will the CRIS provide better coverage than my current system?

The CRIS is designed to provide trunked radio coverage along the majority of the States traffic arteries. A subscriber can expect to see overall coverage equal or better than what currently exists. As the CRIS is developed additional sites will be added to improve coverage or considered to address particular coverage issues. Since the CRIS is designed on a statewide trunked platform, the system will allow subscribers to access radio sites outside of their normal coverage area. With the design of the CRIS system, the subscriber will have multiple radio sites that can be accessed to complete a call. The system will select the appropriate site for each radio call.

Will the CRIS provide portable radio coverage?

The CRIS is primarily designed to provide mobile coverage over a wide area, however; a subscriber may find the system does support portable coverage in many areas based on proximity to one of the CRIS base stations.

Where can I get additional information about the CRIS?

Refer to the CRIS web site at: www.caloes.ca.gov/CRIS. The CRIS website is designed to provide information about the CRIS including up to date deployment status, RF coverage/maps and how to join the CRIS and a list of the CRIS Contacts.