Developing Interoperability
Standard Operating Procedures

By Benjamin R. Krauss, PMP

Standard operating procedures are one of the five “critical success factors” essential for interoperable communications. This Issue Brief will describe:

- the public safety community’s need for standard operating procedure (SOP) models;
- the SOP models that are available for use;
- the five-step SOP development and testing process;
- the critical importance of involving end users to ensure operational utility (that the policies actually work in the real world); and
- the expected operational benefits.

The goal of this Issue Brief is to help educate the public safety community on the need for these SOPs, and the best way to effectively implement them within agencies. The target audience for this Issue Brief is public safety first responders (police, fire, emergency medical services [EMS], and public safety emergency communications personnel).

Consider this scenario

Your agency recently received public safety technology funding to improve interoperable communications. Your agency has acknowledged its past challenges aligning technology acquisitions with operational use by first responders. Based on this, your agency’s leadership has decided to focus their efforts on developing and implementing procedures to support a new interoperable communications technological resource. A primary motivator for your leaders is that...

technology investments should deliver operational value (i.e., benefits for first responders and the public they serve). With tight budget constraints and staff stretched thin to cover personnel vacancies, there has been little time to develop the needed procedures. Then the following incident occurs:

Police, fire, and EMS personnel respond to a motor vehicle injury accident involving a passenger car and a semi tractor-trailer (transporting hazardous material) on an interstate off-ramp. The tractor-trailer is jackknifed sideways across all lanes of traffic and the off-ramp is blocked.

A multi-agency, multi-discipline coordinated and timely response is needed to deal with this incident. Although first responders have the technology to help accomplish this—in this case, pre-established and pre-programmed Shared Channels/Talkgroups in their portable radios—there are no standard operating procedures to help guide the responder interaction and provide greater coordination through enhanced communication. As a result, interoperable communications is fragmented and action is delayed. During an operational debriefing of the incident by involved agencies, the key parties agreed that the lack of a set of interoperable communications SOPs was the primary impediment to a timely and coordinated response.

Members of the emergency response community need standards, protocols, and procedures between agencies, jurisdictions, and disciplines. Standard operating procedures that are mutually agreed-upon, clear, concise, and operationally focused will help guide the interaction among responders, and provide greater coordination, during an incident or event where interoperable communications is needed. How can first responders reduce the chance of a delayed emergency response when there are a lack of effective interoperable communications SOPs? A starting point to consider is using the Standard Operating Procedure Template Suite guidance documents provided by the Department of Homeland Security (DHS), SAFECOM.3

Communications Interoperability Defined

SAFECOM defines wireless communications interoperability as “the ability of emergency response officials to share information via voice and data signals on demand, in real time, when needed, and as authorized. This includes the ability of emergency responders to work seamlessly with other systems without any special effort. For example, when communications systems are interoperable, police and firefighters responding to a routine incident can talk to each other to coordinate efforts. Communications interoperability also makes it possible for emergency response agencies responding to catastrophic accidents or disasters to work effectively together. Finally, it allows emergency response personnel to maximize resources as they plan for major predictable events, such as the Super Bowl or an inauguration, or for disaster relief and recovery efforts.”

The Interoperability Continuum identifies five critical success factors essential to interoperable communications: 1) Governance, 2) Standard Operating Procedures, 3) Technology, 4) Training & Exercises, and 5) Usage (see chart on next page). The SAFECOM Interoperability Continuum Brochure provides the basis for the following foundational definitions of these five elements.

- **Governance:** Establishing a common governing structure for solving interoperability issues will improve the policies, processes, and procedures of any major project by enhancing communication, coordination, and cooperation; establishing guidelines and principles; and reducing any internal jurisdictional conflicts.
- **Standard Operating Procedures (SOPs):** Standard operating procedures—formal written guidelines or instructions for incident response—typically have both operational and technical components. Established SOPs enable emergency responders to successfully coordinate an incident response across disciplines and jurisdictions. Clear and effective SOPs are essential to develop and deploy any interoperable communications solution.
- **Technology:** Technology is a critical tool for improving interoperability, but it is not the sole driver of an optimal solution. Successfully implementing data and voice communications technology is supported by strong governance and is highly dependent on effective collaboration, written and published procedures, and training among participating agencies and jurisdictions.
- **Training & Exercises:** Implementing effective training and exercise programs to practice communications interoperability is essential for ensuring that the technology works, the policies are understood, and responders are able to effectively communicate during emergencies.
- **Usage:** Usage refers to how often interoperable communications technologies are used. Success in this element is contingent upon progress and interplay among the other four elements on the Interoperability Continuum.

