WCARES Emergency Communications Operations Plan

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I. Introduction and Background

The Williamson County Amateur Radio Emergency Service (WCARES) is a public service organization based in Williamson County, Tennessee. It trains licensed amateur radio operators to provide reliable emergency communications for public and private agencies during disasters or other times of need in Williamson and surrounding counties.

WCARES also promotes amateur radio by educating the public, offering classroom training for prospective licensees, assisting other amateurs, and fostering community among operators to help them make full use of their privileges.

II. The WCARES Organization

WCARES is affiliated with the Amateur Radio Emergency Service (ARES), a nationwide program coordinated by the American Radio Relay League (ARRL). WCARES is led by an Emergency Coordinator (EC), appointed by the Tennessee Section Emergency Coordinator (SEC), and supported by Assistant Emergency Coordinators (AECs) appointed by the EC. Together, the EC and AECs form the Planning Committee, which directs WCARES activities.

In addition to supporting emergency communications, WCARES conducts training exercises, drills, and public service at events throughout the year to maintain operational readiness.

III. Purpose of the Emergency Communications Operations Plan

This Emergency Communications Operations Plan provides the framework for WCARES to support emergency communications in Williamson County. Although each emergency presents unique needs, the plan ensures flexible, coordinated use of WCARES resources in any situation.

A. Primary Served Agency

WCARES has designated the Williamson County Emergency Management Agency (EMA) as its primary served agency. Any emergency requiring WCARES support is assumed to involve the EMA, which coordinates interagency communications with public agencies such as the Tennessee Emergency Management Agency (TEMA), county law enforcement, and the Williamson County Emergency Medical Service (EMS).

If WCARES is asked to assist multiple agencies, all requests must go through the Williamson County EMA. Centralizing requests prevents confusion and ensures efficient, prioritized service.

B. National Incident Management System (NIMS) and Incident Command System (ICS)

WCARES members must understand the principles of NIMS and ICS to participate effectively in emergency response. Following 9/11, the lack of a unified system led to the creation of NIMS—a national framework for managing incidents across all levels of government, the private sector, and NGOs. NIMS enables coordinated preparation, response, recovery, and mitigation, regardless of an incident's cause or complexity.

ICS is the operational component of NIMS, providing a standardized structure that integrates personnel, equipment, procedures, and communications into a unified command system.

Because WCARES supports the Williamson County EMA, it is essential to operate under NIMS and ICS principles. WCARES already incorporates ICS procedures, terms, titles, and forms in training and operations.

To support the EMA effectively, WCARES members are expected to complete the following FEMA courses:

1. ICS-100: Introduction to the Incident Command System
2. ICS-200: ICS for Single Resources and Initial Action Incidents
3. ICS-700: Introduction to the National Incident Management System
4. ICS-800: Introduction to the National Response Framework

Courses are available online at https://training.fema.gov/nims// .

Although highly recommended, completion of these courses is **not** required for WCARES membership or participation. Everyone is welcome! However, response to Williamson County EMA activations is by invitation and limited to WCARES members.

C. Other Served Organizations

WCARES may also support communications for other government and non-government organizations during non-emergency events. These requests should be directed to the Emergency Coordinator and, when possible, submitted well in advance to allow for adequate planning.

IV. Activation of the Plan

Activation of this plan and deployment of WCARES resources will be decided jointly by the WCARES EC or a designated representative, and the Director of the Williamson County EMA. The scope of the emergency will determine the number of members required and their deployment locations.

When activation occurs, members will be contacted by the EC or assigned Team Leaders. Announcements will also be made on the repeater system to inform members that an emergency exists and assistance is needed. During emergencies, repeaters will operate under directed net procedures with a designated Net Control Station (NCS).

