



Cybersecurity & Infrastructure
Security Agency

Prepared for the State of Oregon

CISA/ICTAP-OR-AFTACTRPT-003-R0

Oregon FE AAR/IP
July 2021

Oregon Interoperable Communications Functional Exercise After Action Report and Improvement Plan

This document was prepared for the State of Michigan by the DHS Cybersecurity and Infrastructure Security Agency (CISA), Interoperable Communications Technical Assistance Program (ICTAP) as part of Work Order # WO20-075. Additional information about the program can be found at <https://www.cisa.gov/safecom/ictapscip-resources>.

This page intentionally left blank

Executive Summary

The State of Oregon, in partnership with Multnomah County, requested assistance from the Department of Homeland Security (DHS) Cybersecurity and Infrastructure Security Agency Interoperable Communications Technical Assistance Program (CISA/ICTAP) to conduct an interoperable communications functional exercise (FE). Additionally, the State requested an After-Action Report/Improvement Plan (AAR/IP) that details the findings discussed in this report.

Overview

The Oregon FE took place June 10-11, 2021, and was conducted at the Deschutes Fair and Expo Center in Redmond, Oregon. The event included 87 participants from 44 agencies, organizations, and private partner companies.

The AAR/IP content is based directly on comments and discussions by local first responders and technical experts who participated in the drills. The AAR/IP reviews the findings identified during the FE.

The suggested actions in this report should be viewed as recommendations only. In some cases, agencies may determine that the benefits of implementation are insufficient to outweigh the costs. In other cases, agencies may identify alternative solutions that are more effective or efficient. Each agency should review the recommendations and determine the most appropriate action and the resources needed (i.e., time, staff, and funding) for implementation.

The Oregon FE utilized a wildfire scenario in Deschutes County that impacted the Deschutes County 9-1-1 Service District Dispatch Center. The Oregon FE also provided new Communications Unit personnel a controlled environment to increase their practical skills and obtain position-specific Communications Unit Task Book sign-offs.

Key Findings

This report baselines communications interoperability, identifies challenges, provides recommendations, and can help the State of Oregon improve communications interoperability. With this knowledge, agencies can develop priorities and focus their efforts on achieving and improving communications interoperability.

This FE highlighted several interoperable communications successes:

- Seamless integration of auxiliary communications (AUXCOMM) into the public safety Communications Units.
- Both seasoned communications personnel and new, less experienced personnel served as Players during this exercise. All Players eagerly participated and stayed engaged throughout the duration of the exercise.
- During the exercise, the communication assets in play provided a wide range of capabilities that could have effectively supported a real-world event or incident.

The Oregon FE also identified several opportunities for improving the knowledge and preparedness of Oregon response entities. These observations, detailed in Section 4 of the AAR/IP, offer insight into findings documented during the planning and execution phases of the Oregon FE.

Significant recommendations to these observations include:

- Provide a minimal operationally sufficient number of 7/800 MHz subscriber radios on any Oregon Public Safety mobile communications vehicle (MCV).
- Ensure that any 7/800 MHz subscriber radios on any Oregon MCVs have the Non-Federal 800 MHz National Mutual Aid Channels (in both direct and repeated) and the 7/800 MHz National Interoperability Channels (in both direct and repeated) pre-programmed in accordance with the National Interoperability Field Operations Guide (NIFOG).
- Consider equipping each of the State Strategic Technology Reserve (STR) vehicles with a tactical gateway device capable of multiple simultaneous patches.
- Encourage participating agencies to ensure their equipment and vehicle are operating properly prior to arriving at an incident/event/exercise site.
- Ensure that all radios with National Public Safety channels have the correct emission designation, frequencies and Continuous Tone Coded Squelch System (CTCSS)/ Network Access Code (NAC) programmed. Special attention is needed for frequency pairs with differing CTCSS/Private Line (PL) codes (VTAC36).

Conclusion

The Oregon FE is an important step toward increasing and improving communications interoperability throughout the State of Oregon in preparation for future catastrophic incidents. The success of this exercise was a testament to the participants' commitment to increase operable and interoperable communication preparedness. Acting on the various recommendations in this AAR/IP should substantively further interoperable emergency communications capabilities.

TABLE OF CONTENTS

Executive Summary	i
Overview.....	i
Key Findings.....	i
Conclusion.....	ii
1 Introduction	1
1.1 Exercise Overview	1
Overview.....	1
1.2 Exercise Planning Team	2
1.3 Participants	2
1.3.1 Participant Roles	2
1.3.2 Participating Agencies & Organizations	3
1.3.3 Contact Information	4
2 Design	5
2.1 Purpose.....	5
2.2 Scope	5
2.3 Capabilities.....	5
2.4 Goal and Objectives.....	6
2.5 Hotwash	6
3 Scenario	7
4 Observations	7
4.1 7/800 MHz Radio Availability	7
4.2 Radio Gateways.....	8
4.3 Equipment Readiness.....	8
4.4 Radio Programming	9
4.5 Situational Awareness Application	9
4.6 Wi-Fi Deconfliction	10
4.7 Operational Checklists	10
4.8 Use of Pro-Phrase “This is an Exercise”	11
4.9 COML Management Training.....	11
4.10 AUXCOMM Staffing	11
4.11 NIMS/ICS Awareness	12
4.12 GETS/WPS Awareness	12
4.13 Overall Training Recommendations.....	13
5 Conclusion	14
APPENDIX A IMPROVEMENT PLAN	A-1
APPENDIX B EXERCISE PLANNING TEAM	B-1
APPENDIX C EXERCISE PARTICIPANTS.....	C-1
APPENDIX D EXERCISE SITE MAPS	D-1
APPENDIX E VENDOR CAPABILITIES INFORMATION.....	E-1
APPENDIX F GLOSSARY	F-1

1 INTRODUCTION

The Department of Homeland Security (DHS) Cybersecurity and Infrastructure Security Agency (CISA) leads the Nation's operable and interoperable public safety and national security and emergency preparedness (NS/EP) communications efforts. The Emergency Communications Division (ECD) provides training, coordination, tools, and guidance to help its federal, state, local, tribal, territorial, and industry partners develop their emergency communications capabilities. More information about CISA and other CISA work products related to interoperable communications can be found at <https://www.cisa.gov/safecom>.

The State of Oregon, in partnership with Multnomah County, requested assistance from the DHS/CISA Interoperable Communications Technical Assistance Program (ICTAP) to conduct an interoperable communications functional exercise (FE). Additionally, the State requested an After-Action Report/Improvement Plan (AAR/IP) that details the findings discussed in this report.

The IP is located in Appendix A. Terminology, acronyms, and abbreviations used in this document are recorded in the Glossary located in Appendix F.

1.1 Exercise Overview

Overview

The Oregon FE took place June 10-11, 2021, and was conducted at the Deschutes Fair and Expo Center in Redmond, Oregon. The event included 87 participants from 44 agencies, organizations, and private partner companies.

The AAR/IP content is based directly on comments and discussions by local first responders and technical experts who participated in the drills. The AAR/IP reviews the findings identified during the Oregon FE.

The suggested actions in this report should be viewed as recommendations only. In some cases, agencies may determine that the benefits of implementation are insufficient to outweigh the costs. In other cases, agencies may identify alternative solutions that are more effective or efficient. Each agency should review the recommendations and determine the most appropriate action and the resources needed (i.e., time, staff, and funding) for implementation.

