

*Issue Briefs are designed for practitioners with limited time and a need to know about the latest industry-based knowledge.*

# Developing Interoperability

## Standard Operating Procedures

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Standard operating procedures are one of the five “critical success factors” essential for interoperable communications.<sup>1</sup> 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

1. SAFECOM, [www.safecomprogram.gov/interoperability/Default.aspx](http://www.safecomprogram.gov/interoperability/Default.aspx), accessed September 2011. Hereafter, SAFECOM Interoperability site.



**Image Source:** Georgia Interoperability Network—“Bringing the State Together” video posted on YouTube, [www.youtube.com/watch?v=PBrO04eh3MY](http://www.youtube.com/watch?v=PBrO04eh3MY), accessed August 2011.

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.<sup>2</sup> 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.<sup>3</sup>

### 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 fire-fighters 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.”<sup>4</sup>

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.<sup>5</sup>

- **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.

2. The National Emergency Communications Plan (NECP), directed by Congress and developed by the Department of Homeland Security (DHS), identified the need to standardize and implement common operational protocols and procedures. U.S. DHS, Washington, D.C.: July 2008 (rev. August 7, 2008), Initiative 3.1, at pp. 20–22, [www.dhs.gov/xlibrary/assets/national\\_emergency\\_communications\\_plan.pdf](http://www.dhs.gov/xlibrary/assets/national_emergency_communications_plan.pdf), accessed September 2011. Hereafter, NECP.

3. See SAFECOM, “Formal Agreement and Standard Operating Procedure Template Suite and Reference Library,” [www.safecomprogram.gov/oecguidancedocuments/webpages/ts.aspx](http://www.safecomprogram.gov/oecguidancedocuments/webpages/ts.aspx), accessed September 2011.

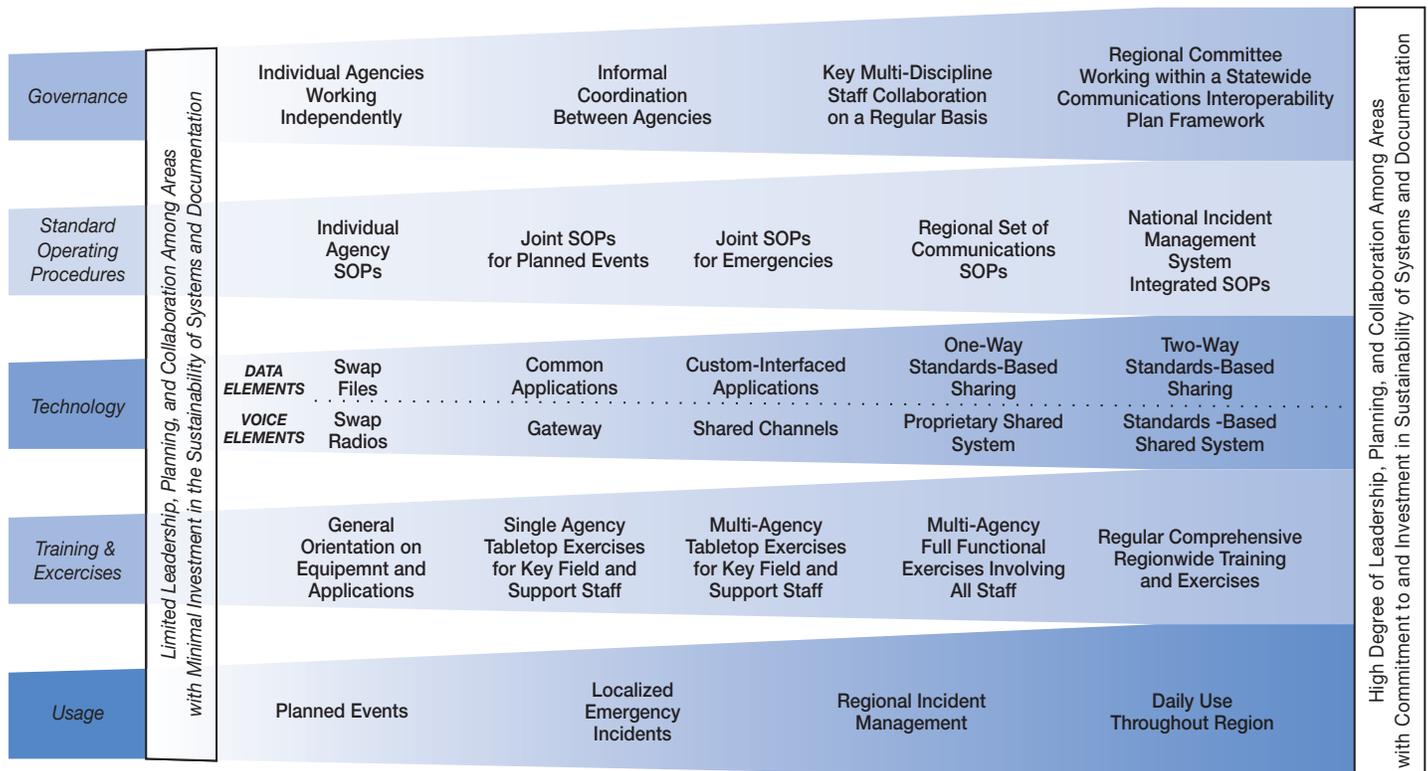
4. SAFECOM Interoperability site, referenced at note 1.

