



**Interoperability** is the ability of public safety agencies to talk across disciplines and jurisdictions via radio communications systems, exchanging voice and/or data with one another on demand, in real time, when needed, and as authorized.

Phase 2  
Narrowband  
6.25KHz

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**Summary: Regional Interoperable Communications**

Communication is critical to effective emergency response. When a disaster or emergency event occurs the rapid gathering and sharing of critical information among public safety agencies, emergency responders, and the public can save lives and reduce the scale of the crisis situation.

Interoperable communications refers to the ability of emergency responders to communicate seamlessly with other agencies and/or systems without any special effort. This process relies on the ability of emergency response agencies to share information via voice and data signals on demand, in real time, when needed, and as authorized.

Establishing interoperable communications systems is critical to the Portland Metropolitan Region. Lessons learned from catastrophic events such as the World Trade Center attacks, highlight this need. As detailed in the 9/11 Commission Report:

“The task of accounting for and coordinating the units was rendered difficult, if not impossible, by internal communications breakdowns resulting from the limited capabilities of radios in the high-rise environment of the World Trade Center and from confusion over which personnel were assigned to which frequency.”  
[9/11 Commission Report. Section 9.4 Heroism and Horror]

This lack of efficient communication led to responding New York Fire Departments not receiving communication to evacuate World Trade Center before the second tower collapsed, killing over 300 firefighters.

Ultimately, establishing interoperable communications provides incident command and responding agencies with enhanced situational awareness for decision making.

Here in the Portland Metropolitan Region (PMR), four main goals have helped guide the establishment of interoperable communications over the last decade. They are: 1) Upgrades and/or replacement of aging communication systems and repair of critical communications infrastructure; 2) Compliance with national regulations for narrowbanding and 800 MHz migration; 3) Consolidation of wireless public safety communication systems for shared efficiencies and integration into larger state and regional systems; 4) Lay strong local foundations in interoperable networks for daily interdisciplinary, cross-jurisdictional use and exercise for future expansion.

Despite extensive investment of Urban Area Security Initiative (UASI) grants and other local funds, the PMR still incurs gaps in responders’ ability to communicate effortlessly. Reasons include lack of standard operation procedures addressing operational and technical requirements for response and on-scene interoperability; awareness for region-wide programming templates for channels/talk groups; and use of incompatible technology systems.

This issue of the REDCAP Report explores regional progress in interoperable communications as well as examines governance and planning initiatives helping to strategically guide efforts throughout the region. Throughout the issue technology supporting advancements for responders to seamlessly communicate in daily operations and emergency incidents will be highlighted. Lastly, in an interview with Bob Cozzie, director of the Clackamas County Communication Center - 911 and chair of the Portland Dispatch Center Consortium, we will discuss what lies ahead as the area builds towards efficient and reliable interoperability of communications within the region.

## Governance: Towards a Regional Interoperable Communications Governance Model

SAFECOM, the emergency communications program of the Department of Homeland Security's Office of Emergency Communications and Office of Interoperability and Compatibility, promotes the development of a common interoperable communications governing structure as critical for solving interoperability issues across jurisdictional lines, agencies and discipline groups. Such a structure, they advise, should consist of local, tribal, state, and federal entities as well as representatives from all pertinent public safety disciplines from within an identified region.

Interoperable communications governance in our five-county region has been evolving over the last decade, beginning with the establishment of the UASI Communications Work Group (CWG) in 2003. The CWG consisted of representatives of the 911 Public Safety Answering Point (PSAP) Communications Centers from the six Portland UASI partners (Clackamas, Clark, Columbia, Multnomah and Washington Counties, and the City of Portland), and served as one of several discipline specific groups of the informal UASI grant management structure until 2013 when the Portland UASI grant program was integrated into the RDPO.

Among its efforts, the CWG contributed to designing and managing dozens of projects that invested millions of grant dollars in radios, antennas, computer automated dispatch and other equipment and system enhancements around the region; in training and exercises; and in feasibility studies and strategic and operational plan development (e.g., the 2007 Interoperable Communications Strategic Plan (ICSP); the 2012 Tactical Interoperable Communications Plan (TICP); TIC Field Operation Guide (TICFOG).

In 2006 regional governance of interoperable communications took a step forward when the City of Portland, the City of Lake Oswego, Clackamas County, the Port of Portland, Washington County Consolidated Communications Agency, the Columbia County 911 Communications District and the Clark Regional Emergency Services Agency formed the Portland Dispatch Center Consortium (PDCC) under an intergovernmental agreement (IGA).

