

Writing Guide for Standard Operating Procedures





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Communications Interoperability Continuum



Figure 1

Writing Guide for Standard Operating Procedures

Overview and Background

With its Federal partners, SAFECOM provides research, development, testing and evaluation, guidance, tools, and templates on communications-related issues to local, tribal, state, and Federal emergency response agencies. A communications program of the Department of Homeland Security's Office for Interoperability and Compatibility, SAFECOM is managed by the Science and Technology Directorate.

SAFECOM helps the public safety community and local, tribal, state, and federal policy makers address critical elements for success as they plan and implement interoperability solutions. The program is working with the public safety community to encourage a shift from a technology-centric approach to a comprehensive focus on improving interoperability. Although technology is critical for improving interoperability, other elements, including governance, standard operating procedures, training and exercises, and usage of interoperable communications, play a vital role.

To assist this shift to a comprehensive focus on interoperability, SAFECOM worked with public safety practitioners and local communities to develop a comprehensive framework called the Interoperability Continuum (see Figure 1).

SAFECOM developed the Interoperability Continuum in accordance with its locally driven philosophy and its practical experience in working with communities across the Nation. The Continuum visually depicts the core facets of interoperability according to the stated needs and challenges of the public safety community and aids the efforts of public safety practitioners and policy makers to improve interoperability.

One of SAFECOM's goals is to provide the public safety community with tools to improve all aspects of the Continuum. This tool focuses on the Standard Operating Procedures (SOP) element of the Continuum, specifically to help communities that are interested in establishing standard operating procedures for communications.



Purpose

This guide's purpose is to assist communities that want to establish SOPs. SOPs are formal written guidelines or instructions for incident response. SOPs typically have both operational and technical components and enable emergency responders to act in a coordinated fashion across disciplines in the event of an emergency. Clear and effective SOPs are essential in the development and deployment of any solution.

How To Use This Tool

This guide is intended to help communities write SOPs. The headings of this guide are consistent with recommended headings for each part of an SOP. Each section begins with a brief introduction of its purpose and then poses questions to consider to guide content. Sample paragraphs are included for reference; however, it is important to note that the sample paragraphs were geared for illustration purposes toward a specific SOP example.

The example used in this document is a city's SOP for the use of an intra-jurisdictional interoperability channel. Intra-jurisdictional refers to multiple disciplines within one jurisdiction. The sample paragraphs are there to provide examples and guidance only and should NOT be taken literally.

This document does not address every issue that jurisdictions, regions, or states may face when seeking to establish an SOP. SOPs should be customized to the capability or resource for which they are established and should consider unique characteristics of specific states or participating jurisdictions.



Section 1: INTRODUCTION

The introduction section of the SOP describes the recognized need for procedures and lists agencies that will share the procedures. The introduction can also serve to specify the capability or resource in which the procedures are being established and provide reasons why it is important to establish such procedures.



- ① To what capability does this SOP apply?
- ② What is the recognized need?
- ③ Are any established agreements already in place among emergency responders?
- ④ Who will be using the SOP?
- ⑤ Why is this concern being addressed?



[Insert name of city here] public safety agencies recognize the need for interagency communication, interoperability, and cooperation. *[Insert name of city here]* police, fire response, and Emergency Medical Services (EMS) have well-established interoperability capabilities and mutual aid agreements in place. While these plans and agreements formally extend beyond jurisdictions, they tend to remain intra-discipline in practice. Today's public safety realities highlight the need for agencies to work together to establish communications interoperability and mutual aid plans—not only across traditional jurisdictional boundaries—but across disciplines as well.

To remedy the lack of ability to communicate among disciplines, the *[insert name of city here]* public safety agencies, *[insert agency names here]*, as well as the public service agencies, *[insert agency names]*, have worked cooperatively to develop an intra-jurisdictional interoperability solution. This solution establishes dedicated radio channels with procedures that are accessible on communication equipment used by key public service officials, public safety officials, and public/private service executives.

Section 2: PURPOSE

The purpose section clarifies the principal objective of the capability or resource that is the subject of the SOP. The purpose section also briefly describes the purpose of the SOPs with respect to the capability or resource and may include information as to authority, use, responsibility, etc.



- ① What is the principal objective of the interoperability channel?
- ② What is the principal objective of the SOP (delineation of authority, roles, and procedures)?
- ③ What are the other interoperable communications alternatives to the interoperability channel?