A. Deployment of Resources

In addition to the county-owned WC4EOC linked VHF/UHF FM repeaters and Winlink nodes, WCARES may use the following resources provided by Williamson County:

1. **AuxComm Station** – Located in the **Williamson County Public Safety Center**, this room includes HF/VHF/UHF, DMR, and Winlink radios, along with APRS monitoring equipment. Documentation includes annotated diagrams and manuals.
2. **Portable Emergency Radio Kits (PERKs)** – Four kits, each equipped with HF,VHF/UHF, DMR radios, antennas, Winlink, laptop, and related equipment.
3. **Mobile Emergency Operations Center trailer** – if assigned or approved by WC EMA Operations Manager.
4. **Mobile tower trailer** with FM repeater, diesel generator, and related equipment – if assigned or approved by WC EMA Operations Manager.

Resource availability will depend on the nature of the emergency. The Emergency Coordinator will determine which resources are available for deployment and ensure WCARES members are trained in their use.

WCARES members may also use their own portable or mobile radios, antennas, and equipment as needed. The NCS will coordinate their deployment once initial communications needs are assessed.

Do not self-deploy! Deploy only when dispatched by the appropriate authority. Ensure your home responsibilities are covered and you are properly equipped before reporting to the assigned staging area.

B. Limitation of Support

If deployed, your primary responsibility is support of our served agency, the Williamson County EMA. Although our primary role is communications, you may assist with other tasks—such as unloading equipment or setting up cots—if requested and only with approval from the on-scene supervisor and only if it does not interfere with your communication duties.

Avoid taking on roles that require specialized training or involve management decisions outside your scope.

V. Security Policies and Requirements

When deployed, WCARES members will follow applicable security protocols. Appropriate instruction, credentials and permissions will be given as necessary

A. Operational Control

Upon notification, an emergency net will be activated on the WC4EOC repeater system. The EC will designate a NCS team to manage emergency communications until the net is closed.

B. Primary Communication Modes and Frequencies

The primary resource for tactical communications is the county-owned WC4EOC linked FM analog repeater system which includes emergency backup power. If the system becomes partially inoperable, follow the "Repeater Outage Procedures" described below. Refer to the WCARES website (https://wcares.org/frequencies-and-net/) for current repeater status and frequencies.

C. Repeaters

Williamson County maintains the following five linked WC4EOC FM analog repeaters:

Name	Note	Frequency	PL Tone	Mode	Service	Owner
Franklin - UHF	Linked	444.025+	110.9	FM	Amateur	County
Franklin - VHF (FOW)	Linked	145.150-	123.0	FM	Amateur	County
Fairview - VHF	Linked	145.130-	156.7	FM	Amateur	County
Brentwood – VHF	Linked	145.210-	173.8	FM	Amateur	County
Kirkland – UHF	Linked	443.875+	107.2	FM	Amateur	County

When a station transmits on one of the linked WC4EOC repeaters, the signal is transmitted through all of them. The Franklin UHF repeater (444.025 MHz, PL 110.9) serves as the system

hub. When it receives a signal from one of the other four repeaters, it re-transmits the signal on its own output frequency and relays it to the rest of the system, which then retransmits it on their respective output frequencies. This setup provides reliable county-wide—and beyond—VHF/UHF coverage.

The following unlinked repeaters also serve licensed amateur radio operators in the County.

Name	Note	Frequency	PL Tone	Mode	Service	Owner
Bobcat Ridge		146.790-	114.8	FM/Fusion	Amateur	Private
Dyer Observatory		442.475+	88.5	FM	Amateur	Private
WCCC Century Court	*Talkgroup	440.5875+		DMR	Amateur	County
WCNO Nolensville	*Talkgroup	440.6875+		DMR	Amateur	County
WCMM Music Mtn in Sumner County	*Talkgroup	443.600+		DMR	Amateur	County

* Recommended DMR Talkgroups include TEMA 31478 and WCARES 31476 primary and 810094 secondary.

The county has also deployed GMRS repeaters for use by county citizens who have GMRS radio licenses. Use of these repeaters **requires a GMRS license**. An amateur radio license does not qualify. At the time of this EOP update, WCARES does not provide coordination of any nets that GMRS operators may create using these repeaters.