---

4. SAFECOM Interoperability site, referenced at note 1.
SOP Models

The foundational structure of SAFECOM’s SOP template was based on the procedures developed by the Metropolitan Emergency Services Board (MESB) in Minnesota.6 The MESB model was featured in the Law Enforcement Tech Guide for Communications Interoperability: A Guide for Interagency Communications Projects as a strong example of an interoperable communications-focused SOP model.7

To drive progress along the five elements of the continuum and improve interoperability, emergency response practitioners should observe the following principles:

- Gain leadership commitment from all disciplines (police, fire, EMS, and public safety emergency communications personnel)
- Foster collaboration across disciplines (police, fire, EMS, and public safety emergency communications personnel) 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
- Ensure collaboration and coordination across all five interoperable communications elements (Governance, SOPs, Technology, Training & Exercises, and Usage).8

SOP Template Models Your Agency, Region, or State Can Use

Standard operating procedures are a staple of any law enforcement agency’s success. Therefore, SAFECOM developed a series of interoperability SOPs that include the following five common interoperability resources:


8. SAFECOM Interoperability Continuum Brochure, referenced at note 5.
The SOP template guides are posted on the DHS SAFECOM website: www.safecomprogram.gov/oecguidancedocuments/webpages/ts.aspx. Each template guide is divided into two parts.

**Part I** highlights sample language, references formal agreements/SOPs, and provides “Questions to Consider” when creating an SOP.

**Part II** provides a template with input fields and customizable pre-populated language that practitioners can tailor to meet the needs of their SOP.

Furthermore, the template guides were designed with two key intentions:

- In Part I, the SOPs are designed with a practitioner focus; they are intended to be clear (easy to read and understand), concise (no more than 2–4 pages long), and modular (for each interoperability resource).

- In Part II, the SOPs are intended to be collaboratively developed by the end users (police, fire, EMS, and public safety emergency communications personnel).

To facilitate the SOP development process and enhance the broad-based operational use of these models, they are based on the following six foundational sections:

- **Purpose/Objectives**: This section identifies the primary objective for this interoperability resource.

- **Technical Background**: This section describes the operational and technical communications capacities and identifies constraints—the technical and operational elements that can limit the system’s performance.

- **Operational Context**: This section explains when and why this interoperability resource is used.

- **Recommended Protocol/Standard**: This section identifies the standards of use that govern interoperable communications resources.

- **Recommended Protocol/Procedure**: This section describes the interoperability resources detailed in the SOP, how they are activated, and deactivated, and how problems are identified and resolved.

- **Management**: This section describes how interoperable resources are managed, and touches on other elements management should consider, including the governance structure and training considerations.

Many policies and plans end up being voluminous and a bit long and challenging to use in a critical incident.

**The Five-Step SOP Development and Testing Process**

This process is designed to follow the “Keep It Simple” principle often used in public safety and the concept of quality control. The first step, **Building the Foundation**, is followed by an iterative four-step process, Plan-Do-Check-Act (PDCA), with a focus on quality improvement.

How does this relate to SOP development?

- **Building the Foundation** sets the stage for effective decision-making.

- **The Plan** is to develop a policy that meets interagency interoperability needs.

- The agencies need to **Do** the development work.

- After the draft SOP is developed, the public safety professionals need to **Check** and see how well it works.

- Finally, they need to **Act** to determine what needs to be changed to improve it.

Let’s look at this process in further detail.

---


10. Separate SOPs are intended for each interoperability resource: Shared Channels, Shared Systems, Mobile Gateways, Console Patch, Radio Cache.

Build The Foundation Through Governance Development

You should secure the support of the top decision-makers in the affected organizations to develop a SOP based on a needs assessment. At a minimum, representatives should include operations personnel and communications center personnel from each affected agency. Clearly defining roles, responsibilities, and authority is an essential element of support needed for SOP development success. A Memorandum of Understanding model, designed to articulate and formalize this foundational agreement, is available from SAFECOM.12

The National Incident Management System, or NIMS, provides a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment.

