Multnomah County Amateur Radio Emergency Service

Standard Operating Procedure 200.0
Operating Protocols

<u>Goal</u>

The Multnomah County Amateur Radio Emergency Service (MCARES) operating protocols and procedures are intended to guide the MCARES operation in disaster response, training exercises and communication assistance in public service events. The design is to allow a single resource for all MCARES members and other area hams in order to guide our collective response to the eventuality of emergency communications being facilitated by amateur radio operators.

It is implemented during activation, to ensure the readiness and robust command and control structure for the organization. It is designed as a sister document to Administrative Organization, which describes day-to-day management of MCARES.

NOTE: Events beyond our control may cause changes to our operating procedures. Please contact your team leader if you have any questions.

Contents

Operational Organization and Structure

The Operational Organization Structure is applicable to all Multnomah ARES Amateur Radio Operators (ARES AROs). ARES AROs are assigned into geographically based teams.

Due to the large population and geographic size of Multnomah County, the organization of the ARES AROs will be divided into working teams. These teams will be organized by operators serving a geographical area to foster coordination and readiness among the ARES AROs on a given team. This framework allows for a distributed responsibility for readiness and training at all times as well as providing the outline and initial response structure of ARES AROs in the event of an emergency.

This operational organization structure is independent from the administrative functions, structure and organization. During periods of activation (drills, events and emergencies) it serves as the starting basis of MCARES operations.
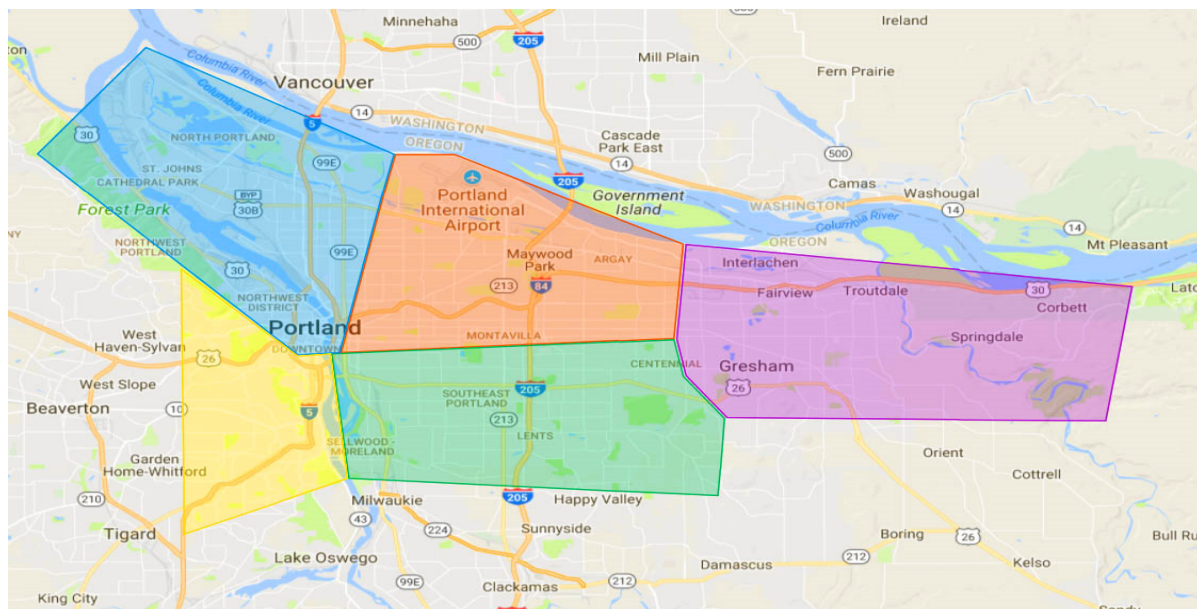
Alpha team-orange   Bravo team-green   Charlie team- yellow
Delta team- blue   Echo team- purple   Mike team- at large

The operational structure flows from the individual ARES ARO through the team leader to the Emergency Coordinator (EC).

