D | Functional Annex – Communications

Approved (January 22, 2018)

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1   Purpose

This annex describes how Washington County will coordinate communications with county departments and partner agencies and deploy available communications resources during a major emergency or disaster. The annex emphasizes the public safety radio system but also addresses amateur radio, landline, cellular, satellite telephone, and satellite data. The annex describes communication plans and capabilities as they currently exist and will be updated as additional plans and capabilities are put into place.

2   Situation and Assumptions

2.1   Situation

- ■ Washington County and its partner agencies use a combination of two-way radio (referred to as 'land mobile radio' or 'LMR'), landline telephone, cellular telephone, cellular based mobile data systems for text based messaging, dispatch instruction and mapping, status and status updates (eventually may be supported by FirstNet, the First Responder Network Authority) and Internet email to accomplish communication necessary to conduct business and support government operations.

- ■ Each of these systems is relied upon, to a greater or lesser extent, during emergencies. As such, the loss of one or more of these systems could negatively impact the management of and response to an incident and hinder county operations.

- ■ The loss of the public safety radio system and/or the public telephone system, which allows citizens to report emergencies via the 9-1-1 system, could, on its own, constitute an emergency requiring rapid intervention to re-establish functionality.

- ■ Day-to-day public safety radio communication is provided by the Washington County Consolidated Communications Agency (WCCCA), which is also the Public Safety Answering Point (PSAP) for Washington County. In this role, WCCCA answers all 9-1-1 calls for service and dispatches all fire and law enforcement emergency responders[1] using a joint, WCCCA/C800 Group/City of Newberg (WCN) Motorola Smartzone 800 MHz trunked radio system (TRS) consisting of 4 simulcast cells and 5 trunked repeater sites at 24 physical communications sites supporting Washington, Clackamas Counties and the city of Newberg.[2]

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[1] Emergency medical service calls for service are received by WCCCA through the 9-1-1 system then retransmitted to Metro West Ambulance Service who dispatches their own resources.

The Oregon State Police (OSP) are dispatched through OSP Northern Command Center in Salem, but troopers assigned locally also carry 800 MHz radios for local interoperability.

[2] See Tab 3 for a brief description of the WCCCA/C800 public safety radio system.

■ The Washington County Sheriff's Office (SO), Department of Land Use and Transportation (DLUT), Health and Human Services (HHS, including the Emergency Medical Services Office), Emergency Management, Facilities & Parks Services, Community Corrections, and Juvenile Services all use the 800 MHz radio system to varying degrees.

■ WCCCA provides a number of planned backups to the 800 MHz radio system: (listed in increasing order of radio disruption severity):

  o *Site-Specific Trunking* – If the connection from a communications system prime site to the master site is lost, that site will enter into a site trunking mode. This is most often related to more than one of the microwave link connections being disrupted by a functional outage. Each of the communications sites has redundant microwave paths that interconnect them to the master site and the other prime and remote trunked communications sites. The unaffected simulcast cells continue to operate normally and the affected sites enter into "Site Trunking". The "Site Trunking" cell(s) continue to provide trunked radios services but the coverage is geographically localized to that area the specific cell(s) cover. As an example, radio traffic in Timber may not be audible in Beaverton, depending on which controller may have lost connectivity.

  o *Failsoft* – If one or more prime site controllers fail, the affected subsystem will enter into Failsoft mode. Under these conditions all users' radios will seek out a usable alternate system that is still operating in wide or site trunking modes and begin operating there. For those users whose radios are not able to seek out another usable cell/site, their radios will enter into Failsoft mode.). No adjustment of the radio is required by the user. Each WCCCA-served discipline (LE, fire, and EMS) is pre-assigned three channels, one of which is a primary dispatch channel. This is automatically controlled by the software in the radio and will indicate to the user that the system is in FAILSOFT with a message and a tone on the radio. When the system resets, it is totally unavailable for up to 13 seconds.

  o *Conventional Repeater Mode* – In the event that the connection between a prime site and its remote site occurs, WCCCA staff must manually drive to each site and program each repeater to a predetermined channel plan. This will result in countywide distributed channels that may be used for public safety communications. Essentially, each repeater site becomes its own independent system allowing repeated communication between units within range of its signal, but not with other towers or users.   WCCCA will attempt to notify system users when this occurs and provide an approximate timeframe for implementation.

  o *Site Failure and/or Total System Failure* – Loss of master or prime site trunking controllers, remote site controllers, microwave and/or all commercial and backup power systems, or the physical loss/significant damage to a significant number of all communications sites in the WCCCA/C800/Newberg service area could result in the failure of trunked or repeated communication within some or all of the system. In the case of a communications site failure, WCCCA may be able to

notify users of the problem. However, a total system failure would be its own warning, as radios will not work on repeated talk groups. In this event, direct (simplex) operation would still be available between radios programmed with simplex channels.

■ WCCCA also provides non-trunked communications that can augment the 800 MHz trunked radio system (TRS) when required to overcome communication shortfalls during an emergency. Included are:

o *National Public Safety Planning Advisory Committee (NPSPAC) Repeaters* – WCCCA maintains conventional repeaters (non-trunked) at multiple sites (Bald Peak, Buxton, Parrett Mountain, and Round Top) in Washington County that support the 800 MHz National Mutual Aid Repeater Channels. These NPSPAC repeaters do not utilize frequencies from the TRS. The NPSPAC sites have repeated (R) and simplex (D – Direct) channels, and each set also has a Call channel that can be used for dispatch. All public safety (LE, fire and EMS) 800 MHz subscriber radios associated with the WCCCA TRS have the same five channels programmed into them for emergency use.[3] Multnomah, Clackamas, and Washington County each have mountain-top (referred to as 'high site' NPSPAC repeaters operating on the same channels. Without advanced coordination on use of these channels, self-jamming can occur during a Portland metro-area regional disaster for all public safety (LE, fire, and EMS) users. Coordination on the use of these channels has not been conducted. To resolve this issue during a disaster, Communication Unit Leaders (COML) or other communication technicians at each of the 9-1-1 dispatch centers will need to find a way to communicate with one another to make decisions about which repeaters will be used by each county.

o *State 800 MHz Interoperability Channels* – Much like the NPSPAC 800 MHz channels, there are five state interoperability channels in the 800 MHz band. Otherwise known as OROPS (Oregon Operations) channels, they are programmed into all public safety (LE, fire and EMS) radios that use the WCCCA system.[4] State 800 MHz interoperability channels are supported through towers at the Buxton and Parrett Mountain radio sites. Similar to the NPSPAC channels, the OROPS state interoperability channels have the same self-jamming issues as the NPSPAC channels and use of these channels will require coordination by COMLs or other communication technicians at each of the 9-1-1 dispatch centers.

o *VHF/UHF Interoperability Channels* – These channels are designated by the federal government to support radio interoperability for mutual aid and outside

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[3] Use of NPSPAC and other federal and non-federal interoperability channels is detailed in the National Interoperability Field Operations Guide (NIFOG).

[4] These radios are also programmed with Washington OPS (WAOPS) 800 MHz channels, but these may only be used in Washington State or when needed to operate with Washington jurisdictions.

resources coming into the area during an emergency. WCCCA has repeaters located at the Bald Peak and Buxton radio sites that support these channels. Similar to the NPSPAC channels, the VHF/UHF interoperability channels have the same self-jamming issues as the NPSPAC channels and use of these channels will require coordination by COMLs or other communication technicians at each of the 9-1-1 dispatch centers..

o *800 MHz Simplex* – There are four 800 MHz simplex channels that are shared by all public safety agencies in Clackamas, Multnomah, and Washington counties. These channels will experience heavy use during a disaster by public safety 800 MHz users. Severe interference is likely to occur unless advance planning for their use is completed.