Name	Note	Frequency	PL Tone	Mode	Service	Owner
GMRS Century Court		462.550+	123.0	FM	GMRS	County
GMRS Brentwood		462.600+	123.0	FM	GMRS	County
GMRS Heritage		462.625+	123.0	FM	GMRS	County
GMRS Grassland		462.650+	123.0	FM	GMRS	County
GMRS Nolensville	**Planned	462.625+	123.0	FM	GMRS	County
GMRS Fairview	**Planned	462.700+	123.0	FM	GMRS	County
GMRS Landfill	**Planned	462.575+	123.0	FM	GMRS	County
GMRS College Grove	**Planned	462.575+	123.0	FM	GMRS	County

D. Linked Repeater Outage Procedures

Any of the five WC4EOC analog linked repeaters may fail due to equipment malfunction or damage. A repeater may lose receive, transmit, or system linkage capabilities. If this occurs, follow the contingency procedures below to maintain communications using any remaining operable resources.

1. If One or More Linked Repeaters Fail

If the closest repeater does not respond when attempting to transmit, try the next nearest site. If it works, the first repeater is likely down, but the rest of the system may still be operational.

If the **Franklin UHF hub repeater (444.025 MHz)** is down, the link between all system repeaters will be disrupted. In this case, use whichever repeater provides the best coverage for communicating with others.

2. If All Linked Repeaters Are Inoperable

If the entire WC4EOC linked system fails, use one of the following alternatives:

- **Bobcat Ridge repeater: 146.790 MHz (PL 114.8)**
  Located in Cool Springs, this privately owned repeater offers good coverage across Williamson County.
- **WCARES simplex frequencies**:
  - VHF: 146.505 MHz FM
  - UHF: 446.000 MHz FM

Note:
Simplex communications are limited by terrain and obstructions. Multiple stations to relay signals between locations may be needed.

E. Prepare in Advance

Pre-program the following into all handheld, base, and mobile radios:

- All five WC4EOC repeater frequencies and PL tones
- Bobcat Ridge repeater frequency and PL tone
- The VHF and UHF simplex frequencies above

Don’t wait until an emergency to program your radio

VI. Secondary Communications Modes and Frequencies

In addition to the WC4EOC linked FM repeater system, WCARES may use other modes and frequencies for emergency communications, including:

- **HF voice (SSB) and Morse code (CW)**
- **HF/VHF/UHF Winlink (email via radio)**

Designated WCARES HF Frequencies

- **3.815 MHz (LSB)** – 80 meters
- **7.190 MHz (LSB)** – 40 meters

Tennessee Statewide ARES Emergency Frequencies

- **3.980 MHz (LSB)** – 80 meters
- **7.238 MHz (LSB)** – 40 meters

These HF frequencies supplement local tactical communications and are useful for messages directed outside the Williamson County area.

Winlink is ideal for detailed or sensitive information—such as medical or personnel lists—where message accuracy is critical. However, for many situations, voice communications remain faster and more practical.

If voice traffic exceeds capacity, and conditions allow, stations may be asked to use point-to-point FM simplex frequencies. In some cases, WC4EOC repeaters may be delinked and used independently to manage traffic flow.

VII. Severe Weather Procedures

Severe weather in Middle Tennessee may include thunderstorms, tornadoes, snow, sleet, and ice. Local broadcast radio and TV stations provide timely public warnings. All WCARES members should also monitor the repeater system whenever a severe weather watch or warning is issued for Williamson County.

The WCARES Emergency Coordinator and Planning Committee members routinely participate in National Weather Service briefings from the NWS Nashville Old Hickory office. WCARES follows established procedures for responding to severe weather events that may affect Williamson County and the broader Middle Tennessee region.

Weather Net Activation Levels

- **Normal:** Routine daily status.
- **Stand-By:** Elevated awareness. The repeater system can be used, but keep transmissions short and leave pauses between transmissions for Net Control to break in.
- **Active:** A weather net is now in operation. Formal directed net procedures apply. Do not transmit without Net Control's permission.