Organization Chart
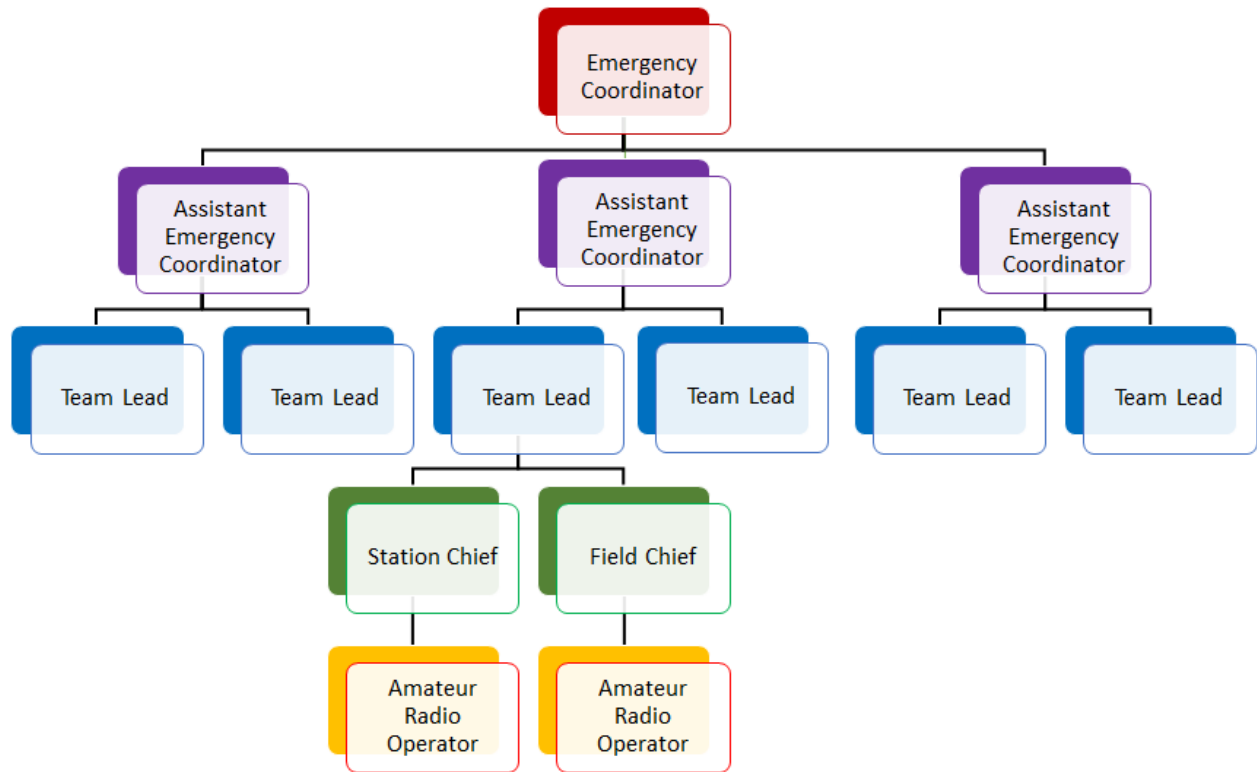
*Structure repeats identically for each Team Lead, but not represented graphically to save space and maintain readability

Operational Roles and Responsibilities

Amateur Radio Operator (ARO)
- Individuals licensed by the FCC to operate on Part 97 bands.
- All unaffiliated AROs are encouraged to join and train as MCARES operators.
- It is important for all AROs to be aware of the operations of the Multnomah County Amateur Radio Emergency Service, as we must all work together to facilitate emergency communications on the amateur radio bands.

MCARES/RACES Radio Operator (MCARES ARRO)
- Assigned to a team and reports to a Field or Station Chief or Team Leader.
- Responsible for their own training as operators, and personal equipment readiness.
- Accurately and efficiently sends, receives and routes voice and data traffic.
- Accurately keeps ICS 309 message log and individual ICS 214 station log.

Station Chief
- Reports to Team Leader.
- Responsible for the knowledge of the equipment and training of all team members on served agency station equipment.
- Serves as liaison with served agency emergency management personnel.
- Logs station activity on ICS 214 and assures completion and accuracy of ICS 309s.
- Also performs MCARES ARRO duties as needed.
- Not all teams may have or need a station chief

Field Chief
- Reports to Team Leader.
- Responsible for leading a small field unit made up of team members.
- Responsible for MCARES equipment used in the field.
- Logs station activity on ICS 214 and assures completion and accuracy of ICS 309s.
- Also performs MCARES ARRO duties as needed.
- Not all teams may have or need a field chief.