■ Other radio resources available to augment the WCCCA system for day-to-day operations, special events, wilderness search and rescue, and emergencies or disasters, include:

o WCCCA has four portable control stations configured as re-locatable dispatch positions. These control stations are on the WCCCA/C800/Newberg, Portland, and CRESA systems as well as being programmed with national and state interoperability channels and simplex channels.

o *UHF Radio Cache* – This 450 MHz analog UHF LMR system in the public safety band was a part of the primary public safety dispatch system prior to the 800 MHz trunked system. The Washington County Sheriff's Office maintains several caches of radios that operate on this system and has geographically distributed these radios across the county. These radios are also programmed with non-federal interoperability channels.[5] WCCCA maintains four repeaters. Each repeater is backed up at a redundant site. One repeater is at Buxton with the backup at South Saddle. The other repeater is at a KPDX tower in SW Portland with the backup at Bald Peak. These provide two radio channels for SO users.

o *SO and Emergency Management (EM) VHF Radio Caches* – These VHF portable radios are programmed with the Portland Urban Areas Security Initiative (UASI) template. This allows interoperable communication with adjacent agencies that use VHF radio as their primary and/or backup system. The UASI template includes VHF channels for search and rescue, Oregon State Police (OSP), Oregon Department of Transportation (ODOT), Oregon Department of Forestry (ODF), and marine channels as well as federal and state interoperability frequencies. [6]

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[5] National Interoperability Field Operations Guide (NIFOG)

[6] These radios are programmed with frequencies and channels as found in the Portland UASI Tactical Interoperability Communications Plan (TICP) and the NIFOG.

o WCCCA maintains an emergency communications trailer and tow vehicle that is available in the event additional on-scene communications support is required. The trailer includes items such as a cache of 800 MHz portable radios, conventional repeaters operating on the National and State Interoperable frequencies in the 800 MHz, UHF, and VHF bands and has patching capability for two each WCN TRS channels. It also contains a standalone generator and diesel fuel. See Tab 3 for a complete equipment inventory.

■ *DLUT VHF Radios* – The Department of Land Use and Transportation (DLUT) uses both the 800 MHz TRS and VHF channels for communication. DLUT's VHF system includes one repeater at Buxton and one simplex channel.

■ *HHS "Go Kits"* – Health and Human Services (HHS) has five VHF "Go Kits." Each kit includes a VHF radio and a magnetic-mount antenna in a small Pelican case. Power is supplied by plugging the kit into a 12 volt direct current outlet. These kits are programmed with a modified template based on the Portland UASI Tactical Interoperability Communications Plan (TICP) and include the Hospital Emergency and Administrative Radio (HEAR) 1, HEAR 2 and HEAR 3 EMS channels. These Go Kits are maintained by the Washington County Sheriff's Office. The locations of these Go Kits are listed in Tab 4 of this annex.

■ All fire agencies in Washington County have VHF backup radios available to them and can use them to communicate with Oregon Department of Forestry (ODF), Bureau of Land Management (BLM), State HazMat teams and water rescue teams.

■ Public works departments in the cities of Beaverton, Cornelius, Hillsboro, Tigard, and Tualatin have VHF radio systems. Forest Grove Public Works uses a UHF Digital Mobile Radio (DMR) trunked radio system in cooperation with the city's Department of Light and Power.

■ Clean Water Services operates on its own 800 MHz band for daily use at the wastewater treatment plants and as a command and control channel for the plants and administration. CWS is exploring alternatives to the WCCCA backbone 800 MHz system for the Field Operations division, but currently uses cell phones as the primary communication for that division.

■ Tualatin Valley Water District uses a VHF DMR trunked radio system.

■ School districts in Washington County possess a large number of FCC licensed VHF and UHF radio channels. For example, the Sherwood and Tigard-Tualatin school districts use UHF radios for daily communications in and around their schools. The Beaverton School District has three UHF high site repeaters in the Portland West Hills used by its transportation division. Hillsboro School District uses a VHF system. In addition, the Beaverton and Tigard-Tualatin School districts use the 800 MHz radio system to a limited extent.

- HEAR is a backup VHF radio system for communication between fire agencies, ambulances, and hospitals. All Washington County hospitals, with the exception of Kaiser Westside Medical Center, currently have HEAR capabilities.

- Metro West Ambulance Service uses the 800 MHz radio system to communicate with dispatchers, hospitals, fire and LE as required to coordinate joint emergency responses. For non-Emergency calls, Metro West communicates with each of its ambulances on its own VHF radio system.

- In addition to these various LMR systems, Washington County's emergency communications structure incorporates the following components:

  o *Satellite Phones* – The EOC, Emergency Management, WCSO Patrol, WCSO Search and Rescue, Support Services (SS), and DLUT have satellite phones for use in emergencies, or when out of reach of other communications methods. High demand for satellite phones may reduce their performance in a disaster area. Portable satellite phones will require the user to be outdoors with a clear view of the sky to make a connection. (See Tab 5 for a list of the Washington County satellite phone locations and numbers).

  o *Satellite Dish* – The EOC has a mobile satellite dish which allows EOC Planning Section staff access to the Internet via satellite, including access to WebEOC remote servers. Although WebEOC is the primary use envisioned for this resource, it may also be available for SAR and other operations.

  o *Amateur Radio Emergency Service (ARES) or "Ham" Radio* – Volunteer amateur radio operators, affiliated with Amateur Radio Emergency Service/Radio Amateur Civil Emergency Service (ARES/RACES), support emergency communications through the staffing of amateur radio stations at several agencies, referred to as 'served agencies.' Amateur radio operators may also support on-scene communication needs using mobile and portable amateur radio equipment. See Tab 6 for a list of served agencies.

  o *Agency-Issued Cellular Phones* – Cellular phones, offering both voice and text options, are interoperable and some Washington County agencies issue cell phones to select personnel. Many staff members have personal cellular phones that provide a further means of communication. Selected Washington County employees have enhanced priority access to the cellular system via the Wireless Priority Service (WPS). WPS users will have priority access to the wireless/cellular systems using their WPS cards, assuming that they can get a cellular signal.

- o *Public Switched Telephone Network PSTN)* – In addition to its day-to-day function, the PSTN has an important role in emergency communication. While overloading of the landline system presents problems similar to an overload of the cellular system, selected employees have enhanced priority access via the Government Emergency Telecommunications Service (GETS).[7]

- ■ External Resources:

  - o *Cell on Wheels (COW)* – Cellular phone companies have portable mobile cell sites that can be setup in areas where cell phone service has been impacted by a disaster. This resource may be available by request of the cell phone carriers.

  - o *National Incident Radio Support Cache (NIRSC)* – This resource may be available by request of the State Emergency Coordination Center (ECC). The NIRSC is a national resource composed of multi-channel radio systems, frequencies, and kits that are available for supporting complex incident communications.

  - o *Strategic Technology Reserves (STR)* – STR assets are deployable, pre-positioned equipment that is capable of re-establishing communications when communications infrastructure is damaged or destroyed. These assets may be available by request to the ECC.

  - o *Civil Support Team (CST)* – The CST is an Oregon National Guard resource and may be available by request of the ECC. It receives certification through the Department of Defense and provides communication through secure and non-secure satellite networks.

2.2   Assumptions

- ■ The communications systems listed above are adequate for normal operations, planned events and the majority of emergency situations that might arise.