This partnership was formed to foster collaborative efforts including planning, training, exercising, interoperability of voice and data systems development, operational and physical back-up and redundancy, and joint efforts to obtain resources to support the Consortium's efforts and projects. PDCC meetings are open to representatives of other discipline groups with a stake in interoperable communications, such as law enforcement, fire/EMS, public health/hospitals and emergency management.

As efforts to stand up the RDPO in 2012 unfolded, the CWG and PDCC agreed there was a need to consolidate regional communications governance. By early 2013 the CWG was dissolved, leaving the PDCC to become the public safety communications discipline work group of the RDPO and one of its members represents the public safety communications perspective on the RDPO Steering Committee. Many PDCC members also participate in the Oregon and Washington State Interoperability Executive Council (SIEC).

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## Project 25

Project 25 (P25) is a national standard for digital radio communications. Developed in the United States under the guidance of state, local, and federal representatives and by use of the Telecommunications Industry Association (TIA), P25 has gained worldwide acceptance for public safety, security, public services, and commercial communications.

P25 standards are administered by the TIA. Radio equipment that is P25 compliant is able to meet a set of minimum requirements to fit the needs of public safety.

P25 has targeted four primary objectives:

- Allow effective, efficient, and reliable intra-agency and inter-agency communications
- Ensure competition in system life cycle procurements
- Provide user-friendly equipment
- Improve radio spectrum efficiency

In order to meet these goals, the State of Oregon has developed the State Radio Project forming a digital P25 trunked radio system in selected areas. The project will consolidate and modernize the existing system to make it easier for emergency services to establish connections with one another.

Similarly, the CRESA Radio System Replacement Steering group, consisting of administrative board members from Clark County and the seven cities within the County plus fire districts, actively guide Clark County's 800 MHz public safety radio system for interoperability.

### Definitions

**Trunked Radio System** - A two-way trunked radio system allows simultaneous conversations without waiting for an open channel.

**Narrowbanding** - The FCC is requiring license holders to begin narrowband broadcasting, at 12.5 kHz, on, or before Jan 1, 2013 to promote more efficient use of VHF and UHF land mobile bands. Any equipment that is not capable of operating on 12.5 kHz or less will need to be replaced. The FCC ultimately will implement equipment designed to operate on channel bandwidths of 6.25 kHz or less in the future.

*Hear the difference, digital v. analog radio*

Click on the radio to hear digital versus analog radio



In 2013, the PDCC worked with a contractor (GeoComm) to update the [ICSP](#), as well as complete an existing conditions report and begin the development of essential standard operating procedures, including ones to govern the deployment of interoperable repeaters and the use of plain language in the region. SOPs in the final stages of development integrate various foundational aspects of the National Incident Management System, the Statewide Tactical Interoperable Communications Plan, and goals stated within the National Emergency Communications Plan. The PDCC has presented the Plain Language SOP to the Program Committee, and is awaiting feedback before further refining it and requesting that the Steering Committee (and possibly Policy Committee) recommend its adoption by all relevant first response agencies around the region this spring.

While the ICSP states that communications governance in our region is primarily based on the structure of dispatch centers (PSAPs) rather than radio infrastructure owners, a question arose in 2013, which remains unanswered, about the relationship between the Regional Radio System Partnership (also known as the Regional Radio Group, or RRG), the RDPO and the PDCC.

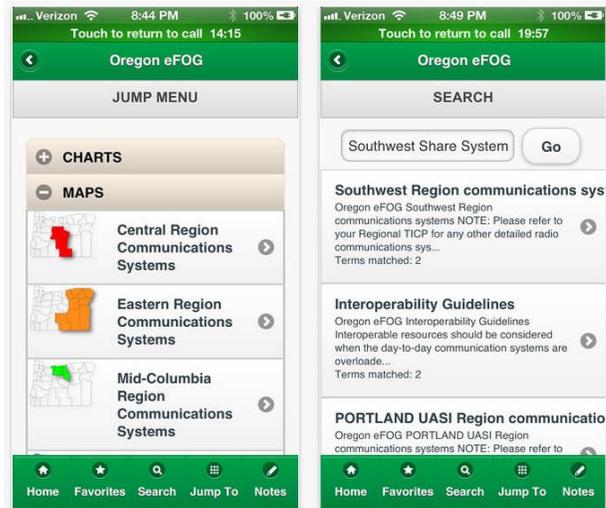
Formed under an IGA between the 800 MHz system owners in the region, the RRG governance structure is largely focused on infrastructure development, especially the planning, funding, construction, operation and maintenance of the Regional 700/800 MHz system replacement, which has both a long-term project timeline and an expensive price tag of around \$375 million. The existence of a separate governance structure for the owners of radio systems is indicative of the fact that not all radio system owners operate PSAPs and not all PSAP agencies own their own infrastructure.