MCARES Team Leader (TL)
- Reports to their assigned AEC or the EC.
- Responsible for the organization and readiness of the MCARES ARROs assigned to their team.
- Responsible for knowledge of the equipment at their Served Agency and any ARES equipment used in the field.
- Also performs MCARES ARRO duties as needed.

Assistant Emergency Coordinator (AEC)
- Assumes role of EC if EC is unable to serve.
- Assists EC, and Team Leaders as needed.

Emergency Coordinator (EC)
- Reports to Multnomah County Emergency Manager.
- Performs roles and responsibilities as defined by Oregon Section Manager.
- Facilitates reassignment of volunteer personnel during emergencies as necessary.
- Coordinates with Administrative Staff to facilitate the needs of ARROs and Team Leaders.
- Oversees all MCARES operational activities.

Activation

The web of communications infrastructure and capabilities in Multnomah County is wide and deep. MCARES presents itself as a cadre of trained and proficient radio operators that are willing to assist the agencies we serve in the event of any incident that might require communications resources that are beyond those normally required. The potential uses for the MCARES radio operator are varied, and as such it is impractical to attempt to cover all potential activation procedures down to the minute detail. This procedure therefore serves as an outline and guide for activation and should be employed when practical. Operation of the Radio Amateur Civil Emergency Service (RACES) operating component of this volunteer cadre will be in line with Part 94.407 of the FCC code. Any applicable components of this procedure will be adhered to, as well as any additional limitations from those rules and regulations.

The foremost rule for MCARES ARROs is that we do not self-deploy. When an amateur radio operator becomes aware of an incident that may require additional communications resources for which they may be suited, they are to establish communications from their location with the MCARES unit via the Resource Net. Members should double check and make ready their communications equipment, deployment materials and 72 hour go-kits at this time.

The need for MCARES operators should be relayed through the Multnomah County Emergency Manager, the Multnomah County Duty Officer or the Coordination Center Manager at the Multnomah ECC. The individual directed, by one of these officials, to activate MCARES (the EC or designated AEC) will relay that information to the Resource Net and deploy operators as requested by the Incident Commander (IC).

The need for MCARES amateur radio operators will be communicated to the membership by:

- Self Awareness - If there is an obvious weather or disaster emergency that could affect communications infrastructure, then the MCARES ARRO is to check into or establish the Resource Net as appropriate. This should occur on the assigned repeater if available, or on an appropriate simplex channel if no repeaters are available. Details on this operation can be found in the [Activation of the Resource Net](#) section.

- Direct Contact – In the event that MCARES is needed by the county or other requesting party, the EC or designated AEC will contact the team members by phone, text or email, if available.

- Oregon ARES District 1 Net – The nightly net at 19:30 will be used as the communication method of last resort for activation of MCARES.

Activation of the Resource Net

In the event of an emergency, the first order of action is to determine the communication resources available in Multnomah County. The first amateur radio operator available should establish the Multnomah Resource Net on MC-2 (147.280 MHz). If the repeater is disabled, establish the Resource Net on MC-12 (147.280 simplex).

Amateur radio operators should check into the Resource Net with their FCC callsign. When recognized by Net Control, they should be prepared to give to the Net Control the following information:

- Name
- Location by nearest major cross streets
- Available equipment, including communications and transportation resources
- ARES Team, NET team or other primary response obligation if applicable
- Ability to deploy and for how long you can serve
- Any other information deemed necessary or requested by EC

The Net Control operator on the Resource Net will maintain the list of available operators with their reported information and deliver it to the EC or the appropriate designee when requested, digitally if possible.

Deployment assignments will be made by the EC or their designee on the Resource Net. When AROs have arrived at their assignments. When they have been released, they will check back into the Resource Net to either secure or be reassigned. In a real world disaster deployment, they will also report to the Resource Net when they have arrived at their post-deployment location (home or other off-duty location).

Portland NET members will also initially report to the ARES Resource Net. Portland Bureau of Emergency Management (PBEM) will assign NET members to their operational frequencies from the ARES Resource Net. Once NET members have been transferred to the NET frequencies, PBEM will assume responsibility for them. They do not check back to the ARES Resource Net at the completion of their assignment.