The principal objective of the intra-jurisdictional interoperability channel is to provide key decision makers from various agencies a real-time means of direct voice communications. Not only will this enhance the efficiency of a multi-agency response, it will save lives by quickly disseminating critical information to participating emergency responder agencies at the scene of a significant incident anywhere in the city.

The purpose of this SOP is to delineate the authority, roles, and procedures for city agency supervisory personnel to use the intra-jurisdictional interoperability channel. These personnel are outlined in **Figure 2 (see page 6)**. This SOP also recognizes a number of interoperable communications alternatives to the intra-jurisdictional interoperability channel, which allow the *[insert city name here]* public safety and public service personnel to communicate during critical incidents.

Section 3: SCOPE

The scope section lists the agencies and jurisdictions that will participate in the procedures and may describe their relationship. This section can also provide details on the end users for whom the new capability is being provided, such as level of command, level of government, voice and/or data, etc.



- ① Which agencies are to be included in this SOP?
- ② What level of authority will be included in this SOP (command or tactical level)?
- ③ When will this channel be used? For critical incidents? Planned events? Day-to-day? At the discretion of the mayor?



The scope of this SOP includes *[insert name of city here]* public safety agencies including *[insert name of city here]* police, fire, and EMS as well as *[insert name of city here]* public service agencies including *[insert public service agency names here]*. These agencies have worked cooperatively to develop the intra-jurisdictional interoperability channel and standard operating procedures, which will be used at the agency command level during critical incidents or at the discretion of the mayor. In the future, other agencies may enter into a Memorandum of Understanding (MOU) with the city for use of the channel and will agree to operate according to the procedures outlined in this document.

Section 4: COMMUNICATIONS STRUCTURE

A graphical depiction of the agencies involved in the communications structure can help map out the flow of information and help set the foundation for procedures. A depiction of command levels and roles within agencies clarifies the relationship among users.

Figure 2 is a sample organizational chart that demonstrates the various levels of command within each agency. It may help stakeholders understand the reporting relationships of all personnel with the capability to access the interoperability channel. A description of users and their reporting relationships should accompany the chart.