5. SAFECOM, [www.safecomprogram.gov/SiteCollectionDocuments/Interoperability\\_Continuum\\_Brochure\\_2.pdf](http://www.safecomprogram.gov/SiteCollectionDocuments/Interoperability_Continuum_Brochure_2.pdf), accessed September 2011. Hereafter, SAFECOM Interoperability Continuum Brochure.



**Homeland  
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## Interoperability Continuum



See page 8 for full color representation.

### 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.<sup>6</sup> 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.<sup>7</sup>

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)

6. Metropolitan Emergency Services Board, [www.mn-mesb.org/MetroARMERSystem/MetroStandards.aspx](http://www.mn-mesb.org/MetroARMERSystem/MetroStandards.aspx), accessed July 2011. The MESB supports public safety for the residents of nine Minnesota counties (Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, and Washington) and the City of Minneapolis.

7. The *Law Enforcement Tech Guide for Communications Interoperability* was prepared by SEARCH, funded by the U.S. Department of Justice, Office of Community Oriented Policing Services (the COPS Office), and endorsed by SAFECOM. Dan M. Hawkins, Washington, D.C.: U.S. Department of Justice COPS Office, 2006. Available at [www.cops.usdoj.gov/RIC/ResourceDetail.aspx?RID=238](http://www.cops.usdoj.gov/RIC/ResourceDetail.aspx?RID=238) and [www.search.org/programs/safety/techguides/](http://www.search.org/programs/safety/techguides/).

- 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).<sup>8</sup>

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

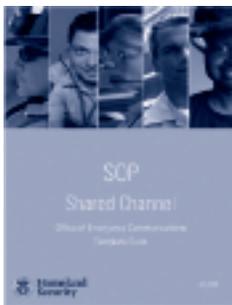
Standard operating procedures are a staple of any law enforcement agency's success. Therefore, SAFECOM developed a series of interoperability SOPs that include the following five common interoperability resources:

8. SAFECOM Interoperability Continuum Brochure, referenced at note 5.

- Shared Channels
- Shared Systems
- Mobile Gateways
- Console Patch
- Radio Cache

The SOP template guides are posted on the DHS SAFECOM website:  
[www.safecomprogram.gov/oecguidancedocuments/webpages/ts.aspx](http://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<sup>9</sup> focus; they are intended to be clear (easy to read and understand), concise (no more than 2–4 pages long), and modular<sup>10</sup> (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.

9. U.S. Department of Commerce, Boulder Laboratories, Public Safety Communications Research, “Practitioner Driven,” [www.pscr.gov/about\\_pscr/practitioners/practitioners.php](http://www.pscr.gov/about_pscr/practitioners/practitioners.php), accessed August 2011.

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

- **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<sup>11</sup> (PDCA), with a focus on quality improvement.

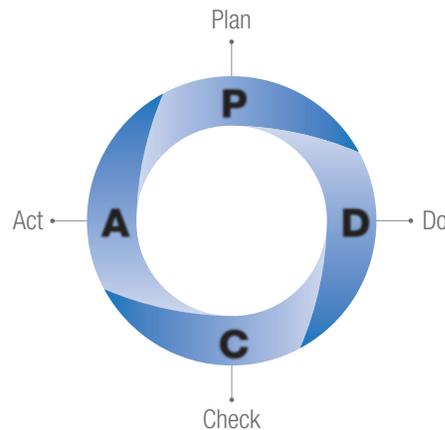


Image source:  
 Diagram by Karn G. Bulsuk  
<http://blog.bulsuk.com>

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.

11. Dr. W. Edwards Deming, considered by many to be the father of modern quality control, developed the Plan-Do-Check-Act method to support continuous performance improvement. See The W. Edwards Deming Institute website, <http://deming.org/>, accessed September 2011.

## 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.<sup>12</sup>

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 System<sup>13</sup> (NIMS) to help ensure a seamless emergency response.<sup>14</sup>

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.