Deployment

MCARES AROs assigned to a team can expect to be deployed to either a served agency or a field station. Unassigned or unaffiliated AROs will be deployed as requested by the EC or Multnomah County Emergency Management. We will make every effort to keep AROs as close to their home geographic location as possible. However, dynamic situational requirements dictate that we are unable to guarantee an ARO will be sent to a particular location. The team leaders & station chiefs will schedule ARROs for initial and relief shifts in a prolonged deployment.

The following is adapted from the ARES Field Resource Manual. Further information can be found at http://www.arrl.org/files/file/ARESFieldResourcesManual.pdf.

Initial Actions during an Emergency
- The Net Control station and/or ARES officials on the designated emergency net will provide additional instructions, including information on frequencies used for other resource and tactical nets. Normally, a Resource Net will enroll volunteers and provide information on how you can assist.
- Be prepared to operate. Check all equipment and connections.
- When deployed, check in with your assigned contact. Deploy to assignment with Go-kit.
- Obtain tactical call sign for your location/assignment.
- Use log form (ICS-309) to record messages handled.
- Use a formal message form (ICS-213) when a precise record is required.
- Use tactical call sign for your location, and observe FCC's 10-minute ID rule.
- Monitor your assigned frequency at all times. Notify the Net Control station if you have to leave.

Standard Communication Protocols for Nets and Traffic Handling
In general, amateur radio operators in Multnomah County are expected to adhere to the following:

- Follow the net guidelines given below for operating in the event of an emergency.
- In the event of repeater failure, we may move to a different repeater. Alternatively, we may conduct the communications on a simplex frequency, possibly on the output frequency of the disabled repeater. For example, MC-2 would be MC-12 (147.280 simplex) .
- All communications go through Net Control. Do not call a station directly without Net Control permission.
- When checking into a net for the first time, use your personal FCC callsign using ITU phonetics followed by your tactical callsign if one has been assigned. Thereafter, use only your tactical callsign to initiate a contact, then end the contact with your tactical and

personal callsign.

- We initiate contact in the format: "(station you are calling), (your callsign/)," then wait to be acknowledged.
- Whenever possible, the net and traffic handling protocols of the NTS should be adhered to, including use of pro-words.
- If you have messages to relay, call "Net Control, (your tactical callsign), with traffic." Net Control will ask you to list your traffic. State number of messages and the tactical call of the receiving station. Net Control will then ask the receiving station to call you to receive your traffic.
- If the net is busy, Net Control may ask you and the receiving station to go to a different frequency to pass the traffic. When finished both stations should return to the main net with tactical callsign and "recheck."

Types of Emergency Nets
Adapted from ARES Resources Field Manual

Resource Net (MC-2, 147.280 MHz) - For all incidents, a Resource Net is used to track and delegate operators and equipment in support of operations on the Tactical Nets. As an incident requires more operators or equipment, the Resource net evolves as a check-in place for volunteers to register and receive assignments. All MCARES AROs check back with the Resource net at the end of their assignment or deployment.

Command Net (MC-1, 146.840 MHz) - This net allows the incident managers to communicate with each other to resolve inter- or intra-agency problems, particularly between cities or within larger jurisdictional areas. It is conceivable that this net could become cluttered with a high volume of traffic. It may also be necessary to create multiple Command Nets to promote efficiency.

Tactical Net – (MC-3, 146.940 MHz) - The Tactical Net is the front line net employed during an incident, usually used by a single government agency to coordinate with Amateur Radio operations within their jurisdiction. There may be several Tactical Nets in operation for a single incident depending on the volume of traffic and number of agencies involved. Communications include traffic handling and resource recruiting.

Incident Radio Communication Plan (ICS 205)