Plan

If you are managing this procedure development, then assess the need for interoperable communications SOPs based on end-user needs. Make sure to have all the end-users of the SOP (police, fire, EMS, and public safety emergency communications personnel) involved in the development process. This is a critical step because if end-user groups are left out, there is an increased probability that the SOP will fail to meet the operational needs of these groups. The SAFECOM SOP Templates are designed to be compliant with the National Incident Management System13 (NIMS) to help ensure a seamless emergency response.14

The needs assessment can follow several straightforward steps. First, if a current SOP is in use, the planning process would involve presenting three questions to the current users of the existing SOP:

- What does work with the existing SOP?
- What does not work with the existing SOP?
- How can the existing SOP be improved?

Second, if an SOP is not in use, follow the Do, Check, Act steps to move forward with developing the SOP based on a template.

Do

Collaboratively develop the SOP using the SAFECOM Template resource. The models are designed to be used by personnel involved in field operations. To this point, the SOP models are intended to be clear, concise, and modular (for a specific interoperability resource)—to total 2–4 pages long. Expect that a solid draft SOP could be developed in a one-day development session involving all the end-user groups.15

Check

Engage end-users in a review process and then conduct a tabletop exercise to determine what worked and what did not work. This should be followed with Practice Exercises. Consider using the Homeland Security Exercise and Evaluation Program (HSEEP) model.16 HSEEP is a capabilities- and performance-based exercise program that provides a standardized methodology and terminology for exercise design, development, conduct, evaluation, and improvement planning.

The Department of Homeland Security offers extensive resources to support Training and Exercises: www.dhs.gov/xfrstresp/training/.

The DHS Office of Emergency Communications (OEC) has a Technical Assistance Program that can support the planning and management of tabletop exercises: www.dhs.gov/files/training/gc_1287084689081.shtm.

Act

Update the SOP as a “living document” based on management concerns and feedback. These updates will be based on a number of factors to include, but not limited to, inci-

---

12. Local-to-local and State-to-local MOU models are available at www.safecomprogram.gov/oecguidancedocuments/webpages/ts.aspx
15. SEARCH staff has worked with public safety practitioners to develop SOPs during one-day workshops.
End-users are on the front lines of public safety service. Proactively solicit feedback from these groups to determine what works with the SOP, what does not work, and how the SOP can be improved. This can be accomplished in the normal roll-call briefing at the start of shift work or during in-service training.

**Benefits of Operational Effectiveness**

Using effective interoperable communications policies can improve your operational performance.

This takes us back to the original incident-based scenario presented at the beginning of this Issue Brief. Imagine the scenario, but this time, imagine that first responders have pre-established and pre-programmed Shared Channels/Talkgroups in their portable radios, which they consistently use during this incident because of the following planning actions:

- There is an operationally sound, uniformly understood SOP for use of this resource, and
- Effective training helps promote the use of Shared Channels/Talkgroups in times of emergency.

These responders are better able to communicate on-demand, when needed, in real-time and as authorized. Responders are able to work together seamlessly without any special effort.

**Compliance with Federal Guidance**

The National Emergency Communications Plan (NECP) 2008, directed by Congress and developed by DHS, identifies the need to standardize and implement common operational protocols and procedures in Initiative 3.1. The SOP Templates are also designed to be integrated with the NIMS, which is at the center of federal emergency preparedness and national response guidance. Homeland Security Presidential Directive #5 identifies NIMS compliance as a requirement for receiving federal preparedness funds. A primary focus of NIMS is a standardized and comprehensive, nationwide approach to all-hazards preparedness planning, resource procedure development, and incident management.

**Conclusion**

Collaboratively developed, operationally oriented standard operating procedures can improve the interoperable communications of first responders. This Issue Brief was designed to provide an overview of the SOP templates, key elements, and primary considerations involved in developing your own SOPs, and the benefits they can provide to your agencies. The following are additional resources.

**Policy Development, Training, and Technical Assistance Resources**

- **SEARCH, The National Consortium for Justice Information and Statistics**: SEARCH offers technical assistance to local and state justice agencies to develop, manage, improve, acquire, and integrate their automated information systems. SEARCH not only works with individual justice agencies (such as a police department that is implementing a new records management system, or a court acquiring a new case management system), but also works with multidisciplinary groups of justice agencies to assist them in planning for and integrating their information systems at local, state, and regional levels. For more than two decades, SEARCH assistance programs have provided both on-site and in-house, no-cost technical assistance to justice agencies throughout the country. SEARCH staff has considerable experience in conducting Standard Operating Procedure development workshops. See [www.search.org/products](http://www.search.org/products).