The Oregon FE utilized a wildfire scenario in Deschutes National Forest that impacted the Deschutes County 9-1-1 Service District Dispatch Center. The Oregon FE also provided new Communications Unit personnel a controlled environment to hone their practical skills and obtain position-specific Communications Unit Position Task Book (PTB) sign-offs.

Event Type

Functional Exercise

Exercise Dates

June 10-11, 2021

Duration

1.5 days

Location

Deschutes County Fair and Expo Center
Redmond, Oregon

Sponsors

State of Oregon

Multnomah County

Scenario Type

Wildfire

1.2 Exercise Planning Team

To conduct an effective exercise, subject matter experts (SMEs) including local representatives from Oregon participated in the planning process and took part in the execution and evaluation of the exercise. The Exercise Planning Team (EPT) planned and conducted the Oregon FE and Hotwash to:

- Demonstrate the ability of the participating public safety personnel to rapidly and effectively establish operable and interoperable communications in the case of a significant multi-agency incident.
- Request, activate, deploy, utilize, troubleshoot, and demobilize interoperable communication technologies in support of operational requirements for a scenario incident.
- Determine the capability gaps of communication resources used by local, regional, and state agencies in response to a multi-jurisdictional incident.

Working with emergency response professionals, the Oregon FE generated an increased awareness of existing and future operability and interoperability challenges and solutions that allowed communications across jurisdictions, agencies, and disciplines. The Oregon EPT conducted the exercise in a format that allowed players to test and practice their plans and procedures in a no-fault learning environment. At the same time, participants collected information in order to assess the performance of critical tasks during exercise play

A list of EPT members is included in Appendix B.

1.3 Participants

1.3.1 Participant Roles

Participants were identified by the EPT as:

- **Exercise Director (ED)** – The person who conducted the drills and directed drill pace and flow.
- **Players** – First responders and communication specialists who responded to the situation presented based on their current knowledge of response procedures, plans, cross-jurisdictional agreements, and communications capabilities.
- **Controller/Evaluator (C/E)** – CISA/ICTAP and local subject matter experts (SMEs) who documented the exercise and interpreted exercise outcomes for inclusion in the AAR/IP.
- **Observer** – a person who only observes the exercise activities.
- **Vendor/Exhibitor (V/E)** – A person representing a business or product. May interact with the Players during certain portions of the exercise.

Participant breakdown:

Exercise Director	1
Players	36
Controller/Evaluators	9
Observers	19
Vendor/Exhibitors	22
Total Participants	87

1.3.2 Participating Agencies & Organizations

Exercise participants and Observers included representatives from the following organizations.

Local Agencies

- ADCOMM 911
- Clackamas County Department of Communications (CCOM)
- Deschutes County 911
- Deschutes County Amateur Radio Emergency Service (ARES)
- Deschutes County Emergency Management
- Eastside Fire and Rescue
- Enterprise Information Services (EIS)
- Grant County Emergency Management
- Harney County
- Information Technology Disaster Response Center (ITDRC)
- Klamath County Emergency Management
- Linn County Search and Rescue
- Lake Oswego Communications (LOCOM)
- Mohawk Valley Fire Department
- Mountain Wave
- Multnomah County
- Multnomah County Emergency Management
- Portland Bureau of Emergency Management
- Portland Bureau of Technology Services
- Public Utilities Commission (PUC)
- Sherman County Ambulance
- Sister Fire Department
- Toledo Fire Department
- Umatilla County Emergency Management
- Willamette Valley Communications Center (WVCC)

State Agencies

- Idaho Military Division
- Oregon Department of Corrections
- Oregon Department of Homeland Security and Emergency Management
- Oregon Department of Transportation
- Oregon Emergency Management
- Oregon State University

- Oregon State Fire Marshal

Federal Agencies

- Civil Air Patrol
- Cybersecurity and Infrastructure Security Agency (CISA)
- Federal Emergency Management Agency (FEMA)

Industry Partners

- AT&T FirstNet
- C800
- Everbridge
- Footprint Project
- IP Access International
- Rescue 42
- T-Mobile
- Verizon Wireless

1.3.3 Contact Information

In an effort to support development of an informal interagency network of public safety personnel, participant contact information is included in Appendix C. Additionally, a Vendor Capabilities Information table is provided in Appendix E to better inform public safety agencies about the capabilities vendors can provide in an incident/event.

2 DESIGN

2.1 Purpose

The purpose of the Oregon FE was to provide an opportunity to exercise and demonstrate required skills to address the goal and objectives established by the Oregon FE. Exercise planners incorporated critical communications interoperability elements into the Oregon FE. The focus on operable, interoperable, and data communications provided an opportunity to identify and document challenges in current capabilities, processes, and equipment. It also sparked productive discussions among participants that enabled the sharing of different approaches and procedures with other jurisdictions, agencies, and disciplines.

2.2 Scope

The scope of play for the Oregon FE primarily focused on the functional operable, interoperable, and data communications required to respond to, and resolve, a large, multi-discipline, multi-agency, and multi-jurisdictional incident. Specifically, the exercise required the activation of existing communications assets. The exercise emphasis, therefore, remained focused on coordination, integration of capabilities, problem identification, and resolution.

The Oregon FE's secondary focus was on the Communications Unit PTBs. The PTB is a requirement to move from being a trainee to a qualified Communications Unit Leader (COML), Communications Unit Technician (COMT), Radio Operator (RADO), Incident Tactical Dispatcher (INTD), or Auxiliary Communicator (AUXC). The exercise used available communications equipment in the selected area to simulate the trainee's ability to perform the required tasks. A scenario was developed by the EPT to provide opportunities for Players to demonstrate several of the required tasks.

2.3 Capabilities

The National Planning Scenarios¹ and the establishment of the National Preparedness Guidelines² steered the focus of homeland security toward a capabilities-based planning approach. Capabilities-based planning focuses on planning under uncertainty, as the next danger or disaster can never be forecast with complete accuracy. Therefore, capabilities-based planning takes an all-hazards approach to planning and preparation, which builds capabilities that can be applied to a wide variety of incidents.

For the past several years, states and urban areas have used capabilities-based planning to perform baseline assessments of their homeland security efforts by comparing their current capabilities against the Target Capabilities List (TCL)³, and the Emergency Support Function (ESF)⁴ annexes. This approach identified gaps in current capabilities and focused efforts on identifying and developing priority capabilities and tasks for the jurisdiction.

In September 2011, DHS released the first edition of the National Preparedness Goal⁵ in response to Presidential Policy Directive 8: National Preparedness (PPD-8). The National

¹ National Planning Scenarios: <https://www.hsd.org/?abstract&did=683091>

² National Preparedness Guidelines: http://www.fema.gov/pdf/emergency/nrf/National_Preparedness_Guidelines.pdf

³ Target Capabilities List: <http://www.fema.gov/pdf/government/training/tcl.pdf>

⁴ ESF Annexes: <http://www.fema.gov/pdf/emergency/nrf/nrf-esf-all.pdf>

⁵ National Preparedness Goal: <http://www.fema.gov/pdf/prepared/npg.pdf>

Preparedness Goal describes our Nation's security and resilience posture through Core Capabilities, which represent an evolution from the TCL. The Core Capabilities address five mission areas (Prevention, Protection, Mitigation, Response, and Recovery). Each Core Capability includes preliminary capability targets.