	INCIDENT RADIO COMMUNICATIONS PLAN	1. Incident Name Planning Document		2. Date/Time Prepared 08/17/2021	3. Operational Period Date/Time MCARES						
				4. Basic Radio Channel Utilization							
Chan	Function	Channel Name	Assignment	Rx Frequency	W/N	Rx Tone/ DCS	TX Frequency	W/N	Tx Tone/ DCS	Mode A, D, M	Remarks
63	Command net	MC-1	ARES	146.840			146.240			A	Primary Repeater
64	Resource net	MC-2	ARES	147.280			147.880		167.9	A	Secondary Repeater
65	Tactical net	MC-3	ARES	146.940			146.340			A	Tertiary Repeater
66	Primary Simplex	MC-4	ARES	146.480			146.480			A	
67	Secondary Simplex	MC-5	ARES	147.460			147.460			A	
68	Delta Repeater	MC-6	ARES	147.040			147.640		100.0	A	
69	Gresham Simplex	MC-7	ARES	147.520			147.520			A	
70	NET-Tac 1	MC-8	PBEM	147.580			147.580			A	Simplex
71	NET-Tac 2	MC-9	PBEM	146.460			146.460			A	Simplex
72	RMS Gateway	MC-10	ARES	145.070			145.070			A	K7MCE-10 County EOC
73	UHF Simplex	MC-11	ARES	432.150			432.150			A	UHF simplex
74	Resource net simplex	MC-12	ARES	147.280			147.280			A	Secondary repeater simplex only if repeater down
75	UHF Portable Repeater	MC-13	ARES	440.275		151.4	445.275		151.4	A	ARES Portable Repeater
76	UHF Cross-band repeater	MC-14	ARES	446.150					151.4	A	UHF Side
	APRS			144.390						A	APRS
	W7RAT		ARES Digital	440.400			445.400		123.0	A	MMSSTV- Digital

Prepared by (Communications Unit) KK7DEB	Contact Number 503-318-6123	Incident Location Multnomah County ARES County

ICS 205 MC   8/17/2021

Digital Operations - Winlink

Multnomah County ARES digital operations are primarily based on Winlink Express, using RMS packet messaging. For more information on Winlink and RMS messaging, and to download the software, go to www.winlink.org.

Standard equipment includes:
- VHF radio.
- Packet TNC or sound card modem.
- Computer with Winlink Express software installed.

RMS Addressing

All agencies served by MCARES RMS messaging are assigned a (callsign)@winlink.org address. See Served Agency List in Appendix B.

RMS Gateways

Multnomah County ARES uses the Multnomah County ECC's RMS Gateway as a primary gateway, and it should be used for most RMS activity. For drills, events and incidents that do not impact internet connectivity in the region, any RMS gateway can be used to successfully transmit messages to served agencies.

In the event that all local gateways lose internet connectivity and go into local delivery mode, MCARES will use K7MCE-10 as a coordinating gateway.

Multnomah County ECC	K7MCE-10	145.070
MCARES WhiteTrailer	N7MCU-10	145.650
MCARES Red Trailer	TBD	

Other gateways can be found in "Channel Selection" in Winlink.

HF Pactor is available for Winlink at Multnomah County ECC and in both MCARES trailers.

Digital Operations - SSTV

ARES uses SSTV to provide images from the field to the Multnomah County ECC or any emergency operations center (EOC) able to receive it.

EOC and ECC equipment consists of a Windows computer with MMSSTV software and a SignaLink or other sound card-radio interface. Images may be transferred from the field using the MCARES digital go-kits, radio and cell phone with camera and SSTV software via acoustic coupling, or operators' personal equipment which will include radio, laptop computer with SSTV software, sound card-radio interface and digital camera or cell phone camera.

All images should include a specific location (street address or GPS coordinates). Operators who have images to transmit should contact Net Control on the Command Net to be directed to the appropriate frequency for SSTV transmissions.

Appendix A: Leadership Contact information

Deb Provo	KK7DEB	dprovo@yahoo.com	EC, Membership Manager
Adam Karol	KF7LJH	akarol36@gmail.com	AEC, Mike Team Lead
Dylan McNamee	N4LYD	dylan.mcnamee@gmail.com	AEC, Alpha Team Lead
Linda Bellerby	K7LJB	ljbellerby@gmail.com	Bravo Team Lead
Bruce Schafer	AA7PB	bruceschafer1@gmail.com	Charlie Team Lead
Jeff Bissonnette	KI7TVE	jeff@jeffbissonnette.com	AEC, Delta Team Lead
Eliza Pride	W7ELI	eliza.pride@gmail.com	Echo Team Lead

Appendix B: Served Agency List

Multnomah County   **K7MCE@winlink.org**

Team Leader	Dylan McNamee	dylan.mcnamee@gmail.com
Served Agency Contact	Robert Quinn	Contacts on file with Team Leader
Multnomah County ECC	Multnomah Building	501 SE Hawthorne Blvd. Portland, Oregon, 97214

Portland Bureau of Emergency Management   **W7ECC@winlink.org**

Team Leader	Linda Bellerby	ljbellerby@gmail.com
Served Agency Contact	Ernie Jones	Contact on file with Team Leader
Portland ECC	Portland Bureau of Emergency Management	9911 SE Bush St., Portland Oregon 97266

City of Gresham / East County   **WG7EOC@winlink.org**

Team Leader	Eliza Pride	eliza.pride@gmail.com
Served Agency Contact	Kelle Landavazo	Contact on file with Team Leader
Various locations	Gresham, Fairview, Wood Village, Troutdale, Corbett	Gresham EOC and Fire Stations 72,73,74,75,76

Appendix C: Standard Forms

It is recommended that all operators maintain the following forms in their personal operating binders:

ICS 100 - Blank Paper
ICS 213 - General Message Form
ICS 214 - Unit Log
ICS 309 - Communication Log
NTS Radiogram Form

See the following sources for important forms:
http://training.fema.gov/EMIWeb/is/ICSResource/icsforms.htm
http://www.arrl.org/files/file/ARESFieldResourcesManual.pdf

ICS 213 - General Message

ICS 213 GENERAL MESSAGE			
Incident Name and Number:			
TO (Name and Position):			
FROM (Name and Position):			
Subject:		Date:	Time:
Message:			
Approved by: Name:	Signature:	Position:	
Reply:			
Replied by: Name:	Signature:	Position:	
		Date:	Time:

ICS 213 revised	1	rev 28APR2015

ICS 214 - Unit Log

ICS 214 UNIT LOG	1. Incident # and Name:	2. Date Started:	3. Time started:
4. Unit Name: **Communications**	5. Unit Leader (Name and Position):		6. Operational Period:

7. Personnel Roster Assigned				
Name	Time In	Time Out	ICS Position	Home Base

8. Activity Log	
Time	Major Events

9. Prepared by (Name and Position):	Date Ended:
	Time Ended:

ICS 214 Unit Log   Page _____ of _____   rev 17Jul2015

ICA 309 - Communications Log

ICS 309 Multnomah County ARES COMMUNICATIONS LOG	INCIDENT # and Name:		DATE STARTED:
			TIME STARTED:
FOR OPERATIONAL PERIOD #		TASK NAME:	
OPERATOR NAME: CALLSIGN:		TACTICAL I.D: STATION CALLSIGN:	

MESSAGE AND ACTION LOG (one for EACH RADIO)			
TIME sent or received	FROM: Callsign of sending station	TO: Callsign of receiving station	**ICS 213:** Callsign of originating station, and (from 213) date/time and subject. **NTS Message:** Message #, Callsign of originating station, date and time (From radiogram header)

ICS 309 Communications Log   Page _____ of _____   Rev. 05APR2015 W7ELI

ARRL Radiogram

THE AMERICAN RADIO RELAY LEAGUE
RADIOGRAM
VIA AMATEUR RADIO

NUMBER	PRECEDENCE	HX	STATION OF ORIGIN	CHECK	PLACE OF ORIGIN	TIME FILED	DATE

TO

THIS RADIO MESSAGE WAS RECEIVED AT

AMATEUR STATION _____ PHONE _____

NAME _____

STREET ADDRESS _____

CITY, STATE, ZIP _____

TELEPHONE NUMBER

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

FROM REC'D	DATE	TIME	TO SENT	DATE	TIME

THIS MESSAGE WAS HANDLED FREE OF CHARGE BY A LICENSED AMATEUR RADIO OPERATOR, WHOSE ADDRESS IS SHOWN IN THE BOX AT RIGHT ABOVE. AS SUCH MESSAGES ARE HANDLED SOLELY FOR THE PLEASURE OF OPERATING, NO COMPENSATION CAN BE ACCEPTED BY A "HAM" OPERATOR. A RETURN MESSAGE MAY BE FILED WITH THE "HAM" DELIVERING THIS MESSAGE TO YOU. FURTHER INFORMATION ON AMATEUR RADIO MAY BE OBTAINED FROM ARRL HEADQUARTERS, 225 MAIN STREET, NEWINGTON, CT 06111

THE AMERICAN RADIO RELAY LEAGUE, INC, IS THE NATIONAL MEMBERSHIP SOCIETY OF LICENSED RADIO AMATEURS AND THE PUBLISHER OF QST MAGAZINE. ONE OF ITS FUNCTIONS IS PROMOTION OF PUBLIC SERVICE COMMUNICATION AMONG AMATEUR OPERATORS. TO THAT END, THE LEAGUE HAS ORGANIZED THE NATIONAL TRAFFIC SYSTEM FOR DAILY NATIONWIDE MESSAGE HANDLING.