- **U.S. Department of Justice Office of Community Oriented Policing Services (COPS Office)**: The COPS Office is the component of the U.S. Department of Justice responsible for advancing the practice of community policing by the nation’s state, local, and tribal law enforcement agencies. The community policing

---

18. SAFECOM Interoperability site, referenced at note 1.
19. The purpose of the NECP is to promote the ability of emergency response providers and relevant government officials to continue to communicate in the event of natural disasters, acts of terrorism, and other man-made disasters and to ensure, accelerate, and attain interoperable emergency communications nationwide. NECP, pg. 2, referenced at note 2.
20. SAFECOM Interoperability Continuum Brochure, referenced at note 5.
philosophy promotes organizational strategies that support the systematic use of partnerships and problem-solving techniques to proactively address the immediate conditions that give rise to public safety issues such as crime, social disorder, and fear of crime. The COPS Office does its work principally by sharing information and awarding grants to law enforcement agencies around the United States to hire and train community policing professionals, acquire and deploy cutting-edge crime-fighting technologies, and develop and test innovative policing strategies. See www.cops.usdoj.gov/.

- **U.S. Department of Homeland Security, Office of Emergency Communications (DHS OEC):** The mission of OEC is to support and promote the ability of emergency responders and government officials to continue to communicate in the event of natural disasters, acts of terrorism, or other man-made disasters, and work to ensure, accelerate, and attain interoperable and operable emergency communications nationwide. See www.dhs.gov/xabout/structure/gc_1189774174005.shtm.

- **SAFECOM:** SAFECOM is an emergency communications program of DHS’ OEC and the Office for Interoperability and Compatibility. Through collaboration with emergency responders and policymakers across all levels of government, SAFECOM works to improve multi-jurisdictional and intergovernmental communications interoperability. SAFECOM membership is comprised of members from national associations representing the emergency response community and intergovernmental officials, public safety at-large members representing emergency responders in the field across the nation, and contributing federal agencies. The SAFECOM Executive Committee (EC) serves as the primary steering group for the SAFECOM Emergency Response Council (ERC). See www.safecomprogram.gov/default.aspx.

- **HSEEP:** The Homeland Security Exercise and Evaluation Program (HSEEP) is a capabilities- and performance-based exercise program that provides a standardized methodology and terminology for exercise design, development, conduct, evaluation, and improvement planning. The HSEEP constitutes a national standard for all exercises. Through exercises, the National Exercise Program supports organizations to achieve objective assessments of their capabilities so that strengths and areas for improvement are identified, corrected, and shared as appropriate prior to a real incident. See https://hseep.dhs.gov/pages/1001_HSEEP7.aspx.

This Issue Brief is part of a series that SEARCH developed for the public safety/justice community in partnership with the U.S. Department of Justice, COPS Office.

Questions, Comments, or Feedback: Please contact SEARCH at www.search.org/about/contact/.

This project was supported by Cooperative Agreement #2007-CK-WX-K002 by the U.S. Department of Justice, Office of Community Oriented Policing Services. The opinions contained herein are those of the author(s) and do not necessarily represent the official position or policies of the U.S. Department of Justice. References to specific agencies, companies, products, or services should not be considered an endorsement by the author(s) or the U.S. Department of Justice. Rather, the references are illustrations to supplement discussion of the issues.

The COPS Office and SEARCH wishes to thank members of the U.S. Department of Homeland Security Office of Emergency Communications SAFECOM Program for contributing their time and expertise to a review of this Brief.

**Captain Thomas W. Turner**  
Chairman, SEARCH

**Ronald P. Hawley**  
Executive Director, SEARCH

**Scott M. Came**  
Deputy Executive Director, SEARCH

© 2011 SEARCH Group, Inc. The U.S. Department of Justice reserves a royalty-free, nonexclusive, and irrevocable license to reproduce, publish, or otherwise use, and authorize others to use this publication for Federal Government purposes. This publication may be freely distributed and used for noncommercial and educational purposes.