The ISCP 2013 update concludes [on page 4-7]: “While significant governance has been developed throughout the region there is still no overarching and unifying governance organization [for interoperable communications]. Even when the RDPO completes its formalization process this year, with jurisdictions from throughout the region signing an intergovernmental agreement, it is not the intention of the RDPO to be an enforcement agency. Still, it is a critical forum enabling the PDCC and the RRG to secure multi-jurisdictional/agency/discipline collaboration in the advancement of its aims in the region.

### Technology: Tools for the Field

The Tactical Interoperable Communications Plan (TICP) was created in 2005 to document what communications resources are available within the region, control of each resource, and what rules of operational procedures exist for the activation and deactivation of each resource. Although, originally written by the SIEC as requirement from the Office of Domestic Preparedness for each UASI region, the TICP continues to be updated regularly.

It became necessary to package valuable information found within the TICP and ICSP for practical use while in the field. The Tactical Interoperable Communication Field Operations Guide (TICFOG) was developed as a pocket-guide for use by incident commanders, dispatch, and other communications unit leaders in the early stages of an incident to coordinate response. It lists available communication resources, operating channels, and procedures.



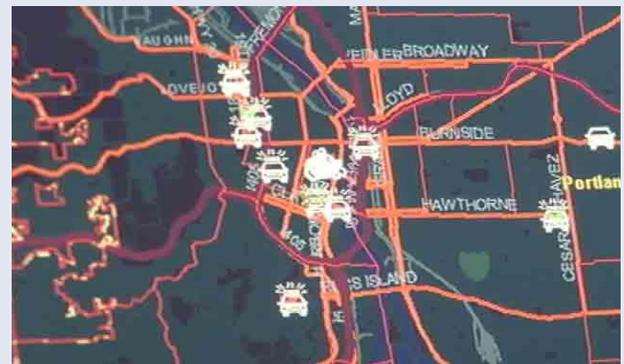
To download this application, search “Oregon eFOG” and load onto your Apple or Android smartphone. [Oregon eFOG link to users guide](#)

Guidelines outlined in the TICFOG continue to be applied in exercise and training including most recently the [2013 PACESetter](#). Additionally, regular special events such as the Portland Grand Floral Parade, offer opportunities to exercise tactical protocols such as unit identification, use of plain or tactical language as appropriate, and procedures for mobile public safety answering points. In the upcoming Port of Portland triennial exercise scheduled for Spring 2014, core capabilities will rely on successful integration of communication between Emergency Coordination Centers and incident command.

### And it’s an app..!

Being mindful of the intention for the TICFOG to be used as a reference in the field, the pocket-guide is available as an app for mobile Apple and Android devices (iOS 5.1.1 and Android 4.1 or later) called the Oregon Electronic Field Operations Guide (eFOG). Developed by Science Application International Corporation at the request of the State of Oregon Interoperability Coordinator, eFOG features easy search options, jump buttons, and customizing for adding notes and favorites.

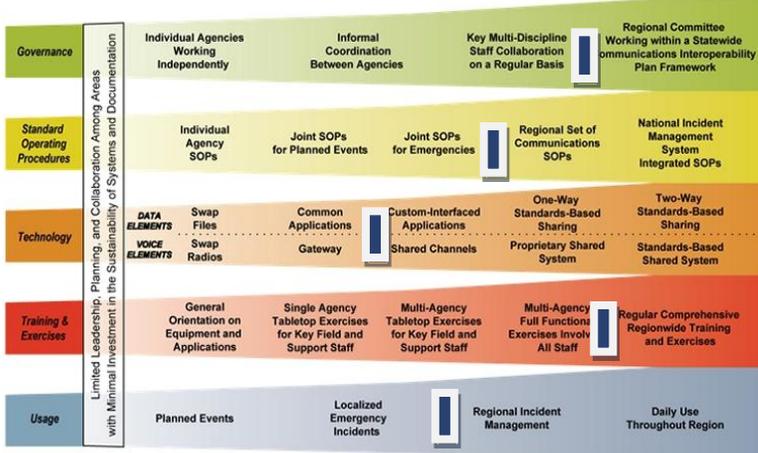
Embracing technology to create the eFOG is a valuable solution to apply standards and help achieve goals of interoperable communications during incidents while in the field.



Portland, Ore. July, 2012. Single Computer-Aided Dispatch screen displays locations of responders using Automatic Vehicle Locator technology. Photo: KPTV report Natalie Brand.

The Portland region has received national recognition for its early innovation leading the charge for interoperable communications implementing the CAD-to-CAD Enterprise Service Bus which connects public safety communications centers. [Find out more on RDPO.org about CAD](#), and how this technology plays a vital role in providing a timely response to emergencies.