- ■ If a situation arises wherein one or more primary modes of communication are overloaded, damaged, or destroyed, alternative methods of communication are available to supplement, or replace the primary system. Damage to primary communications systems, such as WCCCA's 800 MHz system, may seriously impede operations during a disaster, potentially putting lives and property at greater risk. WCCCA will rapidly respond to restore communications capacity, but restoration

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[7] Additional information about GETS and WPS can be found at https://www.dhs.gov/government-emergency-telecommunications-service-gets.

will be predicated on the scale of damage, availability of repair parts and technicians, and other factors beyond its control.

■ Due to substantial system redundancy, the probability of complete failure of the WCCCA 800 MHz system infrastructure is considered to be low. However, considerable communications disruption should be expected following a major earthquake due to a combination of physical damage, shifting of microwave transmitters, difficulty keeping tower generators running, and heavy utilization.

■ Physical damage to telephone infrastructure should be expected following a major earthquake.

■ Overloaded telephone circuits should be expected due to increased demand until the emergency diminishes.

■ A large scale emergency or disaster will likely require deviation from normal day-to-day practice to deal with the greater demand for communications, particularly during the initial response to the emergency, even in the absence of damage to existing communications infrastructure. To the extent possible, WCCCA will manage the TRS to ensure command and control message traffic is minimized in order to reduce the overall system channel loading and support the emergency response.

■ In the event of an emergency or disaster, significant outside help and support may not be available for several days. Locally provided alternate communications equipment and procedures will be relied upon to support emergency needs until additional assistance is available.

■ Certified Communication Unit Leaders (COML) and Communication Unit Technicians (COMT) will not be readily available within the County but will be available when requested from the State ECC.

3   Concept of Operations

3.1   Definitions

See Tab 1

3.2   General
Communications during a major emergency or disaster are predicated on the size and complexity of the incident, the condition of supporting communications infrastructure, the amount of communications traffic needed to support the response, and the availability of additional resources to meet the need.

3.3   Assessing Impacts to Communications Systems

■ After an emergency or disaster that may have impacted communications systems, communications systems managers will work with their users to assess the status of their systems and report that information to users and the County EOC.

■ WCCCA and its user agencies will assess the status of the 800 MHz and interoperability systems and report that information to all users and the County EOC. WCCCA may also report on the status of the public switched telephone network and cellular systems.

■ County ITS will assess the status of county information and telecommunications systems and report that information to the Support Services DOC.

■ The Support Services DOC will collate information about County communications systems and report that information to the County EOC.

■ The County EOC will gather information about all impacted communications systems and report the status of the systems to its partners.

■ As appropriate, the County EOC will liaise with private sector communications providers to determine system status and restoration times. Liaison with private sector communications providers may also be supported by a regional Multi-Agency Coordination Group (MACG) or the State ECC.

3.4   Washington County Operations Modes

■ Washington County has adopted a common framework of *operational modes*, based on recommendations from the Incident Management Enhancement Taskforce (IMET) 2008 report, to address a range of scenarios. *Normal Operations* (also termed *Regular Operations* by WCCCA) – This mode is by far the most commonly used in Washington County and covers the vast majority of day-to-day demands including situations that may temporarily result in higher demands being placed on the system. In this mode, centralized communication infrastructure and staffing are intact and demand falls within normal operational capability. Agencies conduct routine and emergency response activities using normal communications protocols including:

   o 800 MHz public safety radio system (WCCCA), which includes fire tapout (on a different band) and paging, which is typically done with a combination of pocket pagers and cell phones.

   o VHF and UHF LMR systems (WCSO Search and Rescue,[8] many fire agencies, Metro West Ambulance, various school districts, public works, etc.).

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[8] WCSO Search and Rescue uses a combination of the WCCCA 800 MHz and legacy UHF systems in addition to the state of Oregon licensed "State SAR" VHF system.

- o Landline and cellular telephone.

- o Internet and email.

■ *Expanded Operations* (also termed *Expanded Dispatch* by WCCCA and the Fire Defense Board) – This mode provides for enhanced communications support functions during a large incident or multiple incidents, while minimizing the impact on routine operations within the county. The *Expanded Operations* mode typically involves a single primary discipline but may involve others. Centralized communications are intact, but demand is exceptional and requires some adjustment to meet current needs.

  - o DOCs and EOCs may be partially or fully activated.

  - o Special incident prioritization procedures are implemented by both WCCCA and emergency response agencies to ensure critical resources are assigned to incidents with life-safety issues and reduce the load on the emergency communications infrastructure. Such procedures may involve a supervisor or system knowledgeable technical person working directly with WCCCA dispatchers to manage tactical resources. In Washington County, the fire agencies, DLUT, and EMS use this mode. See the IMET report or the Washington County Fire Resource Management Plan for additional information.

    - ▪ *Tactical Dispatch – Tactical Dispatch*, a variation of *Expanded Dispatch*, involves the deployment of one or more WCCCA dispatchers to the scene of an ongoing tactical operation to work directly with the on-site incident management team.

  - o In order to limit communication impacts on emergency responders not involved in the incident, UHF and VHF cache radios may also be used to support on-scene response.

  - o Agencies not involved in the incident may, in large part, continue to operate under *Normal Operations* Mode.

■ *Major Emergency Operations* – In this mode, centralized communications are intact, but there are insufficient responder resources to handle all requests for emergency services. Unlike *Expanded Operations*, this mode affects the entire emergency response system within the county. In Washington County, the most common situations that have necessitated a transition from *Normal Operations* to *Expanded Operations* or *Major Emergency Operations* have been severe weather events such as high wind, rain, thunderstorms, winter storms, and flooding.

  - o DOCs and EOCs may be partially or fully activated to help coordinate response and/or recovery efforts.

- o As in *Expanded Operations*, procedures are implemented by both WCCCA and emergency response agencies to ensure critical resources are assigned to incidents with the highest priority.

- o Due to high call volume, communications "bandwidth" may be insufficient to handle emergency response needs. WCCCA and emergency response agencies may implement steps to reduce the load on the 800 MHz system. Such steps may include the use of pre-programmed interoperability channels, increased use of simplex channels, deployment of cache radios, and prioritizing use of the 800 MHz system.

- ■ *Disaster Operations* – Due to direct damage or failure of critical key supporting infrastructure, centralized communications such as the WCCCA 800 MHz system and telephones are not functioning or are degraded, the general public cannot call 9-1-1 for assistance, and WCCCA is unable to dispatch resources. County and city EOCs, agency DOCs, and the Multi-Agency Coordination Group (MACG) are, or will be activated. Field supervisory staff and emergency responders are functioning independently to identify, prioritize, and respond to incidents.

  In this scenario, because the trunked radio system is inoperable or degraded, alternative methods must be used to provide communications capability. Such methods may include any or all of the following:

  - o Deployment of the WCCCA Mobile Communications Trailer that is stocked with portable 800 MHz, VHF and UHF interoperable repeaters, and 800 MHz cache radios.

  - o Simplex radio communication, including use of human repeaters, where individuals relay radio communications using pre-programmed 800 MHz simplex channels. Note, however, that simplex is limited to four channels and will be shared by all public safety 800 MHz users in the Portland metro-area region, potentially resulting in significant interference.

  - o Use of non-trunked interoperability channels such as NPSPAC and OROPS channels on the 800 MHz radios. Note, however, that radio interference will likely occur unless coordination of these channels is accomplished.

  - o Use of UHF cache radios and available county owned repeaters (if operable) or on programmed simplex channels.

  - o Use of VHF cache radios programmed with interoperability channels. These caches of radios are programmed with channels designated in the Urban Areas Security Initiative Tactical Interoperable Communications Plan or UASI TICP.

  - o Use of amateur radio operators affiliated with Amateur Radio Emergency Service (ARES)/ Radio Amateur Civil Emergency Service (RACES). Amateur radio uses dedicated band spectrum that can augment, or replace, crowded or unavailable radio spectrum.

o Use of cellular phones (text, regular cellular, push-to-talk, or WPS), if available and functioning.

o Deployment of county-owned portable satellite phones. It is expected that satellite phones will work in the initial phases of a disaster. However, satellite phone use may increase, which may overload this system as well. Users of portable satellite phones should also anticipate the need to stand outdoors to get a reliable satellite connection when making a call.

o The use of runners if no other method of communication can be established.

3.5 Mitigating Communication Limitations

■ Steps should be taken to mitigate system damage, limit system overload, and support interoperability. Potential solutions include:

1. Use face-to-face communications wherever possible. For example, the co-location of all Command and General Staff at an Incident Command Post (ICP) provides the best direct communications and reduces the demand on communication system resources.

2. Enforce radio discipline. During emergency operations, keep communications short and minimize non-emergency traffic.

3. During emergencies involving multiple agencies and/or jurisdictions, users should strive to use plain language, avoiding unnecessary codes and jargon.

4. Whenever possible, use shared tactical channels that work in simplex mode. Simplex channels do not use repeaters and may even work better than repeated channels for on-scene communications.

5. If responding agencies do not share systems or channels, use a *gateway* to establish interoperable communications.

6. Where interoperable communications cannot otherwise be established between response agencies, exchange or use cache radios to establish interoperable communications for responders.

3.5.1 Resource Prioritization and Consideration of Alternate Communications Resources

■ When available resources are insufficient to support every incident, resource assignments should be based on the priority levels articulated in the National Incident Management System (NIMS), i.e.:

o Life Safety

o Incident Stabilization

o Property Preservation

■ In response to events or incidents which cross over jurisdictional boundaries, there could be competing demands and priorities for interoperable communications assets. Coordination of assets using designated Communication Unit Leaders (COML) on-scene or in the EOC, or Communications Coordinators (COMC) located at PSAPs can help de-conflict communications issues by managing available equipment and bandwidth. Certified COMLs are limited in the county, and COMCs are non-existent. These certified personnel would need to be requested from outside the area. Should conflicts persist, coordination through the Multi-Agency Coordination System (MACS) may be necessary.

■ Regardless of the Operational Mode, overall communication efforts will be prioritized as follows:

  o Alert and warning communications will be given the highest priority on all communications systems. Alert and warning will be accomplished in accordance with the Alert and Warning Annex to the Emergency Operations Plan (EOP).

  o Tactical command and control and life safety communications.

  o Emergency coordination and support (e.g. EOC to EOC).

  o Administrative and other uses will be restricted as necessary to sustain communications with a higher priority.

■ To meet the increased communications needs created by an emergency, various state agencies, amateur radio operators, and other volunteer organizations are available to supplement the county's existing communications capabilities. These resources are listed in Tab 2, and can be requested through the EOC.

3.6   Maximizing Telephone and Network Communications

3.6.1   Telephone (Common Carrier)

■ Emergency Service

  o During major emergencies, the Washington County EOC and local carriers should exchange liaisons or telephone numbers to coordinate service restoration.

3.6.2   Telephone (Washington County-owned Systems)

■ To decrease the load on internal telephone systems during an emergency or EOC activation, county employees may be directed to limit calls to those of vital operational need.

3.6.3   Computer Network (Internet)

■ During major emergencies, the Washington County EOC and its broadband service provider should exchange liaisons or telephone numbers to coordinate service restoration.

3.6.4 Computer Network (Washington County-owned systems)

■ During major emergencies, members of the Broadband User Group (BUG) may agree to limit use of the backbone system to accommodate emergency bandwidth requirements for all users (e.g., no streaming video of television broadcasts).

■ During extended power outages, while wired connectively in office spaces may be down, notebooks out of their docking stations may be able to access the network through the wireless network which may prove more resilient.

4 Organization and Assignment of Responsibilities

4.1 General

For communications resources to be effectively used when needed, it is important for all departments and agencies to take the following steps prior to any incident:

■ *Plan* – Prepare and maintain plans to ensure readiness to deploy internal communications resources during major emergencies or disasters.

■ *Equip* – Maintain readiness of communications equipment.

■ *Train* – Educate staff on department or agency communication procedures in order to support deployment.

■ *Exercise* – Conduct exercises and drills to ensure communication equipment is working and users maintain their skills.

4.2 Task Assignments During Major Emergencies or Disasters

4.2.1 Washington County Consolidated Communications Agency[9]

■ Implement *Major Emergency* and *Disaster Operations* and notify system users if possible. Allocate system resources and assign 800 MHz talk groups to public safety agencies and other users as resources allow and as needed.

■ Along with other regional PSAPs, de-conflict and/or coordinate interoperable channel use across the metro region.

■ Shift repeaters to conventional mode and develop a plan to use them, if needed to support communications.

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[9] The reference to WCCCA should not be construed to imply it is under the jurisdictional authority of Washington County. It is intended to show its role in the communications organization.

■ Activate the alternate 9-1-1 dispatch center at the Law Enforcement Center if required.

■ In the event of a TRS failure or loss of functionality, advise the County EOC on the use of alternate communications and provide assistance with COMC/COML duties to the extent possible.

■ Assess the status of impacted communications systems, including WCCCA towers and the public switched telephone network, and report status to the County EOC.

■ Support and coordinate WCCCA tower maintenance and generator operation.

■ During a major emergency/disaster, support equipment repair on a 24-hour basis.

■ Continue communications support throughout recovery operations.

■ Restore communications systems to pre-emergency conditions as soon as possible.

4.2.2 All Washington County Departments

■ When a major emergency or disaster occurs, each county department shall:

- Establish and maintain a communications link with the Support Services Department Operations Center (SS DOC) and provide an agency communications plan to the DOC Logistics Section as soon as possible. This may require the use of non-traditional communications, i.e., runners or amateur radio operators, due to unavailability of telephones or radio. Communications with staff in the field may also be compromised and require similar extraordinary communications protocols.

- When directed by the EOC, re-deploy or assign communications resources and personnel as required.

- Coordinate restoration and/or repair of normal communications modes with the SS DOC.

- Demobilize communications resources, when appropriate.

4.2.3 Washington County Emergency Operations Center

■ Coordinate with WCCCA on the implementation of major emergency or disaster operations. The EOC is responsible for communicating that decision to all county departments, municipalities and special districts as soon as possible.

■ Contact EOCs and DOCs representing local governments, hospitals, utilities, special districts, and departments, and confirm/establish communication links with those organizations. (Operations, Planning, and Logistics Sections)

■ Liaise with impacted communication system providers and assess and report the status of all impacted communications systems, including data networks and the public switched telephone network. (Logistics Section, Planning Section)

■ Coordinate, publish, and regularly update a County Communications Plan (ICS 205) and distribute as appropriate. (Logistics – Communications Unit)

■ Coordinate the deployment of Washington County communications resources to ensure the most efficient use. (Logistics – Communications Unit)

■ Distribute the cache of Emergency Management controlled VHF radios as appropriate. (Logistics – Communications Unit)

■ Allocate to served agencies, and coordinate the use of, amateur radio resources within Washington County. (See Amateur Radio Plan, under separate cover). (Logistics – Communications Unit).

■ Maintain communications with Oregon Emergency Management's Emergency Coordination Center (ECC)

■ Request mutual aid and/or state and federal communications support as needed.

4.2.4 All Washington County Department Operations Centers (Land Use and Transportation (LUT), Sheriff's Office (SO), and Support Services (SS))

■ Confirm communications links with the EOC and partner agencies. Receive the County Communications Plan from the County EOC (WebEOC or other means) and distribute internally as necessary.

■ Submit requests for land mobile radios, ARES/RACES support, and other communication resource needs to the EOC.

■ Coordinate all radio use with the EOC to ensure maximum efficiency of available resources.

4.2.5 Washington County Sheriff's Office

■ Provide security for Washington County communications resources as necessary and as resources are available.

■ Coordinate use of the 800 MHz system interoperability/auxiliary resources found in the WCCCA communication trailer, with WCCCA.

■ With Emergency Management and Support Services, validate the availability of telephone lines, computer networks, and electrical power in support of the primary EOC at the Law Enforcement Center.

■ Upon request of the EOC, deploy communications personnel and available radio equipment and/or caches as directed.

■ As needed, provide manual relay of emergency communications traffic between field command posts and the EOC.

4.2.6 Washington County Information Technology Services

■ Coordinate the deployment of County information technology and telecommunications resources to support EOC operations at the primary or alternate facilities.

■ Assess the status of the County's information technology and telecommunications resources and determine restoration priorities.

■ Report status to the Support Services DOC.

■ Restore damaged telecommunications and information technology functionality as soon as possible.

■ Maintain information technology and telecommunications equipment at Washington County's primary and alternate EOCs and DOCs during emergency operations.

4.2.7 Washington County Facilities and Parks Services

■ Coordinate 800 MHz radio use with WCCCA and the County EOC.

4.2.8 Washington County Health and Human Services

■ Ensure the readiness of the HHS VHF Go Kits for immediate deployment.

■ Coordinate 800 MHz and VHF radio use with WCCCA and the County EOC (includes EMS Office responsibility).

■ Plan for and coordinate use of the HEAR radio channels with all hospitals and EMS providers in the county when needed as a means of backup radio communication.

4.2.9 Washington County Juvenile Services

■ Coordinate 800 MHz radio use with WCCCA and the County EOC.

4.2.10 Washington County Community Corrections

■ Coordinate 800 MHz radio use with WCCCA and the County EOC.

4.2.11 Washington County Support Services DOC

■ Assess the status of County communications systems and report this information to the County EOC.

■ Receive communications and other resource requests from departments and coordinate solutions or forward the requests to the EOC.

5 Direction and Control

5.1 General

■ The Incident Commander at the EOC will coordinate the use and deployment of County-owned communications resources, and order additional resources as necessary. This task may be delegated to the Logistics Section Chief.

■ The Logistics Section Chief receives requests for communications resources and, as appropriate, matches available resource requests with available resources. The Logistics Section Chief may, with the approval of the IC, order additional resources as needed.

■ Technical management of communications resources may be further delegated to a qualified COML or other radio communications technician at WCCCA who will coordinate the use of interoperable assets with other spectrum users. The COML or radio communications technician will submit a plan for incident communications to the EOC Logistics Section Chief for approval.

■ The EOC may activate Washington County amateur radio volunteers through the RACES Radio Officer to provide emergency communications. ARES/RACES volunteers may also be dispatched throughout the county to provide situation assessment, conduct damage assessments, conduct welfare checks, or otherwise provide or augment emergency communications between an incident site and the County EOC or DOC(s).

5.2 Continuity of Government

■ Each County department or agency with communications responsibilities shall establish a line of succession for communications personnel to provide a point of contact for partner agencies.

■ If communications cannot be established between the Washington County EOC, the County Administrator, and/or elected officials, a Washington County Sheriff's Deputy, other County staff, or an ARES/RACES volunteer, equipped with a radio may be utilized to contact the person(s) in question and provide a communications relay, as needed.

■ The Washington County EOC shall maintain communications with Oregon Emergency Management's Emergency Coordination Center (ECC) and with local agency EOCs and DOCs.

6   Administration and Logistics

6.1   Facilities and Equipment

■ County departments that maintain their own communications equipment shall provide an updated inventory of equipment to the EOC when requested by the Incident Commander.

6.2   Accessing the County VHF Radio Caches

■ When the EOC is activated, the VHF caches are accessed via an order placed with the EOC Logistics Section.

■ When the EOC is not activated, these caches are accessed as follows:

o The SO VHF cache is accessed by contacting the SO Search and Rescue (SAR) Coordinator, either through the main telephone number, or after hours, through the non-emergency dispatch number at WCCCA.

o The EM cache is accessed by contacting County Emergency Management, either through the main office telephone number, or after hours, through the non-emergency dispatch number at WCCCA.

6.3   Maintenance of Records

■ All documents generated as part of an activation of this plan shall be maintained in accordance with applicable state records retention rules. Examples of such documents include, but are not limited to:

o Communication Plans (ICS 205)

o Communications resource requests

o Communication equipment procurement documents (e.g., Purchase Orders, Contracts, etc.)

■ If the EOC is activated, maintenance of these records will be the responsibility of the Planning Section Documentation Unit.

■ If the EOC is not activated, or after the EOC is deactivated, maintenance of these records is the responsibility of Washington County Emergency Management.

6.4   Physical Security

■ Depending on the nature of the event, physical security measures will be instituted to ensure that only authorized personnel have access to communications facilities. Levels of physical security vary by facility. Refer to each department's or facility's security policy and terrorism protection measures for details.

6.5 Training

■ Each County department is responsible for ensuring their employees are trained on the procedures and mechanics of using their communications systems.

■ Washington County Emergency Management is responsible for ensuring the EOC staff is familiar with set-up and operation of EOC communications.

6.6 Support

■ If communications requirements exceed the capability of local resources, the EOC may request additional support from mutual aid partners, commercial communications companies, or the state or federal agencies through the state ECC.

7 Annex Development and Maintenance

■ Washington County Emergency Management is responsible for maintaining this annex.

■ Each tasked department or agency will develop procedures to implement this annex.

■ This annex will be updated according to the schedule outlined in the Basic Plan.

8 References

■ Oregon Revised Statutes (ORS) Chapter 401, Emergency Management and Services, and ORS Chapter 403, 9-1-1 Emergency Communications Systems; 2-1-1; Public Safety Communications Systems

■ Washington County Code, Chapter 8.36

■ Major Emergency Guidelines (WCCCA SOG 29)

■ 9-1-1 Service Interruption (WCCCA Agency Directive 3.4.10)

■ Notification of the Emergency Management Cooperative (WCCCA Agency Directive 3.4.18 WCCCA Emergency Operations Callout)

■ Evacuation of Dispatch Center (WCCCA Agency Directive 3.4.5)

■ Washington County Amateur Radio Communications Plan

■ National Interoperability Field Operations Guide (NIFOG), U. S. Department of Homeland Security, January 2011

■ National Response Framework, ESF 2 (Communications)

■ Portland UASI Tactical Interoperability Communications Plan (TICP)

■ Incident Management Enhancement Task Force (IMET) Report, June 20, 2008

9   Tabs

■ Tab 1 – Definitions of Commonly Used Terms

■ Tab 2 – Communications Systems Used by Public Agencies – OR – Department ICS 205 Plans

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Tab 1 – Definitions of Commonly Used Terms

Analog – For the purpose of this plan, analog refers to radio communications or systems that use a continuous function of non-quantized variances in frequency and amplitude to propagate information via radio waves. The 800 MHz trunked radio system is an analog system.

ARES – *Amateur Radio Emergency Service* – A volunteer amateur radio organization under the auspices of the American Radio Relay League, which provides emergency communications support using amateur radio equipment and frequencies during emergency or disaster situations. In Washington County, ARES volunteers are concurrently identified as RACES volunteers. (See RACES)

Bandwidth – The amount of information, whether analog or digital, that can be carried by a communications system during a specific time period, i.e., the size of the "pipe" that carries voice or data communications. As it relates to radio systems, bandwidth is limited by the number of frequency pairs (think traffic lanes) allocated to a system. This limits the number of users who can simultaneously use the system.

C800 – The 800 MHz portion of the Clackamas County Department of Communications public safety radio system.

C-COM – Clackamas County 9-1-1, also known as C-COM (pronounced see-COM), provides 9-1-1 emergency and non-emergency call taking service to the public. C-COM also provides radio dispatch services to six law enforcement agencies and nine fire districts and departments.

Cellular – Wireless telephone services provided by various commercial vendors.

CO – Central Office – A structure used by telecommunications companies to house equipment needed to direct and process telephone calls and data traffic.

COML – *Communications Unit Leader* – A certified COML is a NIMS ICS position in the Support Branch of the Logistics Section. Qualifications for the COML position include attendance of a Type III or higher COML course and completion of a COML task book based on standards set by the Office of Emergency Communications – Department of Homeland Security or the National Wildfire Coordinating Group (NWCG).

COMC – *Communications Coordinator* – The COMC is an official in control of radio spectrum within a defined geographical area. The COMC works with COMLs to coordinate use of licensed or granted radio spectrum among multiple user organizations.

COMT – *Communications Unit Technician* – A certified COMT is a NIMS ICS position in the Support Branch of the Logistics Section. Qualifications for the COMT position include attendance of a Type III or higher COMT course and completion of a COMT task book based on standards set by the Office of Emergency Communications – Department of Homeland Security or the National Wildfire Coordinating Group (NWCG).

Community Notification System (CNS) – An Internet based system that allows for mass alerts via landline and cellular phones, pagers, email and text messaging. The system can also be used to send messages to predetermined groups of responders.

Communications Bridge – A set of radios that are interconnected through a "gateway" providing interoperability between otherwise exclusive systems.

Cell on Wheels (COW) – A portable mobile cellular site that provides temporary network and wireless coverage to locations where cellular coverage is minimal or compromised.

CRESA – *Clark Regional Emergency Services Agency* – The emergency management agency and PSAP for Clark County, Washington.

Department Operations Center (DOC) – The location from which a Washington County department directs incident operations and manages department resources.

Digital – A digital system is a data technology that uses discrete (discontinuous) values, i.e., ones and zeroes. By contrast, non-digital (or analog) systems represent information using a continuous function.

EAS – The Emergency Alert System is a national public warning system that requires broadcasters, cable television systems, wireless cable systems, satellite digital audio radio service (SDARS) providers, and direct broadcast satellite providers to provide the communications capacity to the President to address the American public during a national emergency. The system may also be used by state and local authorities to deliver important emergency information, such as AMBER alerts and weather information targeted to specific areas. In Washington County, access to the EAS is maintained by WCCCA.

ECC – *Emergency Coordination Center* – Essentially the functional equivalent of an EOC. The use of *coordination* rather than *operations* is intended to indicate the center's primary focus on coordination of resources versus the direct command of on-scene operations.

EOC – *Emergency Operations Center* – During major emergency or disaster operations, the County EOC establishes strategic goals for County and countywide activities, manages resources and information, and coordinates with local, state and other agencies. The County EOC is generally responsible for coordinating public information, resource allocation decisions, and policy decisions on a countywide basis in support of DOCs, FOCs, city EOCs, other EOCs, and a regional EOC if activated.

EOP – Emergency Operations Plan.

Expanded Dispatch – A structure and procedure for optimizing resource management during large incidents and major emergencies, when demand exceeds system capacity and incident prioritization may be necessary. Washington County expanded dispatch is located at WCCCA and is supported by Hillsboro and TVF&R incident management teams and also by law enforcement for events and certain other law enforcement activities.

Failsoft – A condition wherein the 800 MHz trunked system zone controller has suffered a failure. "FAILSOFT" will appear in the radio display and the radio will default to a predefined "zone." Users will have limited channel availability.

FirstNet - The First Responder Network Authority (FirstNet) is an independent authority within the U.S. Department of Commerce. Chartered in 2012, its mission is to ensure the building,

deployment, and operation of the nationwide, broadband network that equips first responders to save lives and protect U.S. communities.

First Responder – Anyone tasked with responding to emergency situations in the field including firefighters, law enforcement officers, EMS personnel, and public works crews.

FOC – *Fire Operations Center* – Location from which TVF&R incident management directs, coordinates, and supports major emergencies. The primary location for the FOC is at the TVF&R Command and Business Operations Center in Tigard.

Frequency – An established slice of radio spectrum used for simplex communications, e.g., 155.805 MHz.

Gateway – Also known as a 'communications bridge.' A set of radios that are interconnected through a "gateway" providing interoperability between otherwise exclusive systems.

GETS – *Government Emergency Telecommunications Service* – GETS, in cooperation with landline telephone service providers, provides enrolled users with priority access to an overloaded landline system, i.e., "head of the line" privileges. GETS, and its wireless counterpart WPS, should only be used in an emergency or crisis situation when the PSTN is overloaded (congested) and the ability to complete a call by normal means is significantly decreased.

GHz – *Gigahertz* – Equal to one billion hertz.

Hz – *Hertz* – A unit of frequency defined as the number of cycles per second of a periodic phenomenon. In radio, hertz is used to describe a radio frequency sine wave.

IP – Internet Protocol.

Interoperability – 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.

- The federal government has established a set of federal interoperability channels across the radio spectrum that can be programmed into local radios. The National Interoperability Field Operations Guide (NIFOG) has information on channel programming as well as rules governing the use of these channels.

- Locally, the Portland UASI Tactical Interoperability Communications Plan (TICP) contains agreed upon standard operating procedures for the joint use of local, state and federal radio spectrum during an emergency or disaster.

Incident Prioritization – A revised system of incident prioritization used by WCCCA when resources are limited and the major Emergency Operations Mode is implemented.

Priority 1 Incident   Requires immediate action. Known life safety risk and/or confirmed multiple victims/patients.

      Priority 2 Incident   Unknown life safety risk or known minor injuries.

      Priority 3 Incident   Property damage, alarms (except medical) or public assistance calls. These incidents only receive resources when all Priority 1 & 2 incidents have been handled.

Landline – *See PSTN*.

MHz – *Megahertz* – Equal to one million hertz.

NPSPAC – *National Public Safety Planning Advisory Council*. NPSPAC frequencies, or channels, refer to public safety radio spectrum from 886-869 MHz. This spectrum is governed by 55 regional NPSPAC planning committees that coordinate its use. In this document, NPSPAC generally refers to 800 MHz interoperability channels pre-programmed into responder radios.

Operation SECURE – *State Emergency Communications Using Radio Effectively* is a high-frequency (HF) radio network that provides a secondary emergency backup communications capability for intra- and inter-state use.

PSAP – *Public Safety Answering Point* – A physical location where 9-1-1 emergency telephone calls are received then routed to the proper emergency service provider.

PSTN – *Public Switched Telephone Network* – All of the equipment in a local central office (CO) connected to the National Telephone Network (NTN). The PSTN can be accessed in different ways: POTS lines, Direct Inward Dialing (DID), and VOIP. In times of disaster, the POTS lines are the most reliable.

POTS – *Plain Old Telephone Service* – A POTS line consists of a telephone on a desk and a single pair of copper wires between the phone and the CO.

RACES – *Radio Amateur Civil Emergency Service* – A standby radio service created by the Federal Emergency Management Agency (FEMA) and the Federal Communications Commission in accordance with FCC Regulations (Title 47, Part 97.407). RACES volunteers serve their respective jurisdictions pursuant to guidelines and mandates established by local emergency management officials. (See ARES)

Radio Channel – A name given to a frequency or frequency pair that describes the intended use. An example would be the non-federal VHF channel known as VTAC 34 which is a coordinated pair of radio frequencies that are used in a radio repeater for interoperability.

Satellite Communication – The use of orbiting satellites that act as radio repeaters to transmit messages, both voice and data, over long distances.

Served Agencies – Designated agencies within the County served by ARES volunteers.

Simplex – Radio communication between two mobile or portable radios using a single radio frequency, without the benefit of a repeater or trunked system. Simplex communication is generally restricted to line of site, although in ideal circumstances that can still be several miles.

Simulcast – Simulcast refers to the process of transmitting the same signal from multiple sites on the same frequency at the same time. In public safety radio systems, this permits users to have broader radio coverage than would be possible with a single site.

Tactical Negotiations Team – The *Washington County Tactical Negotiations Team (TNT)* is a highly skilled and specially-equipped tactical unit that responds to extremely hazardous situations where conventional police tactics and equipment may be inadequate.

Talk Group – A term describing a "*channel*" in a trunked radio system.

Tactical Interoperability Communications Plan (TICP) – The TICP is intended to document what interoperable communications resources are available within the urban area, how to access each resource, and what rules or operational procedures exist for activation and deactivation of each resource.

TRS – *Trunked Radio System* – The concept of a trunked system is similar to a cellular phone system. It uses a system of geographically dispersed repeaters and a finite number of frequencies to support a large number of individual radio users. Because everyone is not using the radio at the same time, a trunked system can support literally hundreds of "talk groups" using a much smaller number of actual channels. In Washington County, the WCCCA system uses a total of 16 channels, 15 are dedicated to voice communication, while the 16th is used for data/system control.

Trunking Controller – The part of a trunked radio system that coordinates radio communication between several radio channels in the system.

UASI – The *Urban Areas Security Initiative* – The Portland area UASI is a coordinated grant program involving Clark County in Washington and Multnomah, Clackamas, Columbia and Washington counties in Oregon.

UHF – *Ultra High Frequency* – The segment of the radio frequency spectrum between 300 MHz and 3 GHz.

VPN – *Virtual Private Network* – A VPN allows members of a computer network to securely access the network through a Wi-Fi link to the Internet. Generally, a VPN requires a user name and password to verify access.

VHF – *Very High Frequency* – The segment of the radio frequency spectrum between 30 – 300 MHz.

WCCCA – *Washington County Consolidated Communications Agency* – Washington County's Public Safety Answering Point (PSAP).

Windshield Survey – A reconnaissance conducted to assess the scope of the problem and identify response priorities in a first response area.

Wi-Fi – A type of Wireless Local Area Network (WLAN) that allows electronic devices to exchange data or access the Internet through radio waves. Wi-Fi is accessed through Wi-Fi access points or "hotspots" that are, in turn, connected to the Internet, generally via a wired connection.

Wireless – A communications system that utilizes radio frequency propagation to send data from one point to another. Commonly known as radio, wireless also includes broadcast radio, television, cellular telephone, and paging among others.

WPS – *Wireless Priority Service* – Similar to the Government Emergency Telecommunications Service (GETS), WPS, in cooperation with the enrolled subscriber's wireless telephone provider, allows users priority access into the wireless telephone system. As with GETS, the WPS should only be used in an emergency or crisis situation when the wireless telephone system is overloaded (congested) and the ability to complete a call by normal means is significantly decreased.

WebEOC – An Internet (web) based software application that provides a "Virtual EOC" environment that can be viewed by authorized users wherever an Internet connection exists.

Tab 2 – Communications Systems Used by Public Agencies

Name	Users	Freq. Band	Purpose	Equipment Maintenance
Public Safety 800 MHz	Fire, Law Enforcement, franchise ambulance service LUT, WC Parks, school security, hospitals	Motorola Smartzone Trunked 800 MHz	Public safety , public works, schools communications	WCCCA
Amateur Radio	EOCs @ county, cities, hospitals, special service districts, utilities	HF, VHF, UHF, Medium Wave (MW)	Backup emergency and auxiliary communications	ARES/RACES
Broadband Users Group (Internet)	Public agencies	Fiber, cable	Interagency secure Internet access and interagency connectivity services, primarily based on Metro E network	City of Hillsboro
Computer Aided Dispatch (CAD)	WCCCA, Public Safety Users	Cellular networks	Public safety dispatch	WCCCA
Community Notification System (CNS)	WCCCA, public safety users	Computer, telephone	Alert & warning for public, public safety agencies	WCCCA
Emergency Management VHF	EM, Support Services	VHF	Backup communications	EM
Fire Net	Statewide fire agencies	VHF	Fire service mutual aid net	WCCCA
Fire VHF	Washington County fire agencies	VHF	Backup communications	WCCCA
LUT Dispatch	Washington County LUT	Trunked 800 MHz and VHF	Dispatch, communications w/field units. VHF used as auxiliary only.	WCCCA
Metro E/formerly known as Public Cable Network (PCN)	Public Agencies	Fiber	Inter-site, Interagency connectivity – most BUG services run on Metro E network	Comcast
Metro West Dispatch	Metro West Ambulance Service	VHF	Ambulance dispatch	Metro West
Mountain Wave Communications	Sheriff's Office SAR	VHF, UHF, cellular, field IT support	SAR Operations	Mountain Wave
Public Works VHF	Hillsboro, Cornelius, North Plains	VHF	Public works dispatch, field units	City of Hillsboro
800 MHz	CWS	Private 800 MHz	Treatment facility operations	CWS
VHF DMR	TVWD, CWS	VHF	Field operations	TVWD

Name	Users	Freq. Band	Purpose	Equipment Maintenance
UHF DMR	Forest Grove PW and Light and Power	UHF	Field operations	Forest Grove
SAR VHF	Sheriff's Office	VHF	SAR operations	WCSO
Satellite Phones	Sheriff's Office, Emergency Management, and Land Use and Transportation	N/A	Backup communications	Agencies in possession of phones
UHF 460 MHZ	Sheriff's Office	UHF	Search & rescue operations and backup to 800 MHz	WCSO, WCCCA

Tab 3 – A Brief Description of the Joint WCCCA/C800 Public Safety Communication System

1. **800 MHz Trunked Radio System – Washington County Consolidated Communications Agency (WCCCA)**

   - WCCCA Central System 16 channel, seven site simulcast trunking (has overlapping coverage into Clackamas, Clark, Marion and Yamhill Counties)

   - West System 6 channel, four site simulcast trunking (has overlapping coverage into Clark, Tillamook, Clatsop, and Columbia counties)

   - Southwest Trunked Repeater Site 5 channels one site trunking (has overlapping coverage into Yamhill, Marion and Clackamas Counties)

   - Central West Repeater Site (Planned) – five channel one site trunking (will have overlapping coverage into Tillamook and Yamhill counties)

2. **800 MHz Trunked Radio System – Clackamas County Department of Communications (C800)**

   - C800 Central System 10 channel six site simulcast trunking (has overlapping coverage into east Washington County from Beaverton south to the county line, North Marion and Multnomah counties)

   - C800 East System 7 channel three site simulcast trunking (has overlapping coverage into Multnomah and Hood counties)

   - C800 SW Repeater Site 4 channel one site trunking (has overlapping coverage into SE Washington County)

   - C800 East Repeater Site 4 channel one site trunking (has little to no overlapping coverage Washington County)

   - C800 SE P25 Repeater Site. Each has 6 channels and is a single P25 trunking site (and supports SW Clackamas County) (This site has overlapping coverage into SE Washington County)

3. **Non-trunked 800 MHz, VHF, UHF Resources (WCCCA)**

   - Six 800 MHz conventional interoperable repeaters operating on federal and state interoperability frequencies from three separate radio sites around the county

   - Two VHF repeating base stations at two radio sites operating on non-federal VHF interoperability frequencies (VCALL and VTAC1)

- Two UHF repeater station at two radio sites operating on the UCALL and UTAC1 national interoperability channels

- One VHF base station on Fire F1 channel located on Cooper Mountain

- One VHF base station on the State Fire Net frequency at Bald Peak

- Radio cache consisting of 100 portable radios and chargers that are on the WCCCA, C800, Portland, and CRESA systems as well as being programmed with national and state interoperability channels and simplex channels

- Four portable control stations configured as re-locatable dispatch positions. These control stations are on the WCCCA, C800, Portland, and Clark Regional Emergency Services Agency (CRESA) systems as well as being programmed with national and state interoperability channels and simplex channels.

4. WCCCA Mobile Communications Trailer and F-550 Tow Vehicle

- 100 800 MHz portable radios

  o NOTE: 48 of the cache radios are stored in bank chargers and ready for immediate transport/deployment with the trailer

- Four conventional 800 MHz repeater systems on national interoperability frequencies

- Four conventional UHF (450 MHz) repeater systems on national interoperability frequencies

- Four conventional VHF (150 MHz) repeater systems on national interoperability frequencies

- Two 700/800 MHz trunked radios used to link WCCCA, C800, Portland, and CRESA talk groups to one or more of the interoperability repeaters (VHF, UHF, and 800 MHz)

- IP (Internet Protocol) based patch subsystem that interconnects the 800 MHz, 450 MHz, and 150 MHz repeater systems and the two 800 MHz trunked radio links

- 18 KW trailer mounted generator with 100+ gallons of diesel fuel

  o NOTE: Tow vehicle has an auxiliary refueling capacity of 75 gallons in addition to normal vehicle fuel capacity to be used to refuel the trailer generator in the field. The trailer uses a two inch tow ball.

- 400 amp hours of battery backup to support operations of the radio equipment for up to two days

5. High Capacity Mobile Generator

- One 20 KW generator with onboard fuel tank and electrical panel/service for 120 VAC and 240 VAC power

Tab 4 – Satellite Phone List
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Assigned To:	Satellite Phone #	Address Location of Phone Include physical location i.e., desk drawer, closet, wall mounted	Contact Name	County Land Line	Cell #
Emergency Mgmt (Iridium)	1-503-836-9434	EM Storage Room 1400 SW Walnut Street, Hillsboro, OR	John Wheeler	503 846-7582	971 412-0156
Jail Admin (Globalstar)	1-254-241-7756	215 SW Adams, Hillsboro, OR	Lori Larson	503 846-2694	
Investigations/WCSO DOC (Globalstar)	1-254-241-7757	215 SW Adams, Hillsboro, OR	Lori Larson	503 846-2694	
HQ Patrol #1 (Globalstar)	1-254-241-7758	215 SW Adams, Hillsboro, OR	Lori Larson	503 846-2694	
HQ Patrol #2 (Globalstar)	1-254-241-7759	215 SW Adams, Hillsboro, OR	Lori Larson	503 846-2694	
East Patrol-Beaverton (Globalstar)	1-254-241-7760	3700 SW Murray Blvd, Beaverton, OR	Lori Larson	503 846-2694	
North Patrol-Bethany (Globalstar)	1-254-241-7770	4876 NW Bethany Blvd, Portland, OR	Lori Larson	503 846-2694	
Mobile Command Vehicle (Globalstar)	1-254-241-7774	215 SW Adams, Hillsboro, OR	Lori Larson	503 846-2694	
EOC Hard Line (Iridium)	3146-3422	215 SW Adams, Hillsboro, OR, 2nd floor, key at master control	Corey Stone	503 846-2622	503 793-4950
LUT - DOC (Globalstar)	1-254-241-9022	1400 SW Walnut St, Hillsboro, OR	Ken Schlegel	503 846-7584	971 770-4665
LUT (Globalstar)	1-863-203-1068	LUT Warehouse 1400 SW Walnut St, Hillsboro, OR	Larry Knaub	503 846-7664	503 969-2457
LUT (Globalstar)	1-863-203-1091	LUT Warehouse 1400 SW Walnut St, Hillsboro, OR	Larry Knaub	503 846-7664	503 969-2457
LUT (Globalstar)	1-863-203-1092	LUT Warehouse 1400 SW Walnut St, Hillsboro, OR	Larry Knaub	503 846-7664	503 969-2457
LUT (Globalstar)	1-863-203-1095	LUT Warehouse 1400 SW Walnut St, Hillsboro, OR	Larry Knaub	503 846-7664	503 969-2457

LUT (Globalstar)	1-863-203-1120	LUT Warehouse 1400 SW Walnut St, Hillsboro, OR	Larry Knaub	503 846-7664	503 969-2457
Emergency Mgmt (Iridium)	1-503-836-9426	EM Storage Room 1400 SW Walnut Street, Hillsboro, OR	John Wheeler	503 846-7582	971 412-0156
Emergency Mgmt (Iridium)	1-503-836-9428	EM Storage Room 1400 SW Walnut Street, Hillsboro, OR	John Wheeler	503 846-7582	971 412-0156
Emergency Mgmt (Iridium)	1-503-836-9429	EM Storage Room 1400 SW Walnut Street, Hillsboro, OR	John Wheeler	503 846-7582	971 412-0156
Emergency Mgmt (Iridium)	1-503-836-9432	EM Storage Room 1400 SW Walnut Street, Hillsboro, OR	John Wheeler	503 846-7582	971 412-0156
Emergency Mgmt (Iridium)	1-503-836-9435	EM Storage Room 1400 SW Walnut Street, Hillsboro, OR	John Wheeler	503 846-7582	971 412-0156
Emergency Mgmt (Iridium)	1-503-836-9431	EM Storage Room 1400 SW Walnut Street, Hillsboro, OR	John Wheeler	503 846-7582	971 412-0156

Tab 5 – HHS VHF Radio Locations

1. Washington County Public Services Building in the office of the HHS Director

2. Hillsboro Elam Young Parkway building, in the office of the Human Services Division Manager

3. Beaverton WIC Clinic, in the steel secured green emergency container, located on the south side of the building

4. Tigard WIC Clinic, in the storage cabinet in the supervisor's office (RM 201)

5. Hillsboro 1890 Building with the Public Health Emergency Preparedness Program Supervisor

Tab 6 – ARES Served Agencies

Washington County ARES has agreements to provide backup communications with numerous agencies in the county. They are called Served Agencies, and include:

WCCCA
Washington County Emergency Operations Center (EOC) at the Law Enforcement Center
Washington County Sheriff's Office East Precinct
Washington County Department of Land Use & Transportation (DLUT) Department Operations Center (DOC)
Tuality Forest Grove Hospital
Tuality Community Hospital (Hillsboro)
Providence St. Vincent Medical Center
TVF&R Command and Business Operations Center / Fire Operations Center
Joint Water Commission Water Treatment Plant
City of Banks
City of Beaverton
City of Forest Grove
City of Hillsboro
City of Hillsboro Police Department
City of Hillsboro Water Department
City of Sherwood
City of Tigard
City of Tualatin
City of Vernonia (not in Washington County)
City of Wilsonville