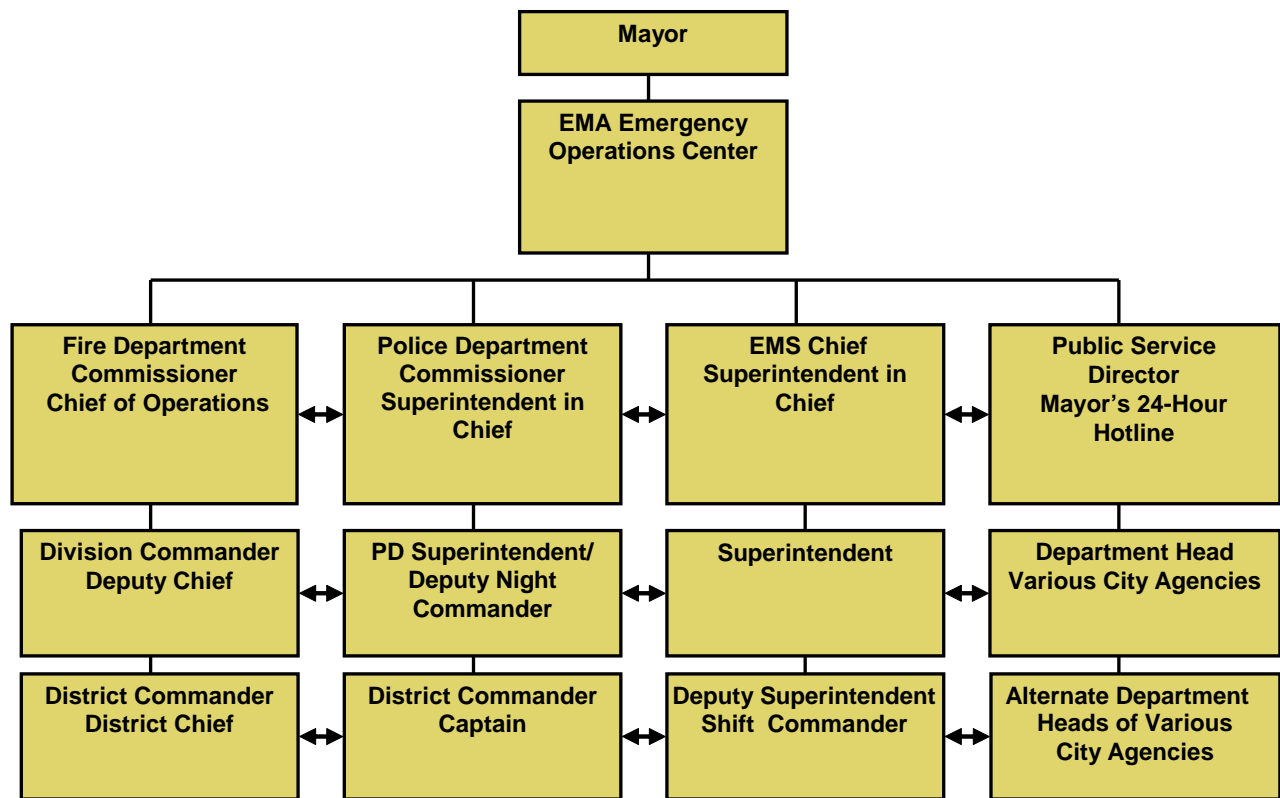


Figure 2

Section 5: CHANNEL PATCHING AND MONITORING

The section on channel patching and monitoring is specific to a shared channel capability. It describes how the new capability is achieved and the specifics of that capability. It can also serve to identify benefits and alternatives of the capability as well as the specific procedures around aspects of use. For example, with an intra-jurisdictional interoperability channel, procedures for channel patching and monitoring are described and explained.



5a: Patching of the Interoperability Channel

- ① What bands/channels are patched, if any?
- ② For example, is it a dedicated Ultra High Frequency (UHF) channel patched to an 800 MHz network?
- ③ What are the benefits of the interoperability channel's current configuration?
- ④ Are there more effective alternatives?



The intra-jurisdictional interoperability channel consists of a dedicated UHF radio channel patched to an 800 MHz talk group. This patched network permits users operating on either frequency band to communicate directly with other intra-jurisdictional interoperability channel users. This continuous patch alleviates the need to set up a patch during an actual incident. Should the UHF/800 patch need to be separated, the intra-jurisdictional interoperability channel would still serve as a valuable interoperability resource. While UHF users would lose the ability to communicate directly on the 800 frequency, they might still be able to communicate with others operating within their own frequency.



5b: Interoperability Channel Monitoring

- ① Who will monitor the interoperability channel?
- ② What are the monitoring procedures once the channel is activated?



All agencies' dispatch/radio communications centers will monitor the intra-jurisdictional interoperability channel. Once it is activated, all dispatch/radio communications centers will be required to monitor the channel on a priority basis until its use is discontinued.

Section 6: ACTIVATION, TRANSFER, AND DISCONTINUATION

This section describes rules of use for the interoperability channel, operation procedures for activation of the channel, authorities responsible for activation, process for transferring lead dispatch, process for establishing command and control, and procedures for discontinuation of use.



6a: Rules of Use

- ① Will plain language or codes be used?
- ② Will the phonetic alphabet be used?
- ③ Will the SOP require that the Incident Command System (ICS) be used as a guide when the channel has been activated?
- ④ How will the channel be used for emergency information transmissions (i.e., information that poses an imminent danger)?

Plain Language

Plain language is to be used when communicating on the intra-jurisdictional interoperability channel. When necessary, the phonetic alphabet may be used to communicate over the channel. See Appendix 2 for an example of the military phonetic alphabet.

Incident Command System (ICS)

Each agency will use ICS as an operational guide at incidents where the intra-jurisdictional interoperability channel is activated.

Emergency Information Transmission

Once the intra-jurisdictional interoperability channel is activated, information that poses an imminent danger condition should be communicated between dispatch/radio communications centers (i.e., police dispatch center, fire alarm and/or EMS). The receiving dispatch/radio communications center is required to acknowledge receipt of the emergency information. Additionally, each agency is responsible for disseminating this information to its respective personnel.

In the case of an imminent danger condition where the intra-jurisdictional interoperability channel cannot be activated for reasons beyond operational control, agencies operating at the scene will be notified of the situation as quickly as possible. Some options for this notification are to use a computer-aided dispatch (CAD) center, telephone, or emergency hotline.



6b: Operational Procedure and Guidelines for Limited and Full Activation

- ① What are the requirements, procedures, and guidelines for limited activation (e.g., day-to-day incidents)?
- ② What are the requirements, procedures, and guidelines for full activation (e.g., large-scale incidents)?



Section 6: ACTIVATION, TRANSFER, AND DISCONTINUATION (CONT.)



Limited Activation

Limited activation is appropriate when an incident can be resolved by the resources of public safety or public service agencies. During these incidents, public safety or public service agencies can use the intra-jurisdictional interoperability channel.

Full Activation

Full activation is appropriate when an incident requires the activation of the Emergency Operations Center (EOC) as ordered by the mayor and/or the emergency management director. During a large-scale incident, previously defined procedures will be on the intra-jurisdictional interoperability channel until the EOC is fully staffed. Agency heads will be able to speak to each other for acquisition of resources. Once the EOC is fully staffed, the operations officer at the EOC will be the primary source for acquisition of resources. At this point, the intra-jurisdictional interoperability channel's function will shift to unified command, incident mitigation, and personnel safety.



6c: Radio Channel Activation Authority

- ① What are the procedures for requesting use of the interoperability channel?
- ② What are the conditions for use for each public safety agency using the channel?
- ③ What are proper uses of the interoperability channel?



Use of the intra-jurisdictional interoperability channel may be requested whenever an agency's incident commander (IC), the highest-ranking officer of the controlling agency, determines the need to communicate directly with other agency representatives who have access to the channel. Each agency has the right to use the channel as necessary for public safety and availability of necessary resources. It is important to note that use of the channel is not intended to replace the establishment of an on-scene unified command post among responding agencies. The intra-jurisdictional interoperability channel is intended to assist communications until a command post can be established or to speak with an agency representative not yet on the scene.



6d: Establishing and Transferring Lead Dispatch Radio Command Control

- ① What are the procedures for requesting agencies to switch their radios to the interoperability channel?
- ② Who is involved in the procedure?
- ③ Who has the authority to order it?
- ④ Will a lead dispatch/communications center be designated?

Section 6: ACTIVATION, TRANSFER, AND DISCONTINUATION (CONT.)



The IC, identifying the need for interoperable communications, will contact his/her respective dispatch/radio communications center (i.e., mayor's office, police dispatch center, fire alarm, and/or EMS). The IC will request that specific agencies switch their radio to the intra-jurisdictional interoperability channel. The dispatch/radio communications center of the agency that initiates use of the interoperability channel has the responsibility to notify all other required agencies by radio or telephone in accordance with the procedures outlined in this SOP. The dispatch/radio communications center will become the lead dispatch/radio communications center.

The designation of the lead dispatch/radio communications center may be changed as the lead agency requires or requests.

If the IC is transferred, the new IC will notify his/her respective dispatch/radio communications center by radio or telephone that he or she is the new IC for the agency. That dispatch/radio communications center will then become the lead dispatch/radio communications center of the intra-jurisdictional interoperability channel.

Please refer to Appendix 3 for dispatch/radio communications center contact information.



6e: Notification Process for Establishing Command Control

- ① What are the notification procedures for establishing command and control among participating agencies?
- ② Who is authorized to activate the interoperability channel?



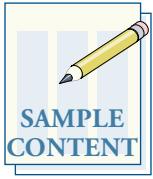
Each agency participating in the intra-jurisdictional interoperability channel will follow its own internal notification procedures for establishing command and control. The mayor, police commissioner, fire commissioner, EMS chief, and Emergency Management Agency (EMA) director or their designees are authorized to activate the intra-jurisdictional interoperability channel.



6f: Discontinuation of the Interoperability channel

- ① What are the procedures for discontinuing active use of the interoperability channel?
- ② Who will make the decision to discontinue use?
- ③ How will all participants be notified?

Section 6: ACTIVATION, TRANSFER, AND DISCONTINUATION (CONT.)



At such a time that communication on the intra-jurisdictional interoperability channel is no longer required, the IC of the lead agency will notify his/her respective dispatch/radio communications center to discontinue active use of the intra-jurisdictional interoperability channel, and normal monitoring will resume. The lead dispatch/radio communication center will notify all participating dispatch/radio communications centers that the intra-jurisdictional interoperability channel is no longer in use.

Section 7: SEPARATION OF THE INTEROPERABILITY CHANNEL DUE TO INTERFERENCE

This section is intended to outline the procedures to follow when there is interference with channel frequency. The section should include parties to be notified and action to be taken.



- ① What procedures should be in place when there is intentional or unintentional interference with the interoperability channel frequency?
- ② Who is responsible for ensuring the power is terminated?



In the event that there is intentional or unintentional interference with the intra-jurisdictional interoperability channel frequency, the dispatch/radio communications center and/or IC should notify the police department dispatch center duty supervisor by telephone. The duty supervisor will notify the director of communications to take down the patch; however, the responsibility for ensuring the patch is terminated belongs to the duty supervisor. When the patch between the UHF and 800 MHz trunked systems is separated, the radios will still work within their own frequency.

Section 8: COMMUNICATIONS ALTERNATIVES

Several alternatives may have been identified to ensure interoperable communications remain available among all agencies if the interoperability channel is not available. A sample list of alternatives is provided below. It may be helpful to describe capabilities and guide readers to appendices if instruction is required.

1. Telephone Conference Bridges

Telephone conference bridges permit direct communication among a number of users, assuming they have access to telephone services.

2. Cellular/Push-to-Talk Commercial Wireless Technology

Currently, most agencies use cellular/push-to-talk commercial wireless communications technology. In the event that the intra-jurisdictional interoperability channel is malfunctioning, this technology may be used to disseminate critical information to department heads and/or designees.

3. Computerized Emergency Notification System

The computerized emergency notification system will be programmed to contact specific individuals and agencies, depending on the nature of the incident. This includes appropriate media outlets, which could be used to inform the general public of situation updates, specific instructions, and/or emergency locations, if warranted.

4. Internet/E-mail

A lesson learned from September 11, 2001 was the power of the Internet and e-mail. While conventional communications outlets (i.e., wireless phones and land lines) were either damaged or overwhelmed, the Internet was up and provided an invaluable service to the general public. In the same way, the city's online Emergency Operations Center (EOC) can be used as a means to pass information to various agencies that are involved in the event.

5. Satellite Phones

Satellite phones are assigned to the agency heads of the police department, fire department, EMS, EMA, and the mayor's office for intercommunications if conventional phone lines become impaired. A cache of satellite phones will be stored at the EOC; and assigned for use by the EMA director and/or operations officer. The satellite phone numbers for agency heads are listed in Appendix 4.

6. Cache of Portable Radios on Various Bands

[Insert appropriate number here] caches of 800 MHz portable radios *[insert total here]* are available through *[insert agency that is responsible for caches here]*. These radios are able to provide a communications system on a local, regional, and statewide level in accord with existing mutual aid MOUs, resource-sharing agreements, and requests from other emergency responder agencies.

Because these radios work only on ITAC channels, their activation must be coordinated with the state police or the EMA prior to use.

7. Mobile Capabilities with Conventional Channels

Several command post and communications support vehicles are available through various public safety agencies. These resources can be deployed to provide: a cache of spare UHF radio equipment, spare batteries, network video downlink capability, cross band patching, or base station repeaters. They can help support an extended operation or replace a damaged fixed repeater site.

8. Dispatch/Radio Communications Center to Dispatch/Radio Communications Center Messaging

Police, fire, and EMS share a common computer-aided dispatch (CAD) system capable of providing text messaging between users.

9. Runner System

In the unlikely event that the intra-jurisdictional interoperability channel and redundant back-up systems are all unavailable, the police department will arrange for a "runner system" in which designated personnel respond to the residence of department heads and other key agency representatives to make notifications and provide transportation as necessary.

Section 9: TRAINING REQUIREMENTS

This section is intended to state the objectives or the minimum requirements for satisfactorily passing training on the SOP. Objectives should accompany each training procedure. Ideally, training requirements should include an assessment that measures whether the objectives of the training were met.



- ① Who will be responsible for ensuring that participating agencies' personnel are familiar with the SOP and are properly trained?
- ② What will be the minimum training requirements for:
 - How the radio is set up?
 - How to select the right channel?
 - Proper terminology and radio etiquette?
 - Who to notify in their agency if they have a radio problem?



Participating agencies will be responsible for ensuring that their personnel are familiar with this SOP and are properly trained in accordance with the guiding principles in Appendix 5.

Section 10: TESTING REQUIREMENTS

This section should describe the procedures for testing the requirements of a capability or equipment. As with all testing procedures, testers should consider a variety of circumstances and environments and have documentation to guide their efforts. This section should clearly articulate those expectations.



- ① What are the standardized testing procedures?
- ② Will there be different phases of testing (i.e., communications center testing and operational testing)?
- ③ What are the procedures for each testing phase?
- ④ When should testing take place?
- ⑤ What agencies should be involved?



During standardized testing, the testing agency will communicate with participating public safety and public service agencies on the intra-jurisdictional interoperability channel.

There will be two different phases of radio testing:

1. Communications Center Testing

This weekly test of the intra-jurisdictional interoperability channel *[insert day and time here]* will be done between the public safety and public service dispatch/radio communication centers *[insert appropriate agency names here]*. The agency radio technician will monitor the UHF and 800 MHz trunked systems during testing.

2. Operational Testing

Each agency will decide when testing should take place. All agency heads or designated representatives with radios pre-set with the intra-jurisdictional interoperability channel will participate in this testing. During this test, the technical support will be checking the accuracy and performance of various sites.

Section 11: RESPONSIBILITY

This section should state who or what body will ensure that all SOPs are followed. This section should reference, if appropriate, Section 4: Communications Structure.



- ① Whose responsibility will it be to ensure that these SOPs are followed when necessary?
- ② Whose responsibility will it be to be familiar with and comply with these SOPs?



It will be the responsibility of agency heads to ensure that these SOPs are followed when necessary.

It will be the responsibility of all communication personnel to be familiar with and comply with these SOPs.

Conclusion

Creating and applying SOPs that foster interoperable communications across an area or region can be challenging due to differences in technology, organizational structures, and the overall experience of the emergency responders. However, SOPs are essential for successful incident response. SAFECOM hopes that this guide helps communities overcome these challenges and establish effective SOPs. It is SAFECOM's intent to continue to provide similar resources to the public safety community.

Sample Appendix 1

Personnel with Interoperability Channel Capabilities:

Police Department

Title/Rank

Date of Last Revision _____

Name and Title _____

Personnel with Interoperability Channel Capabilities: Fire Department

[illegible]

Date of Last Revision _____

Name and Title _____

Personnel with Interoperability Channel Capabilities: Emergency Medical Services

[illegible]

Date of Last Revision _____

Name and Title _____

Personnel with Interoperability Channel Capabilities: City Personnel

[illegible]

Date of Last Revision _____

Name and Title _____

Sample Appendix 2

The Military Phonetic Alphabet

The phonetic alphabet may be used to communicate over the interoperability channel when necessary. Plain language should be used whenever possible.

The phonetic alphabet system, provided below, is recommended for those agencies lacking an operational alphabet system.

Alpha	Bravo	Charlie	Delta
Echo	Foxtrot	Golf	Hotel
India	Juliet	Kilo	Lima
Mike	November	Oscar	Papa
Quebec	Romeo	Sierra	Tango
Uniform	Victor	Whiskey	X-ray
Yankee	Zulu		

Sample Appendix 3

Communications Centers Contact Information

Discipline	Communications Center/POC	Phone Number

Date of Last Revision _____

Name and Title _____

Sample Appendix 4

Satellite Phone Numbers

Satellite Phone Number	Agency	Department

Satellite Phone User Guide

[INSERT USER GUIDE HERE]

Sample Appendix 5

Training Guiding Principles

At a minimum, each agency will give its own overview of the following:

- How the radio is set up
- How to select the right channel
- Proper terminology and radio etiquette
- Requirement that agencies using the channel must use plain English
- Requirement that agencies using the channel will use agency affiliation and title (Fire IC, EMS Staging Officer, etc.) in lieu of established agency call signs
- Who to notify in their agency if there is a radio problem
- Proper terminology and radio etiquette examples/Reference Guide
- When contact is established before a message is given
- Requirement that contact is initiated by holding the microphone three inches from the mouth, keying the radio, and waiting 1-2 seconds before speaking. The initiating party identifies his/her agency affiliation and title in addition to those of the person being called

Example:

“Fire District 5 to Public Works Highway Superintendent, have three front-end loaders report to Location 1 and 2 for removal of debris.”

The basic content of messages requiring an action is then repeated to the originator.

Example:

“Public Works Highway Superintendent to Fire District 5, sending three front-end loaders to Location 1 and 2 for removal of debris.”

If the person being called responds with “Who is calling the Public Works Highway Superintendent?” then he/she did not understand who was calling. The initiating party would then repeat his/her agency affiliation and title in addition to those of the person being called to establish contact.

Example:

“Fire District 5 to Public Works Highway Superintendent”

Additional Information

- Resources and reference materials
- Training materials and their locations
- Industry guides and their locations
- Contact information

The Department of Homeland Security (DHS) established the Office for Interoperability and Compatibility (OIC) in 2004 to strengthen and integrate interoperability and compatibility efforts in order to improve local, tribal, state, and Federal emergency response and preparedness. Managed by the Science and Technology Directorate, OIC is assisting in the coordination of interoperability efforts across DHS. OIC programs and initiatives address critical interoperability and compatibility issues. Priority areas include communications, equipment, and training. A communications program of OIC, SAFECOM, with its Federal partners, provides research, development, testing and evaluation, guidance, tools, and templates on communications-related issues to local, tribal, state, and Federal emergency response agencies.



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