The EPT selected the capabilities listed below for this event. These capabilities provided the foundation for the development of the event schedule and participating entities. The EPT selected the following Core Capabilities:

- Operational Communications
- Operational Coordination
- Planning

2.4 Goal and Objectives

The goal of these drills was to exercise the communications policies, procedures, plans, assets, and capabilities used by local, regional, state, and federal agencies in response to a multi-jurisdictional incident.

The Oregon FE focused on achieving the following objectives:

- Engage stakeholders of interoperable communication system(s) to leverage the use of the interoperable channels and talk groups available to them.
- Identify redundant interoperable communication capabilities in the event of major disruptions to the primary communication system(s).
- Demonstrate the ability of the participating public safety personnel to rapidly and effectively establish interoperable communications in the case of a major, multi-agency event or incident.
- Review the operable and interoperable communications available to or required by exercise participants in accordance with existing operational procedures and regional response plans.
- Allow participants the opportunity to engage in PTB activities and potentially earn sign-offs for needed PTB tasks.
- Enhance the overall readiness of the region in the event of an actual emergency involving a large-scale disaster.

2.5 Hotwash

After completing each session of the Oregon FE, the participants were given the opportunity to discuss the exercise with other participants during a facilitated Hotwash. The Hotwash sessions provided all participants an opportunity to share their observations, correct misconceptions, and help improve communications operability and interoperability knowledge in the State of Oregon. Both exercise play and Hotwash notes/comments were consolidated through a process that identifies and discusses communication challenges and provides recommendations to remedy those challenges.

3 SCENARIO

The EPT developed a plausible and effective incident scenario involving a functional response to a large wildfire. The EPT created the following scenario to facilitate exercise play:

A wildfire that began in the Willamette National Forest has picked up tremendous speed due to abnormally high winds. The fire followed a northwest to southeast path as it entered the Deschutes National Forest in Deschutes County. An evacuation order has been issued for the towns of La Pine, Three Rivers, and Sunrise along The Dalles-California Hwy (U.S. 97) as well as the rural residents in southern Deschutes County. Bend, Oregon is not under a direct threat but is under a caution order as shifting winds may change the fire's path. The Deschutes County 9-1-1 Service District has become the primary Dispatch Center for this fire. However, the Center has been unexpectedly affected by staffing issues due to personnel residing in the fire's path. The Service District has requested a Telecommunicator Emergency Response Team (TERT). An Incident Communications Center (ICC) is being set up at the Deschutes County Fair and Expo Center. Once established the ICC will handle all fire-related radio traffic.

4 OBSERVATIONS

The Oregon FE AAR/IP baselines operable, interoperable, and data communications challenges, provides recommendations, and can be used to help the State of Oregon improve communications interoperability. With this knowledge, the State of Oregon can develop priorities and focus its efforts on achieving and improving communications.

The Oregon FE highlighted several communications interoperability successes associated with public safety in Oregon, among them:

- Seamless integration of auxiliary communications (AUXCOMM) into the public safety Communications Units.
- Both seasoned communications personnel and new, less experienced personnel served as Players during this exercise. All Players eagerly participated and stayed engaged throughout the duration of the exercise.
- The communication assets in play during the exercise provided a wide range of capabilities that could have effectively supported a real-world event or incident.

Exercise activities identified several opportunities for improving communications and interoperability proficiency when responding to natural or human-caused incidents. The challenges and related recommendations are detailed below.

4.1 7/800 MHz Radio Availability

Description: As the exercise progressed, participants were required to communicate with the local dispatch center using the Non-Federal 800 MHz National Mutual Aid Channel – 8CALL90. 800 MHz subscriber assets were not readily available in any of the mobile communications vehicles (MCV) on site. Note that the Fire Marshall MCV normally has a single 800 MHz portable radio available but the radio had been rendered inoperable just prior to the exercise. Each of the exercise Branches needed to sign out 800 MHz cache radios from the state strategic technology reserve (STR) cache. Without the STR assets being at the event there would have been no availability to provide 800 MHz communications.

The Oregon State Radio Project is a statewide 7/800 MHz system. With this system in-place, there is no region within the State where 7/800 MHz subscriber radios would not be a valued

asset in any Public Safety MCV. The Oregon State Radio Project users include Oregon State Police (OSP) and Oregon Department of Transportation (ODOT). In Deschutes County, system users include the County Sheriff and County Fire. Other 800 MHz or 7/800 MHz systems within the State include the cities of Portland and Salem.

Recommendations:

1. Provide a minimal operationally sufficient number of 7/800 MHz subscriber radios on any Oregon Public Safety MCV.
2. Ensure that any 7/800 MHz subscriber radios on any Oregon MCV have the Non-Federal 800 MHz National Mutual Aid Channels (in both direct and repeated) and the 7/800 MHz National Interoperability Channels (in both direct and repeated) pre-programmed in accordance with the National Interoperability Field Operations Guide (NIFOG).

4.2 Radio Gateways

Description: The ability to connect channels, talkgroups disparate radio frequency bands, and disparate technologies (i.e. conventional, trunked) continues to grow across the country. Modern MCVs come equipped with radio gateways capable of creating multiple patches across all public safety radio bands to facilitate interoperable communications between agencies and disciplines. None of the MCVs participating in the Oregon FE had such a device. The State STR vehicles come equipped with cross band repeaters with limited UHF/VHF capabilities and a small number of multi-band portable radios, but not enough to solve interoperability issues when they arise.

As stated in 5.1 above, the Oregon State Radio Project is a statewide 7/800MHz radio system whose users include OSP and ODOT. These agencies can play a significant role in incident response and the need to communicate with local agencies who predominately use VHF in this region of Oregon is paramount. These factors drive the need for Communications Units to have capable gateway devices available.

Patching of radio channels should not be the first choice for interoperability but is often the best choice for the situation at hand. Properly constructed and written Standard Operating Procedures (SOPs) can provide the guidance necessary for the use and operation of gateways.

Recommendations:

1. Consider equipping each of the State STR vehicles with a tactical gateway device capable of multiple simultaneous patches.
2. Develop or update existing gateway SOPs to define their purpose and appropriate uses.
3. Create gateway training for personnel responsible for the use and maintenance of these devices. Expand this training if necessary to personnel that may request the use of these devices from the State.

4.3 Equipment Readiness

Description: First responder agencies have invested heavily in mission-critical communications equipment and vehicles. It is paramount that those assets be kept in peak operational status at all times. However, it is not unusual to have equipment and vehicles arrive at exercises in varying states of readiness. The Oregon FE was no exception. Participating agencies knew the exercise dates well in advance and had ample time to ensure their equipment and vehicles would be able to function as designed. Several vehicles in attendance had equipment that was

not functioning. Incorrectly programmed radio equipment, missing cables, and missing programming equipment all caused distractions and priority realignments by some Players.

Recommendations:

1. Encourage participating agencies to ensure their equipment and vehicle are operating properly prior to arriving at an incident/event/exercise site.
2. Encourage participating agencies to conduct regular testing and review of equipment settings to ensure they are mission-ready.

4.4 Radio Programming

Description: Participants were tasked with making various communication checks on National Public Safety Interoperability Channels during the course of the exercise. At least two teams had issues with subscriber-level programming either being incorrect or non-existent. One issue was with VTAC36 in the dispatch center. Communications were unsuccessful from dispatch to the exercise site. Continuous Tone Coded Squelch System (CTCSS) or Private Line (PL) parameters appeared to be incorrect based on unsuccessful communications. Attention to detail is needed to ensure proper CTCSS/PL programming throughout the NIFOG channels. Participants had older versions of the NIFOG with displayed receive CTCSS/PL tones as Carrier Squelch (CSQ). Starting with version 1.6.1, the NIFOG recommends receive and transmit PL's of 156.7. One participant in Division 3 had his 7/800MHz personal radio that was being used for the 8CALL90 master scenario events list (MSEL) inject. Communications were unsuccessful and it was later determined that the channels were programmed in digital format instead of analog. Oregon Strategic Technology Reserve STR cache equipment was used for the remaining 7/800 MSEL injects. It is also worth noting an attempt was made to field program the 8CALL90 channel, but the latest version of Motorola Customer Programming Software (CPS) was invalid. This proves to be a major challenge in the field, with an average download size of over 1.6 gigabytes and extended installation time. Legacy analog radios (VHF, UHF) were reprogrammed for needs easily by Front Panel Programming (FPP).

Recommendations:

1. Ensure that all radios with National Public Safety channels have the correct emission designation, frequencies and CTCSS/ Network Access Code (NAC) programmed. Special attention is needed for frequency pairs with differing CTCSS/PL codes (VTAC36).
2. Ensure participants have the latest version of the NIFOG (print and digital). Recommend having some on hand possibly in the event up to date references aren't available. Some personnel noted not knowing what the NIFOG was.
3. Ensure field programming capability is up to date including cables, software, and computer equipment.
4. Exercise the use of National Public Safety and Oregon Interoperability channels regularly.

4.5 Situational Awareness Application

Description: The Homeland Security Information Network (HSIN) situational awareness application was used as the means to submit resource requests to the Operations Section Chief and deliver Task Blocks to each Branch. The State of Oregon uses HSIN for incidents/events, so using it during the exercise would mimic real world usage. A HSIN room was set up that did not require special login credentials to better facilitate ease of use by non-HSIN account holders. The issue was the room was very basic and the functionality to import attachments

(i.e., ICS-213s, Task Blocks) could not be located, which defeated a major intended purpose for the exercise. Participants using the application for the first time found it difficult to navigate and send/receive attachments due to a lack of training on the HSIN application. The HSIN application is a useful tool but does require initial training and proper room setup to use it effectively.

Recommendations:

1. Ensure familiarity with the HSIN currently in use by the State of Oregon and associated user permissions.
2. Provide detailed HSIN training to applicable communications personnel.
3. Create an SOP for the use of HSIN and its redundancies, being sure to outline what should be done when HSIN and/or its redundancies are lost.
4. Seek out opportunities to provide HSIN familiarization during public safety drills and exercises.

4.6 Wi-Fi Deconfliction

Description: The ability to deploy Wi-Fi bubbles and use Wi-Fi connected devices in and around MCVs has become common practice. Add in the number of personnel that bring personal hotspot devices and smartphones with them to use while on assignment and you get a very crowded spectrum of Wi-Fi channels. Wi-Fi and Wi-Fi connected devices left unmanaged can cause data networks to become needlessly slow and unresponsive at times. During the exercise, there were as many as 17 Wi-Fi bubbles deployed. Block 2 Task #10 directed Players to de-conflict Wi-Fi channel use to optimize data throughput. Some Players expressed a working knowledge of how to perform such a task (i.e., determining signals that could be eliminated, increasing vehicle spacing, etc.) while others were unsure. Evaluators utilized a smartphone application to view the Service Set Identifiers (SSID) being broadcast in the area of the exercise. Some, but not all, of the MCVs broadcasting Wi-Fi signals had changed the default SSID name to an easily identifiable name. All of the Players that the Evaluators spoke with during the exercise stated their agencies do not have written policies or procedures regarding broadband communications or devices using Wi-Fi connectivity.

Recommendations:

1. Investigate the feasibility of mandating a standard naming convention for router SSIDs to make Wi-Fi signal origination easier to identify during the de-confliction process.
2. Seek training opportunities for Communications Unit personnel on how to properly determine if there is a conflict between Wi-Fi signals.
3. Consider creating a procedure that outlines what steps MCV Operators should take to address signal de-confliction, passwords, unwanted users, guest account access, and wireless network assignments.

4.7 Operational Checklists

Description: Each MCV used in the exercise had differing processes for the setup and function of their equipment. Obstacles would arise, as equipment would not work as intended or operators could not recall the exact way equipment should be set up to function properly. Evaluators noted none of the MCVs they evaluated nor their associated teams maintained operational checklists. MCV operators relied on previous experience to ensure the MCV was activated properly. The lack of checklists can lead to problems when equipment is loaned out or being set up by someone other than the primary operators of the equipment. Creating and

using detailed step-by-step operational checklists for each piece of equipment generates a continuity of setup, use, and demobilization of equipment. Checklists can be updated with new or improved processes as they are discovered to ensure subsequent users of the equipment can benefit from formally documented procedures.

Recommendations:

1. Consider creating operational checklists for each MCV and the equipment on board.
2. Train personnel who are responsible for the setup, use, and demobilization of deployable communication assets on the use of operational checklists.

4.8 Use of Pro-Phrase “This is an Exercise”

Description: Exercises need to have an element of realism to ensure participants act and respond as they would if the exercise were a real incident. This goes for virtually every aspect of an exercise except one, communications. Each and every radio transmission and public communication must include the pro-phrase; “This is an exercise.” There are documented instances where the failure to include the pro-phrase (or something similar) resulted in unintended consequences.

The Oregon FE had regular reminders to begin and end each radio transmission with the phrase “This is an exercise”. Each block of the master scenario events list (MSEL) has it stated in large bold letters at the top. However, during the Oregon FE the phrase was not regularly used, and no one noticed this until after the exercise was over. Fortunately, nothing relating to an incident, imagined or real, was communicated over the air and mass notifications were not in use. Thus, there were no particularly negative consequences of this oversight.

Recommendations:

1. Take appropriate measures to ensure that the phrase “This is an exercise” is included in every radio transmission made during exercises.
2. Consider including a reminder of this procedure in each exercise brief.
3. Consider adding an inject to the MSEL instructing Players to post this procedure at each site.

4.9 COML Management Training

Description: Communications Unit personnel across the country have worked very hard to become credentialed COMLs. Many of them do not come from management positions in their regular duties. This makes it very difficult for COMLs without previous management training or managerial experience to manage Communications Unit personnel during an activation or incident. The current COML curriculum is primarily pointed towards communications planning and does not prepare the trainees for the personnel management duties required of a credentialed COML. The Oregon FE was no exception to this. Some COML trainees had difficulty balancing communications planning with personnel assignments and other basic personnel management duties.

Recommendation:

1. Seek out manager training opportunities for all COMLs in the State of Oregon.

4.10 AUXCOMM Staffing

Description: Auxiliary Communications (AUXCOMM) have become an important component of today’s public safety Communications Units. They provide skilled radio operators and bring

additional voice and data pathways that can be utilized when primary pathways fail. It is important that public safety Communications Units incorporate and train with auxiliary communicators (AUXCs). ICTAP has encountered varying levels of AUXCOMM involvement and the Oregon FE represented a perfect integration of AUXCs into public safety Communications Units. This is an excellent use of volunteer resources. However, longevity and sustainment can become issues as trained and seasoned volunteers leave the AUXCOMM service. The agencies reliant upon these volunteers must have an active recruitment program to enlist new members and create a depth of personnel capable of meeting the Communications Unit demand.

Recommendations:

1. Ensure AUXCOMM volunteer recruitment programs are in place and active.
2. Provide sufficient training for new and existing AUXCOMM volunteers so they can perform their duties as expected.

4.11 NIMS/ICS Awareness

Description: The overwhelming majority of the Oregon FE Players were intimately familiar with the protocols associated with National Incident Management System / Incident Command System (NIMS/ICS). However, Players with little or no field experience had a cursory understanding of (NIMS/ICS) rather than the in-depth knowledge needed to operate during multi-agency responses.

Recommendations:

1. Encourage continual inter- and intra-agency in-service training and hands-on exercises using NIMS/ICS principles.
2. Incorporate advanced NIMS/ICS practices (e.g., Area Command, operational period transitions, etc.) into future training and exercise opportunities.

4.12 GETS/WPS Awareness

Description: Some participants were unaware of existing priority access systems, including the Government Emergency Telecommunications Service (GETS) for landline priority access or Wireless Priority Service (WPS) for cellular priority access. While not ensuring communications should landline or cellular technologies totally fail, these systems could provide priority access to functioning systems for public safety personnel should the systems be operational but heavily loaded with high call volumes.

Recommendations:

1. Disseminate DHS quick reference information for the use of GETS and WPS.
2. Ensure that necessary personnel understand the various uses and applications where these resources can be applied.
3. Ensure that the capabilities and limitations of these resources are a part of any information or training provided.
4. Acquire and test GETS/WPS services. Review information at <http://www.dhs.gov/publication/getswps-documents> for guidance on properly testing these services.
5. Incorporate GETS/WPS into future training and exercises.
6. Ensure all permanent critical facilities (i.e., 9-1-1 Centers, Emergency Operations Centers (EOC), medical facilities, etc.) have GETS for all landline phones.
7. Ensure critical personnel have cell phones equipped with WPS access.

8. Ensure all necessary critical facility personnel regularly test the use of GETS cards on facility landline phones.

4.13 Overall Training Recommendations

Training can make a substantial improvement in the knowledge responders possess and their ability to apply that knowledge to the incident at hand. Many of the deficiencies in performance or knowledge as displayed by responders and communication specialists during the exercise can be rectified by an increase in applicable training.

Develop a training protocol that includes the whole spectrum of emergency responders from the local to the state and federal levels. Although by no means exhaustive, some additional examples of recommended training opportunities the region could pursue include:

1. Discipline-specific communications training. Trainings of this type are available through groups such as the Association of Public Safety Communications Officials (APCO), National Emergency Number Association (NENA), etc.
2. Communications Unit position-specific training courses available through CISA/ICTAP.
 - a. Communications Unit Leader
 - b. Communications Technician
 - c. Incident Communications Center Manager
 - d. Incident Tactical Dispatcher
 - e. Radio Operator
 - f. Auxiliary Communications
3. Regional subject matter experts who can become instructors in applicable training topics through train-the-trainer courses.
4. Routine training opportunities such as weekly radio-net tests, etc.

The following are some online training resources:

CISA provides emergency communications tools and resources at the Safecom website (cisa.gov/safecom). This website provides:

- Communications Unit training resources (cisa.gov/safecom/communications-unit). These include the annual Communications Unit master training calendar and how to request these courses and other training through ICTAP.
- Communication Assets Survey and Mapping (CASM) tool (cisa.gov/safecom/casm-tool) provides a secure, free, nationwide tool for agencies to inventory, share, and plan usage of public safety emergency communications assets.

The **FEMA Emergency Management Institute (EMI) Virtual Campus** at training.fema.gov/EMI.aspx has numerous online courses of interest, including several courses offered under the FEMA Independent Study Program such as:

- IS-100 Introduction to the Incident Command System (ICS)
- IS-700 An Introduction to the National Incident Management System (NIMS)

The **FEMA National Preparedness Directorate National Training and Education Division (NTED)** at firstrespondertraining.gov offers more than 150 courses to help build critical skills that responders need to function effectively in mass consequence events.

APCO International (apcointl.org/training-and-certification) offers telecommunicator and dispatch training.

1. **NENA** (nena.org/page/education) offers courses that span the breadth and depth of 9-1-1 technology and Public Safety Answering Point (PSAP) operations topics.

5 CONCLUSION

The Oregon FE is an important step toward increasing and improving communications interoperability throughout the State of Oregon in preparation for future catastrophic incidents. The success of this exercise was a testament to the participants' commitment to increase operable and interoperable communication preparedness. Acting on the various recommendations in this AAR/IP should substantively further interoperable emergency communications capabilities.

APPENDIX A IMPROVEMENT PLAN

Section	Capability/Gaps	Recommendations	Corrective Action	Primary Responsible Agency	Agency POC	Start Date	Completion Date
4.1	7/800 MHz Radio Availability	Provide a minimal operationally sufficient number of 7/800 MHz subscriber radios on any Oregon Public Safety MCV.					
		Ensure that any 7/800 MHz subscriber radios on any Oregon MCV have the Non-Federal 800 MHz National Mutual Aid Channels (in both direct and repeated) and the 7/800 MHz National Interoperability Channels (in both direct and repeated) pre-programmed in accordance with the National Interoperability Field Operations Guide (NIFOG).					
4.2	Radio Gateways	Consider equipping each of the State STR vehicles with a tactical gateway device capable of multiple simultaneous patches.					
		Develop or update existing gateway SOPs to define their purpose and appropriate uses.					
		Create gateway training for personnel responsible for the use and maintenance of these devices. Expand this training if necessary to personnel that may request the use of these devices from the State.					
4.3	Equipment Readiness	Encourage participating agencies to ensure their equipment and vehicle are operating properly prior to arriving at an incident/event/exercise site.					

Section	Capability/Gaps	Recommendations	Corrective Action	Primary Responsible Agency	Agency POC	Start Date	Completion Date
		Encourage participating agencies to conduct regular testing and review of equipment settings to ensure they are mission-ready.					
4.4	Radio Programming	Ensure that all radios with National Public Safety channels have the correct emission designation, frequencies and CTCSS/ Network Access Code (NAC) programmed. Special attention is needed for frequency pairs with differing CTCSS/PL codes (VTAC36).					
		Ensure participants have the latest version of the NIFOG (print and digital). Recommend having some on hand possibly in the event up to date references aren't available. Some personnel noted not knowing what the NIFOG was.					
		Ensure field programming capability is up to date including cables, software, and computer equipment.					
		Exercise the use of National Public Safety and Oregon Interoperability channels regularly.					
4.5	Situational Awareness Application	Ensure familiarity with the HSIN currently in use by the State of Oregon and associated user permissions.					
		Provide detailed HSIN training to applicable communications personnel.					
		Create an SOP for the use of HSIN and its redundancies, being sure to outline what should be done when HSIN and/or its redundancies are lost.					

Section	Capability/Gaps	Recommendations	Corrective Action	Primary Responsible Agency	Agency POC	Start Date	Completion Date
		Seek out opportunities to provide HSIN familiarization during public safety drills and exercises.					
4.6	Wi-Fi Deconfliction	Investigate the feasibility of mandating a standard naming convention for router SSIDs to make Wi-Fi signal origination easier to identify during the de-confliction process.					
		Seek training opportunities for Communications Unit personnel on how to properly determine if there is a conflict between Wi-Fi signals.					
		Consider creating a procedure that outlines what steps MCV Operators should take to address signal de-confliction, passwords, unwanted users, guest account access, and wireless network assignments.					
4.7	Operational Checklists	Consider creating operational checklists for each MCV and the equipment on board.					
		Train personnel who are responsible for the setup, use, and demobilization of deployable communication assets on the use of operational checklists.					
4.8	Use of Pro-Phase “This is an Exercise”	Take appropriate measures to ensure that the phrase “This is an exercise” is included in every radio transmission made during exercises.					
		Consider including a reminder of this procedure in each exercise brief.					
		Consider adding an inject to the MSEL instructing Players to post this procedure at each site.					
4.9	COML Management Training	Seek out manager training opportunities for all COMLs in the State of Oregon.					

Section	Capability/Gaps	Recommendations	Corrective Action	Primary Responsible Agency	Agency POC	Start Date	Completion Date
4.10	AUXCOMM Staffing	Ensure AUXCOMM volunteer recruitment programs are in place and active.					
		Provide sufficient training for new and existing AUXCOMM volunteers so they can perform their duties as expected.					
4.11	NIMS/ICS Awareness	Encourage continual inter- and intra-agency in-service training and hands-on exercises using NIMS/ICS principles.					
		Incorporate advanced NIMS/ICS practices (e.g., Area Command, operational period transitions, etc.) into future training and exercise opportunities.					
4.12	GETS/WPS Awareness	Disseminate DHS quick reference information for the use of GETS and WPS.					
		Ensure that necessary personnel understand the various uses and applications where these resources can be applied.					
		Ensure that the capabilities and limitations of these resources are a part of any information or training provided.					
		Acquire and test GETS/WPS services. Review information at http://www.dhs.gov/publication/getswps-documents for guidance on properly testing these services.					
		Incorporate GETS/WPS into future training and exercises.					
		Ensure all permanent critical facilities (i.e., 9-1-1 Centers, Emergency Operations Centers (EOC), medical facilities, etc.) have GETS for all landline phones.					

Section	Capability/Gaps	Recommendations	Corrective Action	Primary Responsible Agency	Agency POC	Start Date	Completion Date
		Ensure critical personnel have cell phones equipped with WPS access.					
		Ensure all necessary critical facility personnel regularly test the use of GETS cards on facility landline phones.					

APPENDIX B EXERCISE PLANNING TEAM

Table B-1: Exercise Planning Team Contact List

Last Name	First Name	Agency	Email
Albin	Cinnamon	EIS	cinnamon.s.albin@oregon.gov
Chapman	William	EIS	william.chapman@oregon.gov
O'leary	Jeremy	Multnomah County	jeremy.oleary@multco.us
Craig	Brian	CISA/ICTAP	brian.h.craig@saic.com
Dunmire	Jeff	CISA/ICTAP	dunmirej@saic.com
Fox	Aaron	PBEM	aaron.fox@portlandoregon.gov
Fox	Jason	NIWC	jason.fox@spawar.navy.mil
Gregg	Wiggins	CISA/ICTAP	gwiggins@atiint.com
Guerrero	Michael	USCG	michael.c.geuerro@uscg.mil
Iverson	Rick	ODOT	rick.a.iverson@odot.state.or.us
Jimenez	Doug	OEM	doug.jimenez@state.or.us
Long	George	TERT	george.long@portlandoregon.gov
Mathis	Amanda	OEM	amanda.mathis@state.or.us
O'Leary	Jeremy	Multnomah County	jeremy.oleary@multco.us
Parsons	Oscar	EIS	oscar.parsons@oregon.gov
Quinn	Robert	Multnomah County	robert.quinn@multco.us
Richter	Bruce	CISA/ECD	bruce.richter@cisa.dhs.gov
Sobejana	Farrell	NIWC	farrellobrian.sobejana@spawar.navy.mil
Squires	Harlan	CISA/ICTAP	harlan.t.squires@saic.com
Wilson	Christina	CISA/ICTAP	christina.l.wilson@saic.com

APPENDIX C EXERCISE PARTICIPANTS

Table C-1: Exercise Participant Role and Contact List

Last Name	First Name	Agency	Role	Email
Albin	Cinnamon	EIS	C/E	cinnamon.s.albin@oregon.gov
Alwin	Justin	T-Mobile	V/E	justin.alwin@t-mobile.com
Baker	Robin	DHS EM	Observer	robin.j.baker10.mil@mail.mil
Ballard	Christine	Verizon	V/E	christine.ballard1@verizonwireless.com
Barnes	Christopher	Mohawk Valley Fire	Player	cbarnes@mohawkvalleyfire.com
Bartholomew	Joseph	PUC	V/E	joseph.bartholomew@puc.oregon.gov
Batmale	Sarah	Everbridge	Observer	sarah.batmale@everbridge.com
Beuschlein	Tim	Deschutes County 911	Observer	tim.beuschlein@deschutes.org
Boucher-Jackson	Sara	ICTAP	C/E	sara.boucherjackson@gmail.com
Bowers	Terry	ODOC	Observer	terry.l.bowers@doc.state.or.us
Braunstein	Paul	AT&T FirstNet	V/E	pb8016@att.com
Bromberg	Jonathan	Eastside Fire & Rescue	Player	bromberg@esf-r.org
Brown	Kevin	ODOC	Observer	kevin.r.brown@doc.state.or.us
Call	Ben	Idaho Military Division	Observer	bcall@imd.idaho.gov
Castaneda	Josue	PBTS	Player	josue.castaneda@portlandoregon.gov
Chapman	William	EIS	C/E	william.chapman@oregon.gov
Craig	Brian	ICTAP	C/E	brian.h.craig@saic.com
Cummins	Doug	OEM Volunteer	Player	cummind@comcast.net
Daniels	Brandon	ODOT	Player	brandon.c.daniels@odot.state.or.us
Dean	Buzz	Deschutes County ARES	Player	buzz.dean@gmail.com
Drullinger	Dave	Deschutes County ARES	Player	davedrull@bendbroadband.com
Estes	Matthew	Mountain Wave	Player	mw81@mwave.org
Fletcher	Michael	Rescue 42	V/E	michael@rescue42.com
Fox	Aaron	PBEM	Player	aaron.fox@portlandoregon.gov
Garibay	Nathan	Deschutes EM	Observer	nathan.garibay@deschutes.org
Gorsuch	Lisa	PUC	C/E	lisa.gorsuch@puc.oregon.gov

Gray	Herbert	Grant County EM	Observer	grayp@grantcounty-or.gov
Hack	Bill	Rescue 42	V/E	bill@rescue42.com
Heegaard	William	Footprint Project	V/E	will@footprintproject.org
Heuchert	Rick	OSFM	Player	rick.heuchert@osp.oregon.gov
Hewlett	Steve	Mountain Wave	V/E	mw30@mwave.org
Hill	Bryan	IP Access International	V/E	bryan@ipinternational.net
Hoeck	Dwayne	ADCOMM 911	Player	d.hoeck@adcomm911.com
Hukill	Daniel	ODOT	Player	daniel.hukill@odot.state.or.us
Jimenez	Doug	OEM	Player	doug.jimenez@state.or.us
Johnson	Roger	Sister Fire	Observer	rjohnson@sistersfire.com
Jones	Ernest	PBEM	Player	ernest.jones@portlandoregon.gov
Kimball	Lloyd	FEMA	Player	lloyd.kimball@fema.dhs.gov
Lee	Matthew	T-Mobile	V/E	matthew.lee32@t-mobile.com
LeSieur	Stanton	DCARES	Player	ad7ho@msn.com
Lewis	Matthew	Verizon	V/E	matthew.lewis@verizonwireless.com
Martello	Chandler	Verizon	V/E	chandler.martello@verizonwireless.com
McMahon	Matt	ICTAP	C/E	tf10coml@yahoo.com
Melebert	John	T-Mobile	V/E	john.melbert@t-mobile.com
Mishler	Ryan	LOCOM	Player	rmishler@ci.oswego.or.us
Muilenburg	Casey	T-Mobile	V/E	casey.muilenburg@T-Mobile.com
Noel	Steve	CISA/ECD	Observer	steve.noel@cisa.dhs.gov
O'Connell	Tim	Rescue 42	V/E	tim@rescue42.com
O'Leary	Jeremy	Multnomah County	V/E	jeremy.oleary@multco.us
Parker	Dave	Deschutes County ARES	Player	dgparker2@wisc.edu
Parker	Theresa	OSU Dispatch	Player	theresa.parker@oregonstate.edu
Pegram	Steve	ODHS EM	Observer	steve.s.pegam@dhsosha.state.or.us
Perry	Chris	Deschutes County 911	Observer	chris.perry@deschutes.org
Pfohl	Don	OSFM	Observer	dpfohl@osp.oregon.gov
Phillips	Vaughn	Linn County SAR	Player	w0ulf@hotmail.com
Polan	Alan	Umatilla County EM	Player	ke4trr@bmi.net
Pursley-Haner	Dana	Sherman County Ambulance	Observer	emergencyserv@embarqmail.com
Quinn	Robert	Multnomah EM	V/E	robert.quinn@multco.us

Reed	Mickie	Mountain Wave	Player	micreed1@yahoo.com
Rich	Alan	IP Access International	V/E	alan@ipinternational.net
Robeson	Larry	Toledo Fire	Player	firemain@cityoftoledo.org
Romo	Arielle	OSU	Player	romoa@oregonstate.edu
Ronning	Susan	ADCOMM Engineering	Observer	s.ronning@adcomm911.com
Rudawitz	David	CAP	Observer	david.rudawitz@orwg.cap.gov
Satre	Jim	T-Mobile	V/E	james.satre1@t-mobile.com
Schwartz	Todd	OSFM Eugene/Springfield Fire	Player	tschwartz@springfield-or.gov
Shurtleff	Donald	Deschutes County ARES	Player	donshurtleff475@gmail.com
Skinner	James	Deschutes County ARES	Player	jtskinnerjr@gmail.com
Squires	Harlan	ICTAP	ED	harlan.t.squires@saic.com
Stiller	Tara	AT&T FirstNet	V/E	ts523k@att.com
Stiller	Mitch	AT&T FirstNet	V/E	ms0747@att.com
Stueve	Jon	WVCC	Player	jstueve@cityofsalem.net
Sutton	Chris	OEM	Observer	chris.sutton@mil.state.or.us
Taylor	Christopher	ITDRC	Player	ctaylor@itdrc.org
Todd	Melinda	Harney County	Observer	melinda.todd@co.harney.or.us
Tolliver	Rachel	ODOC	Observer	rachel.n.tolliver@doc.state.or.us
Vanderschaegen	Phill	Deschutes County ARES	Player	phillv@winterwren.com
Vargas	Eric	ODOT	Player	eric.j.vargas@odot.state.or.us
Wands	Jason	Portland PB	Player	jason.wands@portlandoregon.gov
Westlund	Jake	AT&T FirstNet	V/E	jw767a@att.com
Wiggins	Gregg	ICTAP	C/E	gwiggins@atiint.com
Wilson	Christina	ICTAP	C/E	christina.l.wilson@SAIC.com
Yungbluth	Frederick	CCOM	Player	fredyungbluth@gmail.com
Suttle	Suzanne	Harney County 9-1-1	Observer	suzanne.suttle@co.harney.or.us

APPENDIX D EXERCISE SITE MAPS



Figure D – 1 Exercise Location Map

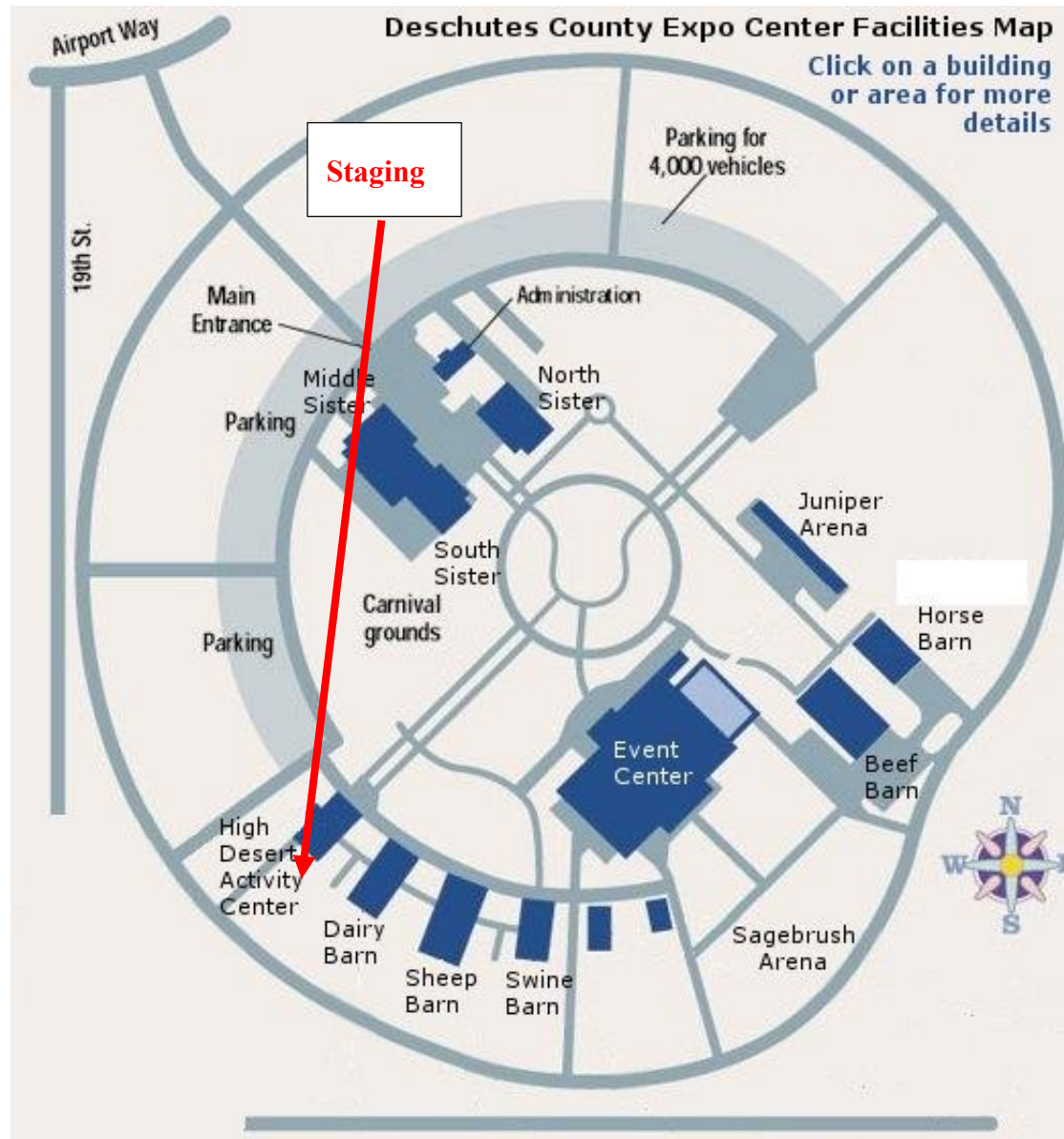


Figure D – 2 Expo Center Map

APPENDIX E VENDOR CAPABILITIES INFORMATION

Table E-1: Vendor Capabilities Information

Company	Contact	Capabilities	Customer Y/N	Cost Y/N	Response Time	Site Restrictions
FirstNet	Paul Braunstein 503-913-7565 pb8016@att.com	FirstNet Deployables Voice (Voice/Data/Location, Messaging) Devices (cellular phones/ Hotspots/ Routers)	Yes	Free to FirstNet customers	14 hours	
IP Access International	Kim Graville 949-655-1038 kim.graville@ipint ernational.net	Data, voice, cellular, satellite, etc. that can be requested. Satellite data, voice, cellular, WiFi hotspots, drone/aircraft video distribution	No, but you will need compatible equipment. Equipment acquisition during an event will cause delays in receiving service.	Monthly plans starting at \$250/month and they go up from there depending on level of service. We also offer dedicated bandwidth as needed for deployments by the day, week and month.	Site builds are sent via email and can be turned around within 2 hours provided all necessary information is given to complete.	Line of sight for satellite antennas.
Rescue 42	(530) 891-3473	Small, robust – Agency owned Compact Rapid Deployable (CRD) Cellular FirstNet Band14, or Verizon LTE COW (Cell-On-Wheels), Satellite, 2.4/5G WIFI, LTE – Voice, Data	No but you must be a FirstNet customer to deploy the FirstNet / Band14 Cellular Radio	\$69,995.00 for the FirstNet CRD – includes delivery. (Alaska and Hawaii require additional shipping	The CRDs can be rolling within 5 minutes of notification. Because the CRD is not a trailer, they travel at highway or Code 3	The CRD can be easily moved in/out of buildings, on elevators/ escalators and transported on standard 2” trailer hitch on a Truck/SUV. It is not a trailer but

Company	Contact	Capabilities	Customer Y/N	Cost Y/N	Response Time	Site Restrictions
				fee). Additional annual cost for the Satellite data plans start at \$3,395.00	speeds, and over rough terrain via 4WD vehicle. CRDs may be sling loaded and delivered by helicopter.	travels off the ground like a cargo carrier. The CRD can be transported to and deployed virtually anywhere. It can remain on the bumper of the vehicle while deployed. It can deploy on most surfaces – concrete, asphalt, dirt/gravel. Rescue 42 is a Federally Certified Service-Disabled Veteran Owned Small Business.
T-Mobile	Casey Muilenburg 206-290-4793 Casey.Muilenburg@Sprint.com / ERTeam@T-Mobile.com ERT Hotline 24x7 888-639-0020 ERTRequests@T-Mobile.com	Solutions: <ul style="list-style-type: none"> • Data (Backhaul is Cellular and/or Satellite) • Cellular Routers • HotSpots • Tablets/iPads • Managed WiFi Network (Outdoor or Indoor) • Ethernet cable Voice (Cellular and/or Satellite) <ul style="list-style-type: none"> • T-Mobile Devices • VOIP Devices 	No, you do not need to be a customer. T-Mobile also does not have to provide service in the area	No Cost	Wheels turning is under 4 hours. Our goal is to be up and operational within 24 hours of call. Some circumstances may extend this goal.	Satellite services require clear look angle to the south. Dirt or paved road is best, but not required for SatCOLTs.

Company	Contact	Capabilities	Customer Y/N	Cost Y/N	Response Time	Site Restrictions
		Interoperability (solution through Mutualink) <ul style="list-style-type: none"> • Multi – Media Situational Awareness Platform <ul style="list-style-type: none"> ○ Voice – LMR, Cell, VOIP etc. ○ Video – DOT cameras, facility, Cellphone, video conferencing etc. ○ Pictures ○ Documentation 				

APPENDIX F GLOSSARY

Item/Acronym	Definition
AAR	After-Action Report
ADCOMM	ADCOMM Engineering
APCO	Association of Public Safety Communications Officials
ARES	Amateur Radio Emergency Service
AUXC	Auxiliary Communicator
AUXCOMM	Auxiliary Communications
CAP	Civil Air Patrol
CASM	Communication Assets Survey and Mapping
CCOM	Clackamas County Department of Communications
C/E	Controller/Evaluator
CISA	Cybersecurity and Infrastructure Security
COML	Communications Unit Leader
COMT	Communications Unit Technician
COW	Cell On Wheels
CPS	Customer Programming Software
CRD	Compact Rapid Deployable
CSQ	Carrier Squelch
CTCSS	Continuous Tone Coded Squelch System
DCARES	Deschutes County Amateur Radio Emergency Service
DHS	Department of Homeland Security
ECD	Emergency Communications Division
ED	Exercise Director
EIS	Enterprise Information Services
EM	Emergency Management
EMI	Emergency Management Institute
EOC	Emergency Operations Center
EP	Emergency Preparedness
EPT	Exercise Planning Team
ERT	Emergency Response Team
ESF	Emergency Support Function
FE	Functional Exercise
FEMA	Federal Emergency Management Agency
FPP	Front Panel Programming
GETS	Government Emergency Telecommunications Service
HSIN	Homeland Security Information Network
ICC	Incident Communications Center
ICS	Incident Command System
ICTAP	Interoperable Communications Technical Assistance Program
INTD	Incident Tactical Dispatcher
ITDRC	Information Technology Disaster Response Center

Item/Acronym	Definition
IP	Improvement Plan
IP	Internet Protocol
LMR	Land Mobile Radio
LOCOM	Lake Oswego Communications
LTE	Long Term Evolution
MCV	Mobile Communications Vehicle
MHz	Megahertz
MSEL	Master Scenario Events List
NAC	Network Access Code
NENA	National Emergency Number Association
NIFOG	National Interoperability Field Operations Guide
NIMS	National Incident Management System
NIWC	Naval Information Warfare Center
NS	National Security
NTED	National Training and Education Division
ODHS	Oregon Department of Homeland Security
ODOC	Oregon Department of Corrections
ODOT	Oregon Department of Transportation
OEM	Oregon Emergency Management
OSFM	Oregon State Fire Marshal
OSP	Oregon State Police
OSU	Oregon State University
PBEM	Portland Bureau of Emergency Management
PBTS	Portland Bureau of Technology Services
PL	Private Line
PPD	Presidential Policy Directive
PSAP	Public Safety Answering Point
PTB	Position Task Book
PUC	Public Utilities Commission
RADO	Radio Operator
SAR	Search and Rescue
SatCOLT	Satellite Communications on Light Truck
SME	Subject Matter Expert
SOPs	Standard Operating Procedures
SSID	Service Set Identifiers
STR	Strategic Technology Reserve
SUV	Sport Utility Vehicle
TCL	Target Capabilities List
TERT	Telecommunicator Emergency Response Team
UHF	Ultra-High Frequency
USCG	United States Coast Guard
VHF	Very High Frequency

Item/Acronym	Definition
V/E	Vendor/Exhibitor
VOIP	Voice Over Internet Protocol
WD	Wheel Drive
WPS	Wireless Priority Service
WVCC	Willamette Valley Communications Center