12. Local-to-local and State-to-local MOU models are available at [www.safecomprogram.gov/oecguidancedocuments/webpages/ts.aspx](http://www.safecomprogram.gov/oecguidancedocuments/webpages/ts.aspx)

13. Federal Emergency Management Agency (FEMA), "About the National Incident Management System (NIMS)," at [www.fema.gov/emergency/nims/AboutNIMS.shtml](http://www.fema.gov/emergency/nims/AboutNIMS.shtml), accessed August 2011. See also U.S. DHS, National Incident Management System, Washington, D.C.: December 2008 (Publication P-501) at [www.fema.gov/pdf/emergency/nims/NIMS\\_core.pdf](http://www.fema.gov/pdf/emergency/nims/NIMS_core.pdf)

14. See FEMA, "NIMS FAQs," at [www.fema.gov/emergency/nims/FAQ.shtml](http://www.fema.gov/emergency/nims/FAQ.shtml), accessed August 2011.

### 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.<sup>15</sup>

### 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.<sup>16</sup> 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/](http://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](http://www.dhs.gov/files/training/gc_1287084689081.shtm).

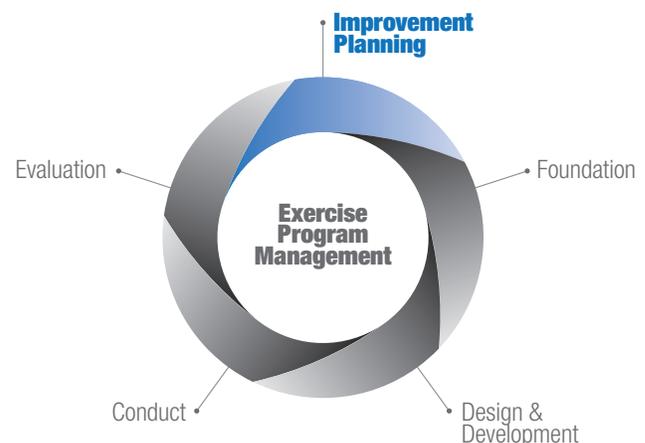


Image source: HSEEP

### 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-

15. SEARCH staff has worked with public safety practitioners to develop SOPs during one-day workshops.

16. See FEMA, "HSEEP," at [https://hseep.dhs.gov/pages/1001\\_HSEEP7.aspx](https://hseep.dhs.gov/pages/1001_HSEEP7.aspx), accessed August 2011.

dent After-Action-Reports (AARs) and end-user feedback. The AAR is the document that provides a description of what happened, describes any best practices or strengths, identifies areas for improvement that need to be addressed, and provides recommendations for improvement.<sup>17</sup> After the SOP is used in an interdisciplinary, interagency emergency response, planned event, or exercise, there will almost certainly be areas of this document that could be improved.

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.<sup>18</sup> Responders are able to work together seamlessly without any special effort.

## Compliance with Federal Guidance

The National Emergency Communications Plan<sup>19</sup> (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.

17. HSEEP Policy and Guidance documents, *Volume III: Exercise Evaluation and Improvement Planning*, revised February 2007, at [https://hseep.dhs.gov/pages/1001\\_HSEEP7.aspx](https://hseep.dhs.gov/pages/1001_HSEEP7.aspx), accessed August 2011.

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.

The SOP Templates are also designed to be integrated with the NIMS,<sup>20</sup> which is at the center of federal emergency preparedness and national response guidance.<sup>21</sup> Homeland Security Presidential Directive #5 identifies NIMS compliance as a requirement for receiving federal preparedness funds.<sup>22</sup> A primary focus of NIMS is a standardized and comprehensive, nationwide approach to all-hazards preparedness planning, resource procedure development, and incident management.<sup>23</sup>

## 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

20. SAFECOM Interoperability Continuum Brochure, referenced at note 5.

21. See FEMA, "National Response Framework (NRF) – FACT SHEET," at [www.fema.gov/pdf/emergency/nrf/NRFOnePageFactSheet.pdf](http://www.fema.gov/pdf/emergency/nrf/NRFOnePageFactSheet.pdf), accessed August 2011.

22. See The White House, "Homeland Security Presidential Directive/HSPD-5," February 28, 2003, line 20, at [www.dhs.gov/xabout/laws/gc\\_1214592333605.shtm](http://www.dhs.gov/xabout/laws/gc_1214592333605.shtm), accessed September 2011.

23. FEMA, National Incident Management System brochure, December 28, at [www.fema.gov/pdf/emergency/nims/NIMS\\_brochure.pdf](http://www.fema.gov/pdf/emergency/nims/NIMS_brochure.pdf), accessed August 2011.

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/](http://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](http://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](http://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](https://hseep.dhs.gov/pages/1001_HSEEP7.aspx).

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**Questions, Comments, or Feedback:** Please contact SEARCH at [www.search.org/about/contact/](http://www.search.org/about/contact/).

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