PRINTED IN USA

Appendix D: Sample Net Scripts

Resource Net Script
Note: These Scripts are guidelines. The Net Control operator may adjust this script as necessary to suit the situational needs. Unspoken comments are in italics.

Net Control is to maintain the net roll until relieved. It is advised that they keep three check-in lists; one for ARES members, one for NET AROs, and one for non-affiliated AROs. When transferring to a new Net Control operator it is preferred to send them the net roll in written format via Winlink if possible.

To initiate net and every 30 minutes or during lull in net business:
Net Control: "This is *(your name), (your call)*, Net Control for the Multnomah County ARES and Portland NET team Resource Net. This is a directed net and stations are asked to remain on frequency until directed by Net Control. If you must leave, please advise. This net serves as the coordinating hub for amateur radio operators serving in Multnomah County. The Multnomah ARES Emergency Coordinator or another designated representative will relay radio operator requests here as they are received. No station is to deploy until assigned on this net. All check-ins are welcome. Stations are asked to check in with their FCC callsign. Stations wishing to check in, or other stations with business for the net, please come now."

Acknowledge each station and request the following information:
Net Control: "The net acknowledges *(callsign).* What is your:
   ● Name.
   ● Location by nearest major cross streets.
   ● Available equipment, including communications and transportation resources.
   ● Multnomah County ARES team, NET team, or other primary response location.
   ● Ability to deploy, and for how long you can serve.

Net Control to collect this information and enter it in the log to give to the EC when requested so EC can make assignments

Every 10 Minutes
Net Control: "This is *(your name), (your call)*, Net Control for the Multnomah County ARES and Portland NET team Resource Net.

To close the net when directed by EC:
Net Control: "This is *(your name), (your call)*, Net Control for the Multnomah County ARES and NET team Resource Net. Thank you to all stations who participated in this emergency response effort and to all other stations who stood by to give us a clear operating frequency. (*If net was conducted on the repeater: "*Multnomah County ARES also thanks the Hoodview Amateur

Radio Club for the use of this repeater.) All stations may now secure. This net is closed at (*local time*) and the frequency is now returned to normal amateur radio use."

Written station logs should be given to the EC and a copy to the Net Manager, as soon as practical.

Command Net and Tactical Net Script
Note: The Net Control operator may adjust this script as necessary to suit the situational needs. Unspoken comments are in italics.

To open the net and every thirty minutes or during a lull in net business:
Net Control: "This is *(your name), (your call)* as *(club call if applicable)*, Net Control for the Multnomah County *(exercise or type of net)* net. This is a directed net and stations are asked to remain on frequency until directed by Net Control. If you must leave, please advise. This net serves as the communications center for *(exercise or incident net type)*. Stations are asked to check in with their tactical callsign. Stations are reminded to sign at the end of every communications string with their tactical callsign and personal FCC callsign. Stations with business for the net may come now."

(Every 10 Minutes)
Net Control: "This is *(your name), (your call or club call)*, Net Control for the Multnomah County (exercise) *(incident and type of net)* net.

To close the net when directed:
Net Control: "This is *(your name), (your call)*, Net Control for the Multnomah County (*type of net*) net. Thank you to all stations who participated in this (emergency response effort) *or (name of event) or (*exercise) and to all other stations who stood by to give us a clear operating frequency. {*If net was conducted on the repeater:* Multnomah County ARES also thanks (the *repeater owner*) for the use of this repeater.} All stations may now secure and report back to the Resource Net. This net is closed at (*local time*) and the frequency is now returned to normal amateur radio use."

Approved and Adopted

Debra Provo   **12/10/2022**

_____   _____
Approved, Multnomah County Emergency Coordinator   Date

Adam Karol

_____   _____
Assistant Emergency Coordinator   Date

Dylan McNamee

_____   _____
Assistant Emergency Coordinator   Date

Jeff Bissonnette

_____   _____
Assistant Emergency Coordinator   Date