## The Future: What's Ahead for Regional Interoperable Communications?



Department of Homeland Security SAFECOM. (2011). [A tool designed to assist emergency response agencies and policy makers to plan and implement interoperability solutions for data and voice communications.] *Interoperability Continuum*. Retrieved from: [http://www.safecomprogram.gov/oeo/interoperability\\_continuum\\_brochure\\_2.pdf](http://www.safecomprogram.gov/oeo/interoperability_continuum_brochure_2.pdf)

Since 2007, the strategic direction of regional interoperability has been based on data-driven planning using the SAFECOM Interoperability Continuum.

The Continuum is a tool that helps regions like ours assess, plan and track progress on the five interrelated components of communications interoperability: governance/collaboration; standard operating procedures; communications technology investments; training and exercises; and daily usage.

“This tool is really our mile-high view of where our region stands on the scale working towards interoperable communications in alignment with our Strategic Plan,” said Bob Cozzie Director of Clackamas County 911, chair of the State Interoperability Executive Council (SIEC) Strategic Planning Committee, and RDPO Steering Committee chair.

The [Portland Dispatch Center Consortium’s \(PDCC’s\) Interoperable Communications Strategic Plan \(ICSP\)](#) was first completed in 2007 with UASI funds, then updated from 2012 to 2013. The ICSP 2013 Update charts progress that has been made since the 2007 ICSP was completed and provides a set of recommendations for improvements in the five lanes of the continuum.

To complete the 2013 update, the PDCC hired the contractor GeoComm (St. Cloud, MN) to conduct an in-depth assessment of jurisdictional and regional capabilities, with input from Clackamas County Department of Communications (C-Comm); Clark Regional Emergency Services Agency; Columbia 911 Communications District; Portland Bureau of Technology Services; Washington County Consolidated Communications Agency; Lake Oswego Communications; Portland Bureau of Emergency Communications; and the Port of Portland Airport Communications Center.

While progress has been made within jurisdictions achieving goals set in 2007 for interoperability, the ICSP highlights the region as:

“...best set for interoperability within disciplines (i.e. fire speaking to other fire agencies). While for each of the regions cross-discipline communications are reported to work well, most improvements needed are related to all forms of data communications (air cards, proprietary wide-band data systems), as well as region wide governance.”

Cozzie agreed that while jurisdictions across the region are in varying stages of upgrading their current data systems, “investments will serve as an invaluable resource to the way we operate daily and during disaster.”

The PDCC continues to grow in its presence as a resource to agencies and as a collaborative body leading the coordination and implementation of objectives identified in the ICSP. As jurisdictions continue to enhance local foundations for interoperable communications, the PDCC will continue to help guide agencies and the region in improving the policies, processes, and procedures for the advancement of communication efforts.

The timing of making communications improvements is crucial. Nationwide, agencies are required to meet specific federal mandates for communications upgrading systems for [Phase I narrow banding](#), [P25](#) compliancy, and other public safety requirements to enhance primary land mobile systems for mission critical voice. Additionally, federally funded programs for communications advancements are shaping the outlook for public safety communications in the region.

According to Steve Noel, Statewide Interoperability Coordinator during a recent summit of stakeholders in Oregon: “Streaming video from on-scene responders to multiple public safety agencies, monitoring vitals of patients while en route to hospitals, disseminating emergency information via multiple multimedia communication platforms -- it’s all possible and within reach.”

FirstNet, a project from the U.S. Department of Commerce Department’s National Communications and Information Administration (NTIA) is leading the charge in the creation of a \$7 billion First Responder Network funded by a State and Local Implementation Grants Program.

The vision of FirstNet is to provide responders with the first nationwide, high-speed, wireless broadband network dedicated to public safety and consistent with national standards. The public safety community will be able to expand the current land mobile system, utilizing LTE networks much like those for commercial cellular users, to easily send and share video, high-quality images, data, and make cellular-quality calls. However, FirstNet coverage will far exceed commercial networks providing reliable service to rural areas, tribal lands, and rugged terrains.

“A blanket approach just can’t be used for the Portland Urban Area which has unique landscapes and communication infrastructure making this period of outreach and data collection important,” Cozzie said.

In 2014, FirstNet initiated the second phase of project implementation asking states and territories across the nation to provide input on project design. Both Oregon and Washington SIECs are currently preparing coverage, usage, and asset data for First Net informing final design of the broadband network. Ultimate decisions for States to opt-in will occur during late 2014 or early 2015.

**The mission of RDPO is to build and maintain regional disaster preparedness capabilities in the Portland Metropolitan Region through strategic and coordinated planning, training and exercising, and investment in technology and specialized equipment.**