When in **Stand-By** or **Active** status, Net Control will issue updates on the weather threat and expected impact timing. A liaison with the NWS will be established, and a response plan activated.

Reporting Guidelines

During an **Active** net, Net Control will not take check-ins but will accept the following SKYWARN defined **critical weather reports** for relay to the NWS:

- Tornadoes, funnel clouds, or wall clouds
- Flooding
- Hail ≥ ½ inch (use standard sized objects—e.g., penny, nickel. Avoid using "marble.")
- Measured wind speeds > 50 mph
- Structural damage, downed trees, or power lines

Avoid reporting routine weather observations or general conditions that do not meet these criteria unless it is specifically requested. This helps keep the repeater clear for essential traffic.

VIII. Message / Traffic Handling

Communications involving deployed WCARES resources fall into two categories: informal and formal. Each has specific requirements.

Informal (Tactical) Messages

Used for brief, time-sensitive exchanges. These may follow various formats—or none at all—but **should clearly identify** both the **originator** and the **intended recipient**. Whenever possible, the message should be written and approved by the originator prior to transmission.

Formal Messages

Formal messages must be recorded on the **ICS-213 General Message Form** (see Attachment A). Legibility and retention are essential, as completed forms become part of the official

record. PDF-fillable ICS forms can be used and are available in this document or online at https://training.fema.gov/icsresource/icsforms.aspx.

At the end of an activation, completed forms should be submitted to the appropriate ICS contact.

Message Security

Messages transmitted by amateur radio are **not secure**, and FCC rules prohibit any form of encryption or code that obscures meaning. However, all amateur traffic should be treated as **confidential and privileged**, and shared only with those directly involved in transmitting, handling, or receiving the message.

Communications Log

Maintaining a log is a critical part of any exercise or emergency activation. WCARES uses the **ICS-309 Communications Log** (Attachment B). This log:

- Records a complete history of the event
- Is shared by all operators at the same location
- Should be started at the beginning of the event and maintained throughout
- Stays at the operating site, even as operators change

Each member should become familiar with the ICS-309. During training events, use it to record significant activity unless mobile. **Do not attempt to log while driving.** If operating mobile with a partner, the partner should maintain the log.

“If it’s not documented, it didn’t happen.” — overheard at a state training event

Activity Log

The **ICS-214 Activity Log** (Attachment C) records notable actions and decisions at any ICS level. It provides:

- A basic record of incident activities
- Reference material for after-action reviews

Team leaders should assign a member to maintain this log during the activation.

IX. WCARES Member Go Kits and Drop Kits

Go Kits and **Drop Kits** are collections of gear prepared in advance to support emergency communications and sustain a WCARES member during a deployment.

These kits include radio equipment, tools, supplies, and essential personal items such as food, water, medications, and weather-appropriate clothing.

A. Background

Because emergencies are unpredictable, WCARES members should always be ready to respond. Think through potential deployment scenarios—indoors vs. outdoors, mobile vs. fixed, short-term vs. extended—and assemble kits accordingly.

Create and maintain written checklists to guide both packing and regular review. Update expired or depleted items often.

There's no one-size-fits-all kit—your Go Kit should reflect your equipment, needs, and experience.

B. Containers and Inventory

1. **Choose manageable containers** that are easy to transport and organize.
    - Determine size and quantity *after* gathering all items.
    - Use resealable bags or plastic containers to protect and organize small items.
    - Attach a permanent "**Items Removed**" checklist to each container to track shared-use items.
2. **Track your gear.**
    - Keep a master count of your kit containers (e.g., "5 containers").
    - Store them in one location for fast, organized departure.
3. **Restock and reset your kit** immediately after each deployment.

C. Radios and Peripherals

Required:

- Handheld transceiver (HT)
- Spare HT battery pack
- Extra rechargeable HT battery(ies)

- Alkaline battery pack and spare batteries
- AC and DC chargers
- Speaker mic, earpiece, and headphones with adapters
- Printed copies of radio manuals

D. Optional Radio Accessories

1. Mobile VHF/UHF/HF radio and power supply
    - **All equipment should use Anderson Powerpoles** for compatibility.
2. VHF/UHF gain antennas
3. Coax cables, jumpers, adapters
4. Power, data, audio, and RF cables
5. Laptop with extra battery or charger
6. Deep-cycle battery or generator
7. Solar panels and controller

E. Tools and Materials

- Basic tools (screwdrivers, pliers, etc.)
- Spare parts specific to your gear
- Improvisation supplies:
    - Insulated wire
    - Coax
    - Assorted connectors (ring terminals, PL-259s, Powerpole parts and crimping tool, etc.) and adapters
- Electrical tape (Super 88), duct/gaffer tape
- Hardware (screws, bolts, nuts, washers)
- Zip ties (assorted sizes)
- Antenna support rope and 3/16" paracord

F. Personal Gear – 72 Hours

Pack enough to be self-sufficient for 72 hours:

- Medications
- Water, energy bars, non-perishable food
- Clothing (seasonal and weather-appropriate)
- Rain gear or cold-weather gear

G. Information Group

- Official ID cards
- Copy of amateur license
- Frequency lists, net schedules and applicable ICS 205
- Copies of equipment manuals
- Key phone numbers, emails, and URLs
- Contact info for WCARES members
- Copy of the WCARES Emergency Operations Plan
- Notetaking tools:
    - Pens, pencils, steno pad
    - ICS Forms:
        - ICS-309 (Comm Log – 10 copies)
        - ICS-213 (Message Form – 15 copies, with instructions)
        - ICS-214 (Activity Log – 5 copies)
        - [ICS-205 blank forms, for team leaders]
    - Paper clips, small stapler with extra staples

X. Dealing with Media Personnel

During emergency events, media representatives are often on-site to gather and report information. If you are approached by a reporter or asked to comment on the situation:

Do not provide any statements or information.
Instead, **direct all media inquiries to the designated Public Information Officer (PIO).**

As a WCARES communications operator, your role is primarily supporting emergency communications. All official statements and public messaging must come from authorized PIO personnel.

XI. Attachments

The forms listed below are commonly used by WCARES during activations and exercises. They are provided for reference only.

Preferred method: Use fillable PDF versions from FEMA's website for legibility and consistency:
https://training.fema.gov/icsresource/icsforms.aspx

Backup: Printed, paper copies should be kept in your Go Kit for use when digital access is unavailable.

Most forms are one page, though instruction pages may accompany them.

Commonly Used ICS Forms:

- **ICS-213** – General Message Form
- **ICS-309** – Communications Log
- **ICS-214** – Activity Log

GENERAL MESSAGE			
TO:		POSITION:	
FROM:		POSITION:	
SUBJECT:		DATE:	TIME/Msg Number:
MESSAGE:			
SIGNATURE:		POSITION:	
REPLY:			
DATE:	TIME:	SIGNATURE/POSITION:	

COMMUNICATIONS LOG	INCIDENT #	DATE PREPARED: TIME PREPARED:
FOR OPERATIONAL PERIOD #	**TASK NAME:**	
OPERATOR NAME AND CALL:	TACTICAL I.D.	

MESSAGE AND ACTION LOG

TIME	STATION I.D. FROM	STATION I.D. TO	SUBJECT OR TASK: ASSIGNED TO:
Page _ of _			ICS-309

Attachment C ICS-214 Activity Log

1. Incident Name:	2. Operational Period: Date From: Date To: Time From: Time To:	
3. Name:	4. ICS Position:	5. Home Agency (and Unit):

6. Resources Assigned:		
Name	ICS Position	Home Agency (and Unit)

7. Activity Log:	
Date/Time	Notable Activities
Page 1	8. Prepared by: Name: Date/Time: