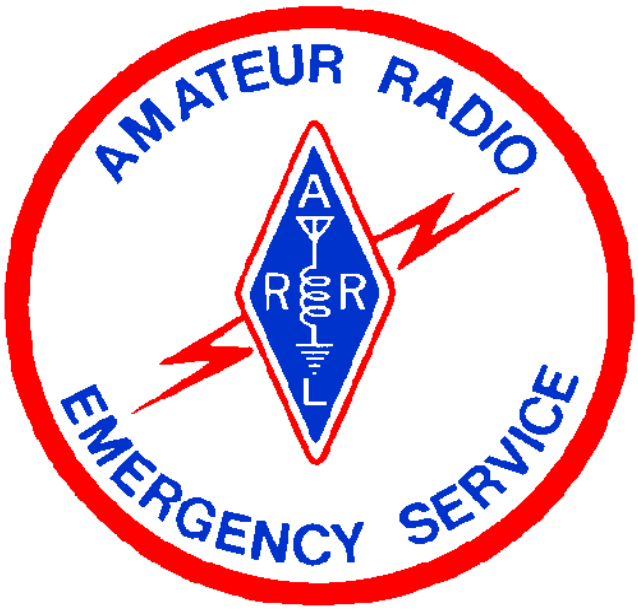
NORTHERN SE ALASKA
AMATEUR RADIO EMERGENCY SERVICE



COMMUNICATIONS PLAN

December 22nd, 2001
version 1.0

The Amateur's Code

The Radio Amateur is:

CONSIDERATE...never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL…offers loyalty, encouragement and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

PROGRESSIVE...with knowledge abreast of science, a well-built and efficient station and operation above reproach.

FRIENDLY...slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

BALANCED...radio is an avocation, never interfering with duties owed to family, job, school or community.

PATRIOTIC...station and skill always ready for service to country and community.

--The original Amateur's Code was written by Paul M. Segal, W9EEA, in 1928.

FORWARD

The after action reports of every disaster cite communications as a major issue. The report prepared by the Governor's Disaster Policy Cabinet in response to the events of September 11th 2001 identified the need to improve the communications infrastructure in Alaska.

The original draft version of this plan was written in November 2001 by Nick Meacher, N3WWE, Emergency Coordinator, Northern SE Alaska ARES. Although it was in progress prior to the events of September 11th it's completion was accelerated. Part of the preparation for this plan was an assessment of current communications capabilities within Juneau. The report, *"*Emergency and Disaster Communications in Juneau*",* was presented to local, state and federal government officials and prompted significant improvements in cooperation between these agencies and ARES.

The current version of this plan will be maintained on the Juneau Amateur Radio Club's web site at www.juneauARC.org.

It is an unfortunate fact that many of the agencies served and the general public view amateur radio as a form of "CB" by what they hear on scanners during our nets and public service activities. As a result we are not called upon when something happens. Amateur radio operators are often viewed by public service agencies as a nuisance rather than a resource. It is vital that this perception is changed. With proper training we can become effective, proficient and professional operators providing emergency communications to served agencies.

Throughout this manual the male gender has been used when referring to amateur operators for simplicity. In no way is this meant to minimize the contributions of the large number of female amateurs and the services they provide every day to the Amateur Radio Emergency Service, the National Traffic System and amateur radio in general.

Copyright

While this manual contains references that are specific to the Juneau area it may be freely copied and adapted for use in other areas of the Alaska Section. The author would be pleased to assist other EC's in adapting this manual for their use.

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REVISION NOTES

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0.3 added Incident Command System
added chart on repeaters in the Juneau area
added chart on NTS and AK Nets
added form ICS-309 Communications Log
added form ICS-302-D Missing person questionnaire

0.31 moved Incident Command chapter to appendix
moved Emergency J-Pole design to appendix
added SE Alaska contact numbers
added SAR Operations section
added Official Relay Station section

0.32 added Assistant Emergency Coordinator section
added Drills and Exercises section

0.7 updates to repeaters
index links added

0.8 Net Assignment Worksheet added
inter-document links added

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INTRODUCTION

1.1 BACKGROUND

1.1.1 Federal Communications Commission

In **Part 97** of its rules, the Federal Communications Commission (FCC) states that the Amateur Radio Service is a "voluntary non-commercial communications service, particularly with respect to providing emergency communications". The FCC licenses all amateur operators.

Below is an excerpt of the FCC rules regarding amateur operations during an emergency.

§97.401 Operation during a disaster.

(a) When normal communication systems are overloaded, damaged or disrupted because a disaster has occurred, or is likely to occur, in an area where the amateur service is regulated by the FCC, an amateur station may make transmissions necessary to meet essential communication needs and facilitate relief actions.

(b) When normal communication systems are overloaded, damaged or disrupted because a natural disaster has occurred, or is likely to occur, in an area where the amateur service is not regulated by the FCC, a station assisting in meeting essential communication needs and facilitating relief actions may do so only in accord with ITU Resolution No. 640 (Geneva, 1979). The 80 m, 75 m, 40 m, 30 m, 20 m, 17 m, 15 m, 12 m, and 2 m bands may be used for these purposes.

(c) When a disaster disrupts normal communication systems in a particular area, the FCC may declare a temporary state of communication emergency. The declaration will set forth any special conditions and special rules to be observed by stations during the communication emergency. A request for a declaration of a temporary state of emergency should be directed to the EIC in the area concerned.

(d) A station in, or within 92.6 km of, Alaska may transmit emissions J3E and R3E on the channel at 5.1675 MHz for emergency communications. The channel must be shared with stations licensed in the Alaska-private fixed service. The transmitter power must not exceed 150 W.

1.1.2 Amateur Radio Relay League

In order to provide communications necessary in an emergency the Amateur Radio Relay League (ARRL) established a Field Organization consisting of the Amateur Radio Emergency Service (ARES) and the National Traffic System (NTS).

ARES provides amateur radio operators trained in emergency communications with their own equipment and supplies necessary to support an operation and the ability to set up communications anywhere. ARES members practice emergency communications on a regular basis.

The NTS consists of a series of nets at predetermined times where formal written traffic can be passed from the local, state and regional level nets to other parts of the county and then to the recipient. During a disaster the NTS supports local emergency operations by passing traffic into and out of the effected area. At other times routine messages are passed, without fee, for members of the public to friends and family in order to practice message handling.

1.1.3 SKYWARN

SKYWARN is a cooperation between the ARRL Field Organization and the National Weather Service (NWS). Amateur radio operators are trained by NWS as "weather spotters" and report serious weather disturbances to their local NWS office. Almost every NWS office has amateur radio equipment which is manned by local amateur operators in a weather emergency. (A copy of the Juneau SKYWARN manual can be found on the Juneau ARC web site)

1.1.4 Federal Response Plan

When local and states resources are not sufficient to respond to the emergency additional resources can be deployed under the **Federal Response Plan**. Under the Federal Response Plan resources are provided by one or more of 26 Federal agencies and the American Red Cross. These resources are grouped into 12 Emergency Support Functions (ESF's). Each ESF is headed by a primary agency and is supported by other agencies.

Amateur radio is mentioned in three of these ESF plans:

ESF 2: National Communications System

The National Communications System (NCS) is a confederation of government agencies, established by Presidential Order, responsible for ensuring that Federal telecommunications resources meet the most critical requirements for conditions ranging from normal to national emergency. The ARRL Field Organization plays a major role in communications tests sponsored by the NCS. (visit http://www.ncs.org)

ESF 6: Mass Care

The American Red Cross is the lead agency in situations requiring the shelter and/or repatriation of a large number of people and utilize amateur radio operators to provide communications, especially packet (digital) communications from shelters to facilitate the repatriation of families.

ESF 8: Health and Medical Services

Under "communications" it states that amateur radio shall be utilized to the extent necessary to help meet the communications requirements.

1.2 PURPOSE OF THIS MANUAL

The purpose of this plan is to provide guidelines for ARES members in providing communications in the event of a disaster, emergency or special event. As each event is different flexibility is necessary to provide an adequate response.

This manual is intended as a guide and reference source. The appendix provides links to other reference sources and forms. ARES members are strongly urged to have a printed copy of this manual together with references listed in the appendix and multiple copies of the ARRL Radiogram message form.

1.3 NORTHERN SE ALASKA ARES

The Northern SE Alaska ARES is a Field Organization of the Amateur Radio Relay League. It operates under the direction of an **Emergency Coordinator** (EC), who is appointed by the **Section Manger** (SM), an elected position within the Field Organization, the Section Manager represents the State of Alaska.

The EC reports to the **Section Emergency Coordinator** (SEC), who coordinates all emergency activities within the section.

The Emergency Coordinator may appoint Assistant Emergency Coordinators to assist with the Operations, Administration, Liaison and Logistics.

Northern SE AK ARES covers the City and Borough of Juneau as well as the communities of northern SE Alaska that are within the reach of the Juneau Amateur Radio Club's linked repeater system; including Gustavus, Hoonah, Haines and Angoon. Should an emergency occur in these communities ARES members can provide local communications within their community as well as coordination of resources from Juneau via the Juneau ARC linked repeater system.

Although not required, nearly all members of the Northern SE AK ARES are members of the Juneau Amateur Radio Club (JARC).

DEFINITIONS

2.1 THE EMERGENCY COORDINATOR (EC)[1]

The Emergency Coordinator is the key team player in ARES on the local emergency scene. Working with the Section Emergency Coordinator (SEC), the District Emergency Coordinator (DEC) and Official Emergency Stations (OES), the EC prepares for, and engages in management of communications needs in disasters. EC duties include:

1. Promote and enhance the activities of the Amateur Radio Emergency Service (ARES) for the benefit of the public as a voluntary, non-commercial communications service.
2. Manage and coordinate the training, organization and emergency participation of interested amateurs working in support of the communities, agencies or functions designated by the Section Emergency Coordinator/Section Manager.
3. Establish viable working relationships with federal, state, county, city governmental and private agencies in the ARES jurisdictional area which need the services of ARES in emergencies. Determine what agencies are active in your area, evaluate each of their needs. Discuss your planning with your Section Emergency Coordinator and then with your counterparts in each of the agencies. Ensure they are all aware of your ARES group's capabilities, and perhaps more importantly, your limitations.
4. Develop detailed local operational plans with "served" agency officials in your jurisdiction that set forth precisely what each of your expectations are during a disaster operation. Work jointly to establish protocols for mutual trust and respect. All matters involving recruitment and utilization of ARES volunteers are directed by you, in response to the needs assessed by the agency officials. Disaster Welfare Inquiry policies, and others, should be reviewed and expounded upon in your detailed operations plan.
5. Establish local communications networks run on a regular basis and periodically test those networks by conducting realistic drills.
6. Establish an emergency traffic plan, with Welfare traffic inclusive, utilizing the National Traffic System as one active component for traffic handling. Establish an operational liaison with local and section nets, particularly for handling Welfare traffic in an emergency situation.
7. In times of a disaster, evaluate the communications needs of the jurisdiction and respond quickly to those needs. The EC will assume authority and responsibility for emergency response and performance by ARES personnel under his jurisdiction.
8. Work with other non-ARES amateur provider groups to establish mutual respect and understanding, and a coordination mechanism for the good of the public and amateur radio. The goal is to foster an efficient and effective amateur radio response overall.
9. Work for growth in your ARES program, making it a stronger, more valuable resource and hence able to meet more of the agencies' local needs. These are thousands of new Technicians coming into the amateur service that would make ideal additions to your ARES roster. A stronger ARES means a better ability to serve your communities in times of need and a greater sense of pride for amateur radio by both amateurs and the public.

[1] from the Official ARRL Field Organization Appointment Description, FSD-46 (2/97) & The ARRL Emergency Coordinator's Manual

10. Report regularly to the SEC, as required.

Recruitment of new hams and League members is an integral part of the job of every League appointee. Appointees should take advantage of every opportunity to recruit a new ham or member to foster growth of Field Organization programs, and our abilities to serve the public.

Requirements: Technician, or higher class license, Full ARRL membership.

2.2 ASSISTANT EMERGENCY COORDINATOR (AEC)[2]

The EC may appoint Assistant Emergency Coordinators to provide additional leadership in the area. The EC and AEC's for the emergency planning committee. There are four main categories of AEC's:

Operations AEC

- Net Manager for specific ARES nets
- Net Control Station for specific ARES nets
- Coordinator for ARES activities on a specific band
- AEC for packet and other digital modes
- Operational assistant to EC during disasters
- Coordinator for subdivision of EC area

Administrative AEC

- Recruiting
- Public relations
- Personnel records
- Equipment inventory
- Training
- Reports

Liaison AEC

- Maintaining contact with assigned agencies
- Maintaining liaison with NTS
- Maintaining liaison with adjacent ECs

Logistics AEC

- Transportation
- Supplies – food, fuel, water, etc.
- Equipment – generators, batteries, antennas, etc.
- Repeater restoration

AEC's may have both a pre-disaster phase assignment and a different assignment during disaster operations.

[2] from the ARRL Emergency Coordinator's Manual, FSD-9 (9/01)

The general duties of any AEC should include:

1. Informing the EC of any developments in their region of responsibility.
2. Keeping records the EC deems necessary on their assignments and updating the records regularly.
3. Participating in as many ARES activities as possible.
4. Keeping the members of their assignment informed of ARES activities.

2.3 OFFICIAL EMERGENCY STATION (OES)[3]

Amateur operators may be appointed as an Official Emergency Station (OES) by their Section Emergency Coordinator (SEC) or Section Manager (SM) at the recommendation of the EC, or District Emergency Coordinator (DEC) (if no EC) holding jurisdiction. The OES appointee makes a deeper commitment to the ARES program in terms of functionally than does the rank-and-file ARES registrant.

The OES appointee is appointed to carry out specific functions and assignments designated by the appropriate EC or DEC. The OES appointee and the EC, at the time of the OES appointment, will mutually develop a detailed, operational function/assignment and commitment for the new appointee. Together, they will develop a responsibility plan for the individual OES appointee that makes the best use of the individual's skills and abilities. During drills and actual emergency situations, the OES appointee will be expected to implement his/her function with professionalism and minimal supervision.

Functions may include, but are not limited to, the following major areas of responsibility[4]:

- Operations
- Administration
- Liaison
- Logistics
- Management Assistant
- Consulting

Requirements: Full ARRL membership; experience as an ARES registrant; regular participation in the local ARES organization including drills and tests; participation in emergency nets and actual emergency situations; regular reporting of activities.

[3] from the Official ARRL Field Organization Appointment description FSD-108 (2/97)
[4] see the ARRL Field Organization Appointment description for examples of responsibilities in each area

2.4 OFFICIAL RELAY STATION (ORS)[5]

Official Relay Stations are traffic-handling appointments that are open to all classes of license.

The value of skilled operators with traffic know-how is enhanced by his ability and readiness to function in the community in the event of an emergency. Traffic awareness and experience are often the signs by which an experienced and mature may be distinguished.

There are differences in procedures for traffic handling by cw, phone, RTTY, ASCII, packet and other modes. The appointment requirements for ORS do not deal with these, and the ORS may confine activity to one mode or part of the spectrum if he wishes.

There is the expectation that the ORS will set the example in traffic handling however it is done.

The basic requirements are:

1. Full ARRL membership.
2. Code and/or voice transmission capability.
3. Transmissions, by whatever mode, must be of the highest quality, both technically and operationally.
4. All ORS are expected to follow standard ARRL operating practices (message form, ending signals, abbreviations or prowords, etc.).
5. Regular participation in traffic activities, either independent or ARRL-sponsored.
6. Handle all record communications speedily and reliability and set the example in efficient operating procedures. All traffic is relayed or delivered promptly after receipt.
7. Report monthly to the STM, including a breakdown of traffic handled during the past calendar month.

[5] from the Official ARRL Field Organization Appointment description FSD-107 (2/97)

2.5 EMERGENCY COMMUNICATIONS

Emergency communications are those provided in the event of a disaster or other emergency and they are usually unannounced.

Messages containing information on injuries or deceased should not, if at all practical, be passed over voice circuits, they should be passed via packet or CW.

Emergency communications fall into two main categories:

2.5.1 Tactical

Tactical communications are provided between the various agencies to facilitate the coordination of rescue and recovery efforts. These should be in a written (formal) format, as there is then a written record.

2.5.2 Health & Welfare

Health and welfare traffic are messages concerning the welfare of people in the affected area; these can be from people within the effected area to family in another area to let them know they are safe, or it can be inquires from family outside of the effected area. In either case these are low priority and are usually handled after the initial response has been transitioned into recovery operations. In many instances the Red Cross coordinate these inquiries.

2.6 NETS

Nets are a “meeting” of amateur operators on a designated frequency at a designated time. Nets are held for a variety of purposes; an informal chat with amateurs who have similar interests, cw, ARES, or passing radiogram traffic. Nets can be open or directed.

2.6.1 Open Net

Open nets do not have a Net Control Station and participants follow good amateur practice in taking turns at communicating. Nets for public service communications, such as parades, can usually be an open net.

2.6.2 Directed Net

A directed net has a Net Control Station assigned who controls and “directs” the flow of traffic through the net. Most nets are directed nets. During an emergency it is essential that a NCS is assigned due to the volume of traffic.

2.7 PUBLIC SERVICE COMMUNICATIONS

Public service communications are communication services provided to **non-profit** organizations sponsoring a **public** event.

Public service communications are:

- normally scheduled
- do not require activation by an emergency management agency
- do not normally require coordination with multiple agencies

BASIC COMMUNICATIONS GUIDELINES

3.1 BASIC THEORY OF TELECOMMUNICATIONS[6]

There are six elements to any communications, whether a simple request for the time or a complex set of instructions or supply request. All six elements should be present in your ARES transmissions.

3.1.1 Concept

Determine exactly what is to be sent. This is not as easy as it sounds; we must identify and understand a need, clarify and simplify, then reduce it to its most basic and immediate essentials.

3.1.2 Documentation

Once we have the concept, we must determine how to deliver it to the intended receiver. We must consider the vocabulary and expression to be used and find the best way to deliver it in a simple form. Complex words or difficult phrases can be better understood if simplified.

3.1.3 Transmission

Next we have to send the message through either speech (phone), or written message forms (including CW, packet or other digital modes). Make sure the transmission is free from interference (such as loud talking in the background, engines, aircraft etc.). Alternatives must be provided when interference noise becomes a problem.

3.1.4 Reception

The person receiving the message must not only receive it, but understand it. The relaying operator must be able to give a legible copy of the message to the intended receiver, thus minimizing the chance of error or misunderstanding.

3.1.5 Interpretation

Reception is not enough. The addressee must be able to correctly interpret the message as it was originally conceived and delivered to the sending ARES operator.

3.1.6 Feedback

There must be a system to indicate that the first five steps have been completed successfully and the message was received AND understood. This evidence may be direct – a vehicle was requested and it arrived, or supplies were ordered and arrived. Depending on the circumstances it may be necessary to repeat the message back, or at least its essential parts, to make sure that it is understood. If you are the receiving operator, *make sure* you understand the instructions before action is taken.

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[6] from the ARRL Emergency Coordinator's Manual, FSD-9 (9/01), submitted by M.L. Gibson, W7JIE (SK) and Earl Appleby, W6IIH

3.2 GENERAL POINTS

Things that prevent the message from getting through:

- static and background noise on the air
- equipment or voice sounds around you
- inappropriate amount of light
- “loose cannon” tempers
- improper transmission speeds
- inappropriately formatted messages

Insure you have the most appropriate antenna

- no rubber ducks
- mag mount or J pole for 2 meters and 70cm

Choose the best band and mode for the job

- 2 meter or 70cm for local communications (up to 50 miles)
- HF for longer distances – choose the best band for the conditions
- consider simplex for passing traffic from one site to another, leaving the repeaters free for Net operations
- packet is useful where a degree of security from scanners is required, such as casualty lists, or lengthy lists such as supply requests or damage reports need to be transmitted

- Use headset or ear piece
- Use a noise canceling microphone to reduce background noise
- Send at a speed the receiving station can copy at – they have to write it down. This is about 15wpm (one word every 4 seconds). ***Accuracy first, speed second.***
- Use the ARRL Radiogram form so messages are correctly formatted and there is no miscommunication in the interpretation. Even if you do not understand the meaning send the message exactly as it is written. Many organizations have terminology that is specific to their role.
- Use only ITU phonetics – the use of “cute” phonetics causes confusing
- Only check in if you are going to be part of the net

Important Points

- ARES is not a "first responder" organization – we only respond at the request of the agency served[7]
- the PRIMARY SERVED AGENCY runs the event – ARES is there to provide communications to assist them
- nearly all public service agencies use the Incident Command System (ICS) – it is extremely helpful if ARES members have a basic understanding. In addition to Appendix A FEMA has an excellent self study course and it can be found at www.fema.gov/emi/ishome.
- the primary agency served Public Information Officer (PIO) talks to the media – any inquiries from the media should be referred to the agency.

3.3 PRINCIPLES OF DISASTER COMMUNICATIONS[8]

3.3.1 Keep the noise down

In a disaster many stations may have weak signals. It is essential that all stations remain silent unless they have traffic. Don't transmit until recognized by the Net Control Station. Don't break into a disaster net just to let them know you are there.

3.3.2 Monitor established disaster frequencies

Many areas have established disaster frequencies which are nearly always monitored. Other areas use an established net which becomes the disaster net in an emergency. Alaska has an established statewide disaster frequency of 5.1675 MHz. While this is just outside of the 75/80 meter amateur band FCC regulations allow the use of the frequency by amateur operators in an emergency. See section 4.5.3 on Net Frequencies for the regular schedule of HF nets.

For local traffic the local linked repeater system will be the primary Net Control Frequency. Should none of the Juneau Amateur Radio Club repeaters be available the Engineers Cutoff repeater can be used.

Simplex frequencies will be used for passing traffic (see section 4.5.2)

3.3.3 Avoid spreading rumors

Amateur bands, as well as local public service bands, can be monitored by the public. Only pass those messages that you have been asked to do so by the agency served. Do no expand, modify or exaggerate on the messages you send. All messages should be written down and signed by the responsible representative, this prevents misinterpretation of verbal information.

[7] the Emergency Plan for the City & Borough of Juneau specifies that the City's Emergency Manager is the lead person in the event of a disaster and ARES responds to requests from the Emergency Manager or their representative. See also section 4.4 pertaining to Search & Rescue operations.
[8] adapted from the ARRL Public Service Communications Manual, FSD-235 and the ARRL Emergency Coordinator's Manual, FSD-9 (9/01)

3.3.4 Authenticate all messages

As mentioned above, all original messages should be signed by the person authorizing/requesting their transmission. The signature line should also include their title and agency. ARES members should not initiate traffic.

3.3.5 Strive for efficiency

During an emergency some people have the ability to remain calm, others become hysterical and some amateurs may feel the need to become "sleepless heroes" operating without rest. Instead of operating around the clock arrange shifts at the best equipped and best located station. Arrange relief shifts so that everyone gets adequate rest. In the initial stages of a disaster there is a large amount of chaos but after things get organized there will be the need for communications for a long time. It is essential that operators are "fresh" and alert and able to respond to the needs for the agencies served.

3.3.6 Select the mode and band to suit the purpose

Some amateurs prefer their "favorite" band and mode. In an emergency the best band and mode for the situation should be used. Amateur radio has a huge advantage over all other radio users; we have 15 bands and multiple modes available to us, including CW, voice and digital. **The primary purpose is to get the traffic through**.

3.3.7 Use all communications channels intelligently

While the prime objective of emergency communications is to save lives and property, amateur radio is a secondary communications means; normal communications means should be used if available.

3.3.8 Don't "broadcast"

While the general public may be listening to amateur radio traffic it is not our purpose to broadcast. Broadcast stations are well equipped for the purpose, most have emergency generators. Our purpose is to communicate *for*, not *with*, the general public.

3.3.9 National Traffic System

Within the disaster area itself ARES is primarily responsible for communications support. During a disaster the first priority of NTS operators in or near the disaster area is to make their expertise available to their Emergency Coordinator. For timely and effective response this means that NTS operators need to talk with their EC's before the disaster so they know how best to respond.

3.4 NETS

Nets can be either open (informal) or a directed net. In an emergency nets are going to be directed, someone is going to be the Net Control Station (NCS) and control who speaks to whom and the order that traffic is passed.

Nets can be established for different purposes and there may be several nets covering one area depending on the scale of the incident and the agencies being served:

3.4.1 Tactical Net

A tactical net is the primary coordination net for the event or for a particular agency being served. These nets should use **tactical call signs**, identifying the location or function of that site; i.e., shelter, fire control, EOC, etc. Amateur call signs are used that the **end of transmissions only**, as required by FCC regulations (traffic should not be 10 minutes long). The use of tactical call signs prevents confusion when operators change. Tactical call signs will be assigned by net control.

These nets are restricted to traffic for the event only.

3.4.2 Resource Net

A resource net is for acquiring volunteers for the event and making assignments for various operators.

It should be noted that in the Northern SE AK ARES district, due to the limited ability of operators from outside of the area to respond, a resource net will rarely be needed.

3.4.3 Traffic Net

A traffic net is for passing formal (normally written) traffic. They are a directed net and traffic can either be passed on the net frequency or sent off to another frequency.

During a disaster there may be more than one traffic net, one may be local and one may be on HF to pass traffic into and out of the affected area.

3.4.4 Command Net

A command net can be established to coordinate the response and relief of ARES volunteers, arrange for equipment or other ARES resources to support the function of ARES. This type of net would normally be for the EC and AEC's.

3.4.5 Other nets

Other nets may be established to support a particular function or role within the overall emergency response, such as shelters or local Community Emergency Response Teams (CERT).

The number and type of nets will be established at the discretion of the EC.

3.5 ITU PHONETICS

A – alpha
B – bravo
C – charlie
D – delta
E – echo
F – foxtrot
G – golf
H – hotel
I – india
J – juliett
K – kilo
L – lima
M – mike
N – november
O – oscar
P – papa
Q – quebec
R – romeo
S – sierra
T – tango
U – uniform
V – victor
W – whiskey
X – x-ray
Y – yankee
Z – zulu

Pronunciation for numbers

1 – “wun”
2 – “too”
3 – “tharee”
4 – “fower”
5 – “fiyuv”
6 – “siks”
7 – “sevven”
8 – “ate”
9 – “nener”
0 – “zearow”

PROCEDURES

4.1 ARES ACTIVATION IN AN EMERGENCY

In any emergency it is essential that there is an orderly and controlled response. ARES must be part of that response and function within, and abide by, the lead agency's emergency plan. It is essential that we remember that we are there to provide communications for those agencies responding to the disaster.

4.1.1 Authority to Activate ARES

ARES can be activated by the Emergency Coordinator (EC), or the Assistant Emergency Coordinator (AEC), at the request of:

1. the City & Borough of Juneau's Emergency Manager or their designated representative
2. the Alaska State Troopers (see section 4.4)
3. United States Coast Guard (see section 4.4)
4. The Governor or his designated representative (Division of Emergency Services)
5. FEMA or other designated agency under the Federal Response Plan

Should members be aware of a communications emergency they should make every attempt to contact the Emergency Coordinator or AEC to ensure that he is aware of the situation.

ARES members should not respond to any emergency or request from any agency unless the EC or AEC has authorized deployment of ARES.

4.1.2 Notification Procedure

ARES members will be notified by an announcement over the Juneau repeater system as well as the ARES repeater, and by telephone and/or pager. Announcements will be in a format similar to those listed below:

Standby

"QST QST QST This is (call sign). ARES has been placed in a standby mode for possible deployment to a (nature of incident). ARES members should contact this station if they are available. Repeat; ARES has been placed in a standby mode for possible deployment, any available ARES members should contact this station. This is (call sign) standing by."

Updates will be provided as information is available.

Activation/Deployment

"QST QST QST This is (call sign), net control for the Northern SE Alaska ARES net. ARES has been activated for (nature of incident) and a net control has been established. Available ARES members should contact this station for assignments. Repeat, ARES net has been established for (nature of incident), available members should contact net control for assignment. This is (call sign) net control for Northern SE Alaska ARES standing by."

The following steps should also be taken

- Members will be assigned to locations as requested by the primary served agency. Net Control should assign tactical call signs for use from that location. When assigning operators Net Control should be aware of the operators license class, a Technician class operator cannot be assigned to a HF station unless a General class or higher Control Operator is also assigned.
- A liaison station should be assigned to establish HF voice communications to the State Emergency Coordination Center (SECC) at Ft. Richardson, Anchorage.
- A HF packet Gateway should also be established as soon as possible.

4.1.3 Deployment of Personnel

The EC will usually be the liaison with the agency served and will coordinate the deployment of personnel.

Upon arrival at the assigned location ARES members should immediately identify themselves to the person in charge or the contact person provided by the EC or Net Control.

As soon as possible establish a location from where to work (preferably with a table and near a window to facilitate placing an external antenna) and set up voice (2 meter) communications on the repeater and notify Net Control.

Packet operations will be established as soon as possible for passing formal written traffic. Contact will be made with the State Emergency Coordinator Center on HF on an appropriate frequency.

In most instances 2 or 3 operators will be assigned to each location to provide relief and backup equipment. This allows one person to establish communications while the other is setting up packet and other modes.

4.2 NET CONTROL STATION (NCS)

The role of the NCS is critical to the efficient and smooth traffic handling and operation required during a disaster.

4.2.1 Role of the NCS:

- the NCS is in charge of the net while the net is in session. He is responsible for controlling who uses the frequency and when they pass traffic.
- NCS must keep track of which resources are on the net and who has cleared the channel. NCS is also responsible for knowing what traffic each person is capable of dealing with (sending HF traffic to a Technician will not work).
- In medium and large operations you need to have a backup NCS and a person to log
- Keep a written record of the incident and all traffic passed. This does not mean a copy of all formal traffic, simply an overview of the message (a "Communications Log" can be used for this).
- Make ALL instructions clear and concise, **using as few words as possible**.
- Use tactical call signs. If participants do not follow your lead, only recognize those using tactical call signs (obviously this does not apply if they have emergency traffic).
- Different nets may be established for different traffic. Should someone try to pass traffic that should be on another net, refer them to the correct net.

4.2.2 Characteristics of a good NCS

- Good location with a commanding signal, i.e., crisp, clear signal with good audio characteristics
- Good hearing and listening capabilities
- Good ear-to-hand copying skills
- Understands what SERVICE means
- Willing to take and carry out direct orders
- Strong team player
- Decisive, with the maturity to make good judgment calls
- Organizer
- Ability to absorb new terminology quickly
- Ability to keep accurate log and control of the net
- Ability to coordinate (amateur) resources and assign operators to multiple locations to meet the needs of agencies served
- Knowledge of Incident Command System (see Appendix A)
- Knowledge of emergency management
- Knowledge of local communications systems and how amateur radio can inter act with them

- Flexible – confusion, especially in the early stages, is to be expected, be flexible to the needs of the agencies served
- Readable penmanship
- Consistently demonstrates above average operating techniques

4.3 SHELTER OPERATIONS

4.3.1 Staffing

Shelter operations, as with all locations, should be staffed by a minimum of two people; one to man the radio and the other to act as a runner. Ideally both will be operators so that they can provide relief for each other. Shelter operators need only be Technician class operators as all communications will be on 2-meters.

4.3.2 Duties

The purpose of operators in the shelter(s) is to provide communications between the Shelter Manager and the organization in charge of the shelters. This would usually be the Red Cross. Shelter operations may be on their own net depending on the scale of the incident.

Some of the communications may be lists of persons at the shelter, logistics requests or Welfare messages. Ideally these should be passed by packet.

Internal shelter communications should be accomplished by other means, i.e., simplex, Family Radio Service, etc.

Operators should avoid accepting duties or roles other than those associated with the function of ARES as this will hinder effective communications, our primary role.

4.3.3 Types of Communication

All shelter communications should be authorized by the Shelter Manager and should be in the form of a written message. The Red Cross Amateur Radio Operator Intake Form (ARC Form 2079H – Appendix L) may be used for collecting information on people at the shelter or those that are missing.

Communications may include:

- shelter head counts (not more than once per hour)
- requests for material
    - specific food needed
    - specific equipment needed
    - specific medical supplies needed
- request for specific personnel
    - Red Cross
    - medical
    - maintenance
    - other shelter workers

The "priority" (precedence) of the message is determined by the nature of the message, not the urgency the requester places on it. (see section 4.6.4.2)

4.4 SAR OPERATIONS

ARES operators may be called upon to assist in search and rescue operations and avalanche incidents.

4.4.1 Lead Agency

The Alaska State Troopers are the agency designated with the authority for all land based SAR's in the State of Alaska and therefore will be the lead agency in these SAR operations. All requests for ARES response must come from AST dispatch or an AST authorized Incident Commander (the EC maintains a list of qualified/authorized persons).

The U.S. Coast Guard is the lead agency for all water based SAR operations. Requests for ARES deployment must come from the U.S. Coast Guard Rescue Coordination Center.

4.4.2 Types of Communication

In most instances communications will be tactical in nature to support search and rescue operations in areas where other communications systems do not function; i.e., Eaglecrest and out the road.

Communications from Eaglecrest are possible on a 2 meter HT through the Heintzleman Ridge repeater, however, cellular phone service is not available.

Coverage out the road is usually possible on 2 meters through the Lena Point repeater, but a mobile radio may be necessary in some areas.

4.4.3 Written Traffic and Log

While written traffic may not be necessary in most instances operators should still make every effort to maintain a communications log. This log may be collected by the Incident Commander and retained as part of the incident paperwork.

4.4.4 Missing Persons

As additional information is obtained about missing persons this information may need to be passed as "traffic". The Missing Person Questionnaire (Appendix K) should have been used by the person obtaining the information and, as information is received, it should be filled out on a Missing Person Questionnaire form by the receiving operator.

4.4.5 Deployment and Assignment of Personnel

In most situations only a limited number of operators will be required, usually at the Command Post (on the scene) and at the EOC. If SAR operations are not being coordinated from the EOC then an operator at the Command Post and one with a telephone may be all that is required. Regardless of the requirements, SAR operations may go on for an extended period of time and relief operators will be needed.

4.5 NET FREQUENCIES

4.5.1 Repeaters

The primary net frequency will be the JARC linked repeater system, utilizing the closest repeater. Some of the repeaters have backup power supplied by generator, some have a limited backup power supplied by batteries.

2 meter repeaters:

146.820-	Mt Roberts Tram
146.640-	Heintzleman Ridge
147.000-	Lena Point
146.700-	Hoonah Mountain

If necessary, the link can be turned off remotely and the repeaters can be operated independently of each other. The decision to take this step must be made by the EC.

The Engineers Cutoff repeater is owned by the State of Alaska and designated as an ARES repeater, although it's coverage is not as extensive as the JARC linked system.

147.300+	Engineers Cutoff (Pederson Hill)

A privately owned 70cm repeater also exists in Juneau. ARES has an agreement with the owner that this system can be used during an emergency. This system is linked, via the internet, into the Internet Radio Linking Project (IRLP) and can be linked with other repeaters world wide over the internet. Currently there is a repeater in Anchorage that is part of this system and therefore it is possible to pass messages over this system.

444.700+	Downtown

4.5.2 Simplex

Should all the repeaters in Juneau fail most areas within the City & Borough of Juneau can still communicate on simplex, although relays may be needed in some areas. Simplex frequencies may also be appropriate for special event communications where the event is limited in size (area).

Simplex frequencies may be assigned by NCS for passing traffic from one station to another where the NCS is not a recipient, thus leaving the net frequency available for higher priority traffic.

When used for passing traffic the National Simplex Calling frequency (146.520) should not be used as this is most publicized and easiest for someone to program into a scanner.

In order to facilitate the passing of messages of a "sensitive" nature (especially until the packet node is fully operational) the national simplex frequencies have been assigned a frequency designator in the table below, which should be used to identify the frequency, rather than frequency itself.

National Simplex Frequencies and Frequency Designator

A	146.400	J	146.550	S	147.480
B	146.415	K	146.565	T	147.495
C	146.430	L	146.580	U	147.510
D	146.445	M	146.595	V	147.525
E	146.460	N	147.405	W	147.540
F	146.475	O	147.420	X	147.555
G	146.490	P	147.435	Y	147.570
H	146.505	Q	147.450	Z	147.585
I	146.535	R	147.465		

4.5.3 HF

The HF frequency that best meets the current communications needs will be utilized. Priority should be given to utilizing an existing Alaska net frequency.

Alaska Pacific Preparedness Net	14.292 MHz
Sniper's Net	3.920 MHz
Bush Net	7.093 MHz
Motley Net	3.933 MHz
NTS traffic net	7.2685 MHz
AK Statewide Emergency	5.1675 MHz **emergency use only**

FCC Part 97 Rules and Regulations, section 97.401(d) permit amateur radio operators in Alaska to operate on 5.1675 MHz in a disaster.

ARES has secondary user privileges on a 1500 watt HF system with a log periodic rotatable beam antenna maintained by the National Communications System. In the event of a disaster and the activation of the National Telecommunications Coordinating Network, ARES members will be assigned to this location to provide a communications interface with this net. All traffic on the NCS system must be formal (written).

4.5.4 Packet

ARES is working with the City & Borough of Juneau and the Alaska Division of Emergency Services to provide a packet node in Juneau.

The installation of a bulletin board system and a HF gateway for digital messages is also under design.

This section will be updated as soon as node information is obtained.

4.6 PASSING TRAFFIC

All traffic should be in a formal format, i.e., written on message forms. Instructions for completing these forms is contained below.

When calling Net Control with a message for Net Control state;

> "Net Control this is medical I have 1 priority message for EOC" (tactical call signs)

Net Control will respond:

> "Medical pass your traffic"

In the event that traffic is for a station over than Net Control:

> "Net Control this is medical I have 1 emergency message for BRH (a tactical call sign)"

Net Control may assign a simplex frequency for site to site traffic, keeping the repeater clear for higher priority traffic, in which case;

> "BRH this is Net Control, switch to 146.520 (or another simplex frequency) for traffic from medical"

BRH should acknowledge and switch to the assigned frequency to pass their traffic.

Once traffic is passed both stations should end with their tactical and FCC call sign (to meet FCC regulations) and switch back to the Net frequency. The receiving station should then advise Net Control that they received the traffic so that Net Control is aware that both stations are back on the Net frequency.

4.6.1 ARRL Radiogram Message Form

In order to be proficient at passing formal traffic it essential that operators practice passing traffic on a regular basis. One method of doing this is to participate in the National Traffic System as an Official Relay Station, passing formal traffic on a regular basis. Another method is by participating in ARES drills and exercises, one of the functions of the Emergency Coordinator.

The ARRL Radiogram form is used on the NTS nets on a regular basis and all operators should be familiar with its use.

4.6.2 ARES Official Message Form

The ARES Emergency Message (Appendix I) form is similar in layout to the ARRL Radiogram form, however, it has additional space for the text. In all instances a signature should be obtained on the original message form for authentication.

4.6.3 Prowords

When sending formal traffic certain “PROWORDS“ are used to clarify portions of the message. These PROWORDS are:

BREAK	separates address from text and text from signature
CORRECTION	I’m going to correct an error
END	END of message, usually followed by “no more” or “more” as below
MORE	MORE messages to follow
NO MORE	NO MORE messages to follow
FIGURES	used for a word group containing figures
INITIAL	used only for a single INITIAL
I SAY AGAIN	used to indicate a “repeat” of a word
I SPELL	to spell (phonetically) a word
LETTER GROUP	i.e., ARES, SCTN
MIXED GROUP	i.e., 12BA6
AMATEUR CALL	used to indicate an amateur call sign follows

When receiving traffic certain PROWORDS are used for clarification or repeats of missing words. These PROWORDS are preceded by SAY AGAIN:

WORD AFTER

WORD BEFORE

BETWEEN

ALL AFTER

ALL BEFORE

4.6.4 Instructions for Completing Forms

There are 4 basis areas of the ARRL Radiogram and the ARES Official Message form;

- preamble,
- address,
- text
- signature.

4.6.4.1 PREAMBLE often referred to as "the header"

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

Number (#)

this is a sequential number assigned by the station originating the message (the station that first places the message into the system). This number does not change, even if re-transmitted by other stations.

Precedence

This determines the priority of the message:

EMERGENCY

Any message having life and death urgency, this includes official messages of welfare agencies during emergencies requesting supplies, materials or instructions vital to the relief of people in the effected area. When in doubt, *do not use*. On *cw* and digital modes this is always spelled out.

PRIORITY

Important messages having a specific time limit. Official messages not covered in the emergency category. Press dispatches and other emergency-related traffic not of the utmost urgency. Notification of death or injury in the effected area. Abbreviated **P** on *cw*.

WELFARE

A message that is a) an inquiry as to the health and welfare of an individual in the effected area, or b) a reply from the effected area that indicates all is well. Abbreviated as **W** on cw.

ROUTINE

Nearly all traffic at normal times will be routine. In an emergency routine traffic is handled after all other traffic, if at all if circuits as busy with emergency, priority and welfare traffic. Abbreviated as **R** on *cw*.

During drills and exercises the word DRILL is inserted after the precedence; i.e., WELFARE DRILL.

HX

This is for HANDLING INSTRUCTIONS. This is an optional field used at the discretion of the originating station, they are usually not used during a disaster. They are standard and there are seven of them:

HXA(#) collect landline delivery authorized if within # miles

HXB(#) cancel message if not delivered within # hours of filing time, service originating station

HXC report time and date of delivery to originating station

HXD report to originating station the identity of station from which received, plus date and time. Report identity of station to which relayed, plus date and time, or if delivered report date, time and method of delivery

HXE delivering station get reply from addressee, originate message back

HXF(#) hold delivery until # date

HXG delivery by mail or landline toll call not required. If toll or other expense involved, cancel message and service originating station

Station of Origin

The station that first originates the message into the NTS system.

Check

The number of words in the body of the message. This does not include the address or the senders signature.

Place of Origin

The city and state

Time Filed

Time (in UTC) Although not required in normal traffic some of the handling instructions indicate to cancel if not delivered within a certain time – in this instance the time of origin is important. In a disaster the time of origin is important.

Date

Date filed in UTC.

for example

NUMBER	PRECEDENCE	HX	STATION OF ORIGIN	CHECK	PLACE OF ORIGIN	TIME FIELD	DATE
123	E		N3WWE	10	Juneau AK	0710Z	6 Nov 2001

would be ready as:

“one two three, emergency, N3WWE, one zero, Juneau Alaska, zero seven one zero Zulu, 6 November two zero zero one”

BT A break is taken prior to reading the address

4.6.4.2 ADDRESS

The name and address of the person to whom the message is being sent. This should include their organization and a telephone number. When reading numbers in the address preceed them by the PROWORD “figures”.

TELEPHONE

The phone number of the intended recipient.

BT

4.6.4.3 TEXT

One word or number group in each block.

When reading text numbers should be preceded by the word “number group”.

A period is shown by an “X” and is pronounced “X-ray” when being sent by voice.
X-ray is not used at the end of the text, it is superfluous.

BT

4.6.4.4 SIGNATURE

This is the sender (not the station originating). If sending for an agency this would be their name and title.

The signature is ready immediately following the text; “signed Bill Smith.”

The signature is not counted in the check.

X-ray is not used after the signature.

At the end of the message, if there are no further messages, the phrase “END NO MORE” is used.

If there are further messages then the phrase “END 1 MORE” (or however many) is used.

4.7 DRILLS & EXERCISES

Drills and exercises provide an opportunity for people to practice skills they have learned during training sessions. Exercises take several forms and each type of exercise has a different, and specific, purpose. The Emergency Coordinator is responsible for establishing a training program and conducting at least one annual Simulated Emergency Test (SET).

In the Northern SE AK ARES district the EC will establish an annual training program, including various exercises and several SET's to test the effectiveness of the training program and abilities of operators. ARES may also be requested by local and state government to assist with their emergency exercises.

All messages during an exercise must be preceded and by the phrase; "this is an exercise message". During an exercise the Net Control Station should announce; "This is an exercise net" about every 15 minutes.

A brief explanation of the type and purpose of each exercise is given below.

4.7.1 Orientation Exercise

An orientation is an informal exercise. There is no simulation and the participants discuss the roles and responsibilities of the various agencies and participants. The exercise can be limited to a specific function or group, i.e., communications or command staff.

4.7.2 Drill

During a drill a single Emergency Response Function is evaluated and usually involves a single agency. There is often a field (real life) component.

Emergency Response Functions of a local emergency plan are;

- alert notification (response personnel)
- communications
- emergency public information
- damage assessment
- health and medical
- public safety
- public works
- resource management
- warning (public)
- government survival

A drill for ARES would involve an on-the-air exercise such as passing written traffic or acting as Net Control.

4.7.3 Table-Top Exercise

This is an informal discussion of a simulated emergency, there is no time pressure and it is a "low stress" exercise. It is useful for evaluating plans and procedures and resolving questions or coordination and responsibility.

For ARES this would relate to a discussion of the various roles and deployment ARES would be involved in depending on the situation.

4.7.4 Functional Exercise

A functional exercise takes place in real time where the Policy and Coordination personnel practice emergency response. It is designed to be a "stressful and realistic" simulation. The exercise emphasizes Emergency Functions and the Emergency Operations Center is activated.

This would involve ARES activation and participation in a City or other agency exercise.

4.7.5 Full-scale Exercise

A full-scale exercise takes place in real time, employs real people and equipment and coordinates many agencies. The full-scale exercise tests many (but does not need to test all) of the Emergency Functions. The Emergency Operations Center is activated and it produces high stress.

4.7.6 Simulated Emergency Test (SET)

The SET is an annual nationwide exercise in emergency communications organized by ARRL Emergency Coordinators and Net Managers. The national SET is held over a weekend in October, however EC's may hold the exercise at any time.

The Purpose of SET

1. To find out the strengths and weaknesses of ARES and NTS, the Radio Amateur Civil Emergency Services (RACES) and other groups in providing emergency communications.
2. To provide a public demonstration to served agencies; such as the Red Cross, Civil (Emergency) Preparedness and, through the news media, of the value to the public that Amateur Radio provides, particularly in time of need.
3. To help amateur amateurs gain experience in communications using standard procedures and a variety of modes under simulated-emergency conditions.

4.7.7 After Action Report

In order to improve our abilities every exercise and real deployment of ARES should be followed-up with an After Action Report. This is a summary of the circumstances of the event, deployment of ARES, the services provided, what went well and worked and what needs improvement. The report serves as a guide for future training as well as modifications that may be needed to the Communications Plan.

EMERGENCY EQUIPMENT

ARES members should keep the following items ready for deployment at short notice:

5.1 RADIO EQUIPMENT

HT with charged batteries
battery pack for “AA” or similar batteries with at least 2 sets of batteries
rapid charger
base/mobile radio
power supply
mag mount or J pole antenna (see Appendix B)
coax with appropriate connectors
operating manual for radio(s)
earphone/headset
packet/TNC and computer

5.2 TOOLS (assuming you know how to use them)

pliers/cutters
assorted screw drivers
socket set
soldering iron
assorted connectors and wire
electrical tape
duct tape
SWR meter
multimeter
tie wraps

5.3 MISCELLANEOUS

fishing line with lead weight
extension power cords
nylon guy line
flashlight(s) and spare batteries bulbs

5.4 PAPERWORK etc

ID – ARES members will be issued ID which must be displayed when performing ARES functions

FCC license (could laminate and carry on same clip as ARES ID)

a supply of Radiogram forms

a supply of Communication Logs

note pad

pencils/pens

copy of ARES Communication Plan

amateur radio band plan

5.5 PERSONAL SUPPLIES

emergency food (energy bars if you like them)

water (at least 1 gallon)

ibuprophen/asprin or other medication of choice

personal medications

cash, check book etc

change of clothing

wipes (baby wipes)

folding chair & table

tooth brush, paste etc

sleeping bag, pillow, blanket, air matress

local map

APPENDIX A THE INCIDENT COMMAND SYSTEM (ICS)

adapted from FEMA IS-15 Special Event Contingency Planning

INCIDENT COMMAND AND CONTROL

The Incident Command System (ICS) dates back to the early 1970s. Responding to a series of wildland fires in Southern California, municipal, state, county, and federal resources worked together to achieve a single goal. Because agency differences in communications, control, strategy management, and other leadership concerns, as well as the use of nonstandard terminology, caused many difficulties, the agencies produced a plan called FIRESCOPE to combat these problems and create centralized control. The National Fire Academy adopted this program, and the International Association of Chiefs of Police endorsed it in 1987. The federal government eventually endorsed this plan and now requires its use in any operation involving hazardous materials.

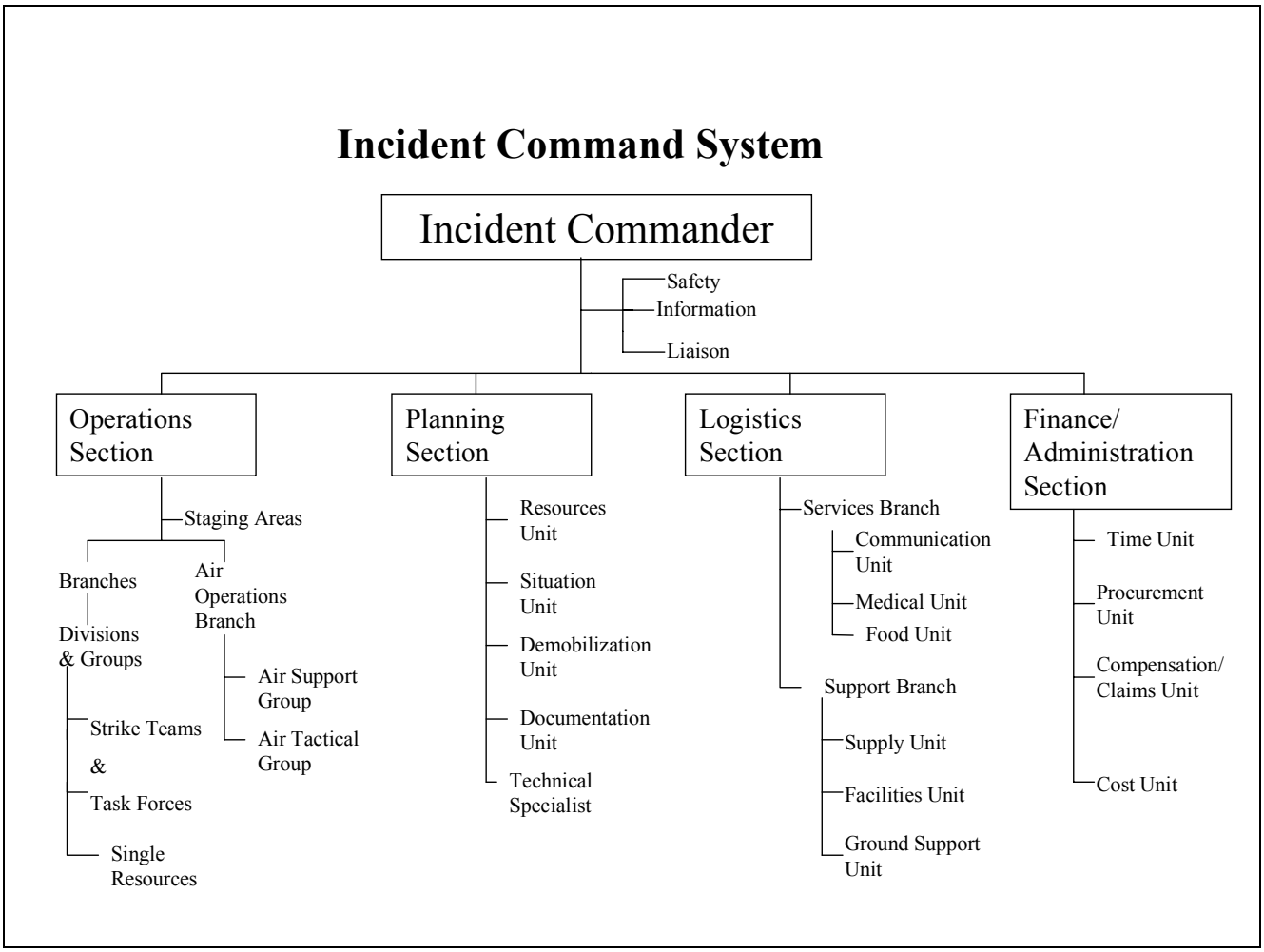
Using ICS is an excellent means of determining how resources are going to be used, who will coordinate them, and how information will be communicated using common terminology in response to a variety of matters relating to any special event. ICS is designed to assist event planners in the areas of:

- Basic management of resources,
- Organization,
- Delegation of authority,
- Coordination,
- Communication, and
- Evaluation.

Use of ICS optimizes communication and coordination, and facilitates the protection of life and property. ICS achieves this goal by establishing a protocol command structure for any event or incident and using common terminology that ensures everyone will understand what is being said and how to acknowledge it properly. The command organization consists of an incident commander, command staff, and general staff. In some small events, the Incident Commander (IC) may handle all functions; in larger events, the IC may delegate tasks to other persons. Five functional components of ICS are implemented, as needed:

- Command,
- Planning Section,
- Operations Section,
- Logistics Section, and
- Finance/Administration Section.

ICS can be expanded as the event demands increase in volume or complexity, and then contracted as demands diminish.



ROLES AND EXPECTATIONS

The ICS chart above shows the five major sections that may be required to manage any event and/or incident. Branches of these sections that may also be needed are identified as well. Some events/incidents require very few functional areas, while others require activation of more. As you can see from the chart, ICS designates positions for every contingency. The job descriptions below detail what is required of persons filling the major positions.

INCIDENT COMMANDER

The Incident Commander (IC) is responsible for the overall management of the incident. Deputies may also be used at section and branch levels of the ICS organization. Deputies must have the same qualifications as the persons for whom they work because they must be ready to take over those positions at any time.

Responsibilities—The Incident Commander must:

- Ensure that all appropriate pre-event risk analyses, plans, checklists, and forms are completed and available to event personnel.
- Develop the mission, objectives, strategies, and command structure for the event;
- Establish immediate priorities;
- Establish an appropriately located event Command Post (CP);
- Develop an effective operational period schedule;
- Ensure that planning meetings are scheduled as required;
- Approve and authorize the implementation of an Incident Action Plan (IAP) for each operational period;
- Ensure that adequate safety measures are in place;
- Coordinate activity for all command and general staff;
- Coordinate with key people;
- Approve requests for additional resources or for the release of resources;
- Keep agency administrators informed of event/incident status;
- Approve the use of trainees, volunteers, and auxiliary personnel;
- Authorize release of information to the news media; and
- Ensure that an order the demobilization of the event/incident when appropriate.

SAFETY OFFICER

The Safety Officer's function is to develop and recommend measures for assuring personnel safety and assess or anticipate hazardous and unsafe situations. Only one Safety Officer will be assigned for each event. The Safety Officer may have assistants as necessary, and the assistants may also represent assisting agencies or jurisdictions. Safety assistants may have specific responsibilities, such as air operations or hazardous materials.

Responsibilities—The Safety Officer should:

- Participate in all planning meetings;
- Identify hazardous situations associated with the event;
- Review the IAP for safety implications;
- Exercise emergency authority to stop or prevent unsafe acts;
- Investigate accidents that have occurred during the event;
- Assign assistants as needed; and
- Review and approve the medical plan.

PUBLIC INFORMATION OFFICER (PIO)

The Information Officer is responsible for developing and releasing public information regarding safety matters of the event to the news media, to incident personnel, and to other appropriate agencies and organizations. Typically, the event promoter or sponsor releases most public information and advertisements. In the case of a major incident occurring during the event including those operating under Unified Command, the Information Officer should become the sole spokesperson. The Information Officer may have assistants as necessary, and the assistants may also represent assisting agencies or jurisdictions.

Participating agencies may have conflicting policies and procedures concerning the dissemination of public information. The following major responsibilities assigned to the Information Officer apply generally to any event.

Responsibilities—The Public Information Officer should:

- Determine from the Incident Commander whether there are any limits on information release;
- Develop material for use in media briefings;
- Obtain the Incident Commander's approval of media releases;
- Establish a media briefing area;
- Inform the media and conduct media briefings;
- Arrange for tours and other interviews or briefings that may be required;
- Obtain media information that may be useful to event planning; and
- Maintain current information summaries and/or displays on the event and provide information on the status of any incidents to assigned personnel.

LIAISON OFFICER

Special events that are multi-jurisdictional or that involve several agencies may require the establishment of a Liaison Officer position on the Command Staff.

The Liaison Officer is the contact person for agency representatives assigned to the event from assisting or cooperating agencies. These representatives are personnel other than those on direct tactical assignments or those involved in Unified Command.

Responsibilities—The Liaison Officer should:

- Be a contact point for agency representatives;
- Maintain a list of assisting and cooperating agencies and agency representatives;
- Assist in establishing and coordinating interagency contacts;
- Keep agencies supporting the event aware of event/incident status;
- Monitor event operations to identify current or potential inter-organizational problems;
- Participate in planning meetings, providing current resource status, including limitations and capability of assisting agency resources.

OPERATIONS SECTION CHIEF

Responsibilities—The Operations Section Chief should:

- Manage tactical operations;
  - Interact with next lower level of the Operations Section (Branch, Division/Group) to develop the operations portions of the IAP, and
  - Request resources needed to implement the Operation's tactics as a part of the IAP development;
- Assist in developing the operations portion of the IAP;
- Supervise the execution of the IAP for Operations;
  - Maintain close contact with subordinate positions, and
  - Ensure safe tactical operations;
- Request additional resources to support tactical operations;
- Approve release of resources from assigned status (not released from the event/incident);
- Make or approve expedient changes to the IAP during the operational period as necessary; and
- Maintain close communication with the IC.

PLANNING SECTION CHIEF

The Planning Section collects, evaluates, processes, and disseminates information for use throughout the event. When activated, the Planning Section Chief who is a member of the command staff manages the section.

Responsibilities—The Planning Section Chief should:

- Collect and process situation information about the event;
- Establish information requirements and reporting schedules for Planning Section units (Resources and Situation Units);
- Supervise preparation of the IAP;
- Provide input to the Incident Commander and Operations Section Chief in preparing the IAP;
- Establish special information collection activities (for example, weather, environmental, and toxic substances) as necessary;
- Compile and display event status information;
- Report any significant changes in the status of the event;
- Assemble information on alternative strategies;
- Provide periodic predictions on event/incident potential;
- Determine need for any specialized resources in support of the event;
- Reassign out-of-service personnel already onsite to ICS organizational positions, as appropriate; and
- Oversee preparation of event/incident demobilization plan.

LOGISTICS SECTION CHIEF

Typically, the promoter and/or sponsor provide resources to execute the event. However, certain necessary resources and support needs may not be provided (e.g., command post, communications equipment, medical supplies, etc.), and therefore, must be procured. The Logistics Section, with the exception of aviation support, provides support needs for the event command infrastructure. The Air Support Group (in the Air Operations Branch of the Operations Section) handles aviation support. The Logistics Section Chief, who may assign a Deputy, manages the Logistics Section. A Deputy is most often assigned when all designated units within the Logistics Section are activated.

The Logistics Section Chief will determine the need to activate or deactivate a unit. If a unit is not activated, responsibility for that unit's duties will remain with the Logistics Section Chief.

Responsibilities—The Logistics Section Chief should:

- Manage all event command infrastructure logistics;
- Provide logistical input to the Incident Commander in preparing the IAP;
- Brief Branch Directors and Unit Leaders as needed;
- Identify anticipated and known event service and support requirements;
- Request additional resources as needed;
- Review and provide input to the Communications Plan, Medical Plan and Traffic Plan;
- Supervise requests for additional resources; and
- Oversee demobilization of Logistics Section.

FINANCE/ADMINISTRATION SECTION CHIEF

The Finance/Administration Section is responsible for managing all financial aspects of the event command infrastructure. Here again, typically, the promoter and/or sponsor manage the financial aspects of most special events. However, when certain necessary resources and support needs are not provided, some means of maintaining financial accountability should be established. As such, not all event/incidents will require a Finance/Administration Section. Only when the agencies involved in responding to the event/incident have a specific need for Finance/Administration services will the section be activated.

Responsibilities—The Finance/Administration Chief should:

- Manage all financial aspects of an event's command infrastructure;
- Provide financial and cost analysis information as requested;
- Gather pertinent information from briefings with responsible agencies;
- Develop an operating plan for the Finance/Administration Section to fill supply and support needs;
- Determine need to set up and operate an event/incident commissary;
- Meet with assisting and cooperating agency representatives as needed;
- Maintain daily contact with agency administrative headquarters on Financial/Administration matters;
- Ensure that all personnel time records are accurately completed and transmitted to home agencies, according to policy;
- Provide financial input to demobilization planning;
- Ensure that all obligation documents initiated at the event/incident are properly prepared and completed; and

- Brief agency administrative personnel on all event/incident-related financial matters needing attention or follow-up.

INCIDENTS OCCURRING DURING A SPECIAL EVENT

As discussed above, certain incidents occurring during a special event may dictate the need for a specific incident commander to manage that particular incident (e.g., isolated structure fire, vehicle crash, HAZMAT incident, structure collapse, multiple casualty incident, etc.). When an incident occurs within a special event, immediate action must be taken to control and manage the incident. As the incident grows, the issues that must be considered will grow as well. The Incident Commander of the special event may assign command of the emergency incident to a ranking responder. This responder must take initial steps to bring order to the incident as in situations requiring more traditional applications of ICS. The Incident Commander of the special event may authorize the responder to implement their own command structure and/or call upon the resources of the event command structure. This responder must:

- Assess the situation;
- Determine whether human life is at immediate risk;
- Establish the immediate priorities and objectives;
- Determine whether there are adequate and appropriate resources on-scene or ordered;
- Establish an appropriately located on-scene Command Post (CP), if needed;
- Establish an appropriate initial command structure, if needed;
- Develop an action plan;
- Ensure that adequate safety measures are in place;
- Coordinate activity for all command and general staff;
- Consider whether span of control is approaching or will soon approach practical limits, taking into account safety of personnel;
- Determine whether there are any environmental concerns that must be considered;
- Monitor work progress – coordinate with key people;
- Review and modify objectives and adjust the action plan as necessary.
- Approve requests for additional resources or for the release of resources;
- Keep the overall event Incident Commander informed of incident status;
- Authorize release of information to the news media; and
- Order the demobilization of the incident when appropriate.

TRANSFER OF COMMAND

In prolonged events, it is likely that a change of command may take place. When transfer of command is necessary, the transfer must be made as efficiently as possible and in person, whenever possible. To transfer command, the person being relieved must brief the incoming Incident Commander to provide information about:

- The incident conditions including:
  - Event history (what has happened so far),
  - The IAP and its current status,
  - Priorities and objectives,
  - Current event organization,

  - Current resource assignments,
  - Resources ordered/needed,
  - Status of communications
  - The IAP and its current status.
- Safety considerations and concerns.
- Deployment and assignment of operating units and personnel.
- Constraints or limitations on response agencies, and
- Incident potential.

ICS Form 201 is well designed for briefings because it contains a place for a sketch map, a place to write a summary of current actions and organizational framework, and a place to summarize resources. Sections of the form can be separated from the document and given to ICS sections to complete as needed.

Be aware that changes may cause disruptions and should be implemented at the start of operational periods whenever possible. Finally, once command has been transferred, ensure that all personnel and communications centers are notified of the transfer of command.

UNIFIED COMMAND

ICS is built from the Unified Command concept. Unified Command is a term referring to shared responsibility for event management using either single agency multi-jurisdiction or multiple agencies. A clear line of authority for decision-making must always be in place.

ICS offers two options for command, as follows:

- Single Command, in which there is no overlap of jurisdiction or when the agency in charge designates Single Incident Command; or

- Unified Command, when more than one agency shares responsibility for responding to, or participating in, the event/incident. Unified Command means that all agencies contribute to the command process by determining goals and objectives, jointly planning activities, conducting integrated tactical operations, and maximizing all resources. Unified command is also used when an event/incident is multi-jurisdictional or when more than one individual shares overall management responsibility.

Unified Command is a team effort process, allowing all agencies with responsibility for an incident, either geographical or functional, to establish a common set of incident objectives and strategies to which all can subscribe. This set of objectives and strategies is accomplished without losing or abdicating agency authority, responsibility, or accountability. Unified Command is not a new organization; the U.S. military has used similar command structures in joint operations for years.

There are four elements to consider when applying Unified Command to an event/incident:

POLICIES, OBJECTIVES, STRATEGIES

In joint military operations, setting the policy, objectives, and strategy is the responsibility of the coalition of countries operating within the United Nations mandate. In ICS, this responsibility belongs to the various jurisdictional and agency administrators who set policy and are

accountable to their agencies. This activity is accomplished in advance of tactical operations, and it may be coordinated from some location other than the one where the direct action takes place.

ORGANIZATION

In joint military operations, Unified Command organization consists of the unified Force Command established at the scene. In ICS, Unified Command organization consists of the various jurisdictional or agency on-scene senior representatives (agency Incident Commanders).

RESOURCES

In joint military operations, resources include of all of the U.S. armed services, plus various service elements from other countries. In ICS Unified Command, resources are the personnel and equipment supplied by the jurisdictions and agencies that have functional or jurisdictional responsibility for the IAP.

OPERATIONS

In joint military operations, after the objectives, strategies, and interagency agreements are decided, a single Force Commander is designated to develop tactical action plans and to direct tactical operations. In ICS/Unified Command, that person is the Operations Section Chief.

In both joint military operations and ICS Unified Command, resources remain under the administrative and policy control of their agencies. However, they respond operationally to mission assignment under the coordination and direction of the Force Commander or Operations Section Chief, depending upon the requirements of the action plan.

Unified Command represents an important element in increasing the effectiveness of multi-jurisdictional or multi-agency events/incidents. As events/incidents become more complex and involve more agencies, the need for Unified Command becomes even greater.

The advantages of using Unified Command include:

- A single set of objectives developed for the entire event/incident;
- A collective approach made to develop strategies to achieve event/incident goals;
- Improved information flow and coordination among all jurisdictions and agencies involved in the IAP;
- An understanding among agencies of respective priorities and restrictions regarding responsibility for the IAP;
- No compromise or neglect of an agency's authority or legal requirements;
- An awareness among agencies of respective plans, actions, and constraints;
- An optimized combined effort of all agencies performing their respective assignments under a single IAP; and
- A reduction or elimination of duplicative efforts, thus reducing cost and chances for frustration and conflict.

Using Unified Command is practical and cost effective. Agencies can improve incident management and achieve goals in a timely, cost-effective manner.

Unified Command Organization

Five important features of a Unified Command organization include a single, integrated incident organization; collocated facilities; a single planning process and IAP; shared planning, logistical, and finance sections; and unified resource ordering.

A Single Integrated Incident Organization

Under Unified Command, the various jurisdictions or agencies are blended together into an integrated, unified team. The resulting organization may be a mix of personnel from several jurisdictions or from a single agency, each performing appropriate functions and working toward a common set of objectives. The proper mix of participants in a Unified Command organization will depend on:

- The location of the event/incident, which often determines the jurisdictions which must be involved; and
- The kind of event/incident, which dictates the functional agencies of the involved jurisdiction(s), as well as other associated agencies.

In a multi-jurisdictional response to an event/incident, a Unified Command structure could consist of a single responsible official from each jurisdiction. In other cases, Unified Command may consist of several functional department managers or assigned representatives from within a single political jurisdiction.

Co-located Facilities

By bringing the responsible officials, command staffs, and planning elements together in a single Incident Command Post, a coordinated effort can be maintained for as long as the Unified Command structure is required.

One base or command post can serve the needs of multiple agencies. Similarly, resources from several agencies can be brought together in staging areas.

A Single Planning Process and IAP

Electing participants to work in Unified Command depends on the location and the type of event/incident. A Unified Command structure may comprise one principal official from each jurisdiction or representatives from several responders. Since the Operations Section is the agency with greatest involvement, the Operations Section chief usually implements the IAP. In a Unified Command, all agencies involved contribute to the command process.

Every event needs an IAP. Action plans may be written or verbal, although best if written. Either type must cover strategic goals, tactical objectives, and needed support. If an event is prolonged, it may require more than one action plan.

If the gathering is large and multiple events are taking place simultaneously, one feature of the IAP may be an event/incident timeline showing the sequence of events and their locations.

The planning process for Unified Command is similar to that used in Single Incident Command. However, one important distinction is the need in Unified Command for every jurisdictional or functional agency's Incident Commander to participate in a Command Meeting before creating the joint IAP in the first operational meeting.

This initial Command Meeting provides the responsible agency officials with an opportunity to discuss and concur on important issues before the joint IAP is created.

Command Meeting requirements include the following:

- The Command Meeting should include only agency Incident Commanders.
- The meeting should be brief, and important points should be documented.
- Prior to the meeting, the respective responsible officials should have reviewed the meeting's purposes and agenda items (described above) and be prepared to discuss them.

Officials attending the initial Command Meeting should:

- State jurisdictional/agency priorities and objectives;
- Present jurisdictional limitations, concerns, and restrictions;
- Develop a collective set of event/incident objectives;
- Establish and agree on acceptable priorities;
- Adopt a general, overall strategy or strategies to accomplish objectives;
- Agree on the basic Unified Command organizational structure;
- Designate the best-qualified and most acceptable Operations Section Chief;
- Agree on General Staff personnel designations and planning, logistical, and finance agreements and procedures;
- Agree on the resource ordering process to be followed;
- Agree on cost-sharing procedures;
- Agree on informational matters;
- Designate a single agency official to act as the Unified Command spokesperson.

Incident Action Planning meetings will use the results of the Command Meeting to determine:

- Tactical operations for the next operational period;
- Resource requirements and resource availability and sources;
- Resource assignments;
- The unified Operations Section organization; and
- Combined Planning, Logistics, and Finance/Administration operations, as needed.

The result of the planning process will be an IAP that addresses multi-jurisdictional or multi-agency priorities and provides tactical operations and resource assignments for the unified effort.

SHARED PLANNING, LOGISTICS, FINANCE/ADMINISTRATION SECTIONS

The Unified Command incident organization can also benefit by integrating multi-jurisdictional and/or multi-agency personnel into various other functional areas.

For example, in the Operations and Planning Sections, Deputy Section chiefs can be designated from an adjacent jurisdiction which may, in future operational periods, have the primary responsibility for these functions.

By placing other agencies' personnel in the Planning Section's Situation, Resources, and Demobilization units, significant savings in personnel, and increased communication and information sharing will often result.

In the Logistics Section, a deputy Logistics Section Chief from another agency or jurisdiction can help to coordinate event/incident support as well as facilitate resource-ordering activities. Placing other agencies' personnel into the Communications Section helps in developing a single event/incident-wide Communications Plan.

Although the Finance/Administration Section often has detailed and agency-specific procedures to follow, cost savings may be realized through agreements on cost sharing for essential services. For example, one agency might provide food services, another fuel, and a third security.

UNIFIED COMMAND RESOURCE ORDERING

An important advantage of Unified Command over Single Incident Command is the ability of commanders to establish resource-ordering procedures before the Incident Action Planning meeting. During the Command Meeting, commanders can designate specific kinds and types of resources to be supplied by certain jurisdictions or agencies in the resource-ordering procedures. This designation depends upon the previous commitments of the responsible agency officials.

Following the Command Meeting, the Incident Action Planning meeting will determine resource requirements for all levels of the organization. The nature and location of the event/incident will, to some extent, dictate the most effective offsite resource-ordering procedure.

These resource requirements established at the Incident Action Planning meeting are given to the Logistics Section, which then creates a single resource order that is transmitted to a single agency responsible for filling the order. (Some situations may require multiple resource orders to be transmitted to multiple agencies. However, multiple resource orders are generally less desirable than a single resource order, and they should be avoided when possible.) The agency then fills the order from the closest available resource.

Having resource-ordering procedures in place before the Incident Action Planning meeting determines resource requirements ensures that the agency filling the resource order can do so quickly and effectively.

FUNCTIONING IN UNIFIED COMMAND

It is essential to understand how an Incident Command System (ICS) Unified Command functions. Knowledge of ICS principles of organization will enable managers to accept and easily adapt to a Unified Command mode of operation when it is required. Lack of knowledge about ICS can limit the willingness of some jurisdictions or agencies to participate in Unified Command incident organization. It is impossible to implement Unified Command unless all affected agencies have agreed to participate in the command structure.

Establishing a single Incident Command Post is essential to success. Other facilities where all agencies can operate together may be established as needed. Avoid the confusion created by separate command, planning, and logistics setups.

Begin action planning as early as possible after the notification of an event/incident. Initiate Unified Command as soon as two or more agencies having jurisdictional or functional responsibilities participate in, or respond to, the event or incident. Where conflicting priorities based on agency responsibilities exist, early initiation of Unified Command is especially important.

The Operations Section Chief will normally be chosen from the jurisdiction or agency that has the greatest involvement in the event/incident, although this association is not essential.

However, the Operations Section Chief should be the most qualified and most experienced person. The selection of the Operations Section Chief must be agreed upon by the Unified Command because he or she will have full authority to implement the operations portion of the IAP. The Unified Command must also agree on other General Staff personnel who will be implementing their portions of the IAP.

If necessary, the Unified Command may designate one of the Incident Commanders to act as a spokesperson. The Incident Commanders may see the need to identify one among them to act as an Operational Period Duty Officer and/or spokesperson for the Unified Command.

Designating a spokesperson can provide a channel of communications from the General and Command Staff members into the Unified Command structure. The spokesperson does not make Unified Command decisions, but does provide a point of contact as necessary for the General and Command Staffs.

Finally, it is important to conduct discussions of Unified Command with adjacent jurisdictions and functional agencies whenever possible.

Individually and collectively, the designated agency Incident Commanders (ICs) functioning in a Unified Command have the following responsibilities at an event/incident:

- They must clearly understand their jurisdictional or agency limitations. Any legal, political, jurisdictional, or safety restrictions must be identified and made known to all.
- They must be authorized to perform specific activities and actions on behalf of the jurisdiction or agency they represent. These actions could include:

  - Ordering of additional resources in support of the IAP;
  - Loaning or sharing the resources of other jurisdictions; and
  - Agreeing to cost-sharing arrangements with participating agencies.

The agencies ICs have the responsibility to manage the event/incident to the best of their abilities. This responsibility includes:

- Working closely with the other ICs in the Unified Command;
- Providing sufficient qualified staff and resources;
- Anticipating and resolving problems;
- Delegating authority as needed;
- Inspecting and evaluating performance; and
- Communicating with their own agencies to establish priorities, plans, problems, and progress.

The members of the Unified Command must function together as a team, ensuring effective coordination of the IAP. In many ways, this is the most important function they perform in Unified Command.

Manageable span or control is another aspect of ICS. Manageable span is defined as the number of subordinates one supervisor can manage effectively. Guidelines suggest from three to seven persons, with five persons being the optimum number.

The Command Post (CP) is the center for directing all operations, and only one Command Post operates during an event. Usually the Incident Commander, the Planning Section, the communications center, and all agency representatives have offices there.

A joint news center may be helpful during an event/incident. At a joint news center, the local media may congregate to receive information and use the area as a workspace. Providing the media with information, rather than making them track it down, ensures the dissemination of accurate information and prevents difficulties arising from rumors. Depending on the size and type of event, the Incident Commander may appoint a liaison.

PUBLIC SAFETY ROLES IN UNIFIED COMMAND

After the Incident Commanders (ICs) determine a command structure, they should identify the roles of public safety personnel. They must bear in mind that all public safety organizations must also be able to answer their normal responsibilities as well as to provide staffing for the event. The promoter must cover the cost for any public safety personnel responding to an event/incident.

The role of emergency management is to complement and support local first responders and to coordinate and facilitate the flow of required responses to the Incident Commander as needed.

The role of law enforcement may be to provide:

- Crowd management, including measures to prevent crushing;
- Control of access to stage or performance areas;
- Security control at entrances and exits;
- Patrol to minimize risk of fire;
- Control of vehicle traffic and marshaling;
- Searches for drugs, alcohol, and weapons;
- Security for large sums of money and confiscated goods; and
- Assistance for emergency services, as needed.

Depending upon jurisdiction, the role of fire fighters may vary. Tasking to the fire departments and department capabilities differ for every community.

Emergency medical services may be called upon to render first aid to personnel attending the event. They may also work in cooperation with public health to provide more in-depth, onsite medical care in the form of site and field hospitals or to transport people to local medical facilities.

FEDERAL AND STATE RESOURCES

If an incident occurs that is beyond the capability of the local authorities, a community may have to request the assistance of state or federal assets through the Emergency Management Agency. The event planners should be prepared to discuss the event and the locations of all the risks with the state and federal authorities as needed. Providing a strip map to state or federal responders will help them locate areas in the event, especially if smoke or debris make locating areas difficult. Research your support and your capabilities at every level; the Emergency Management Agency may be of assistance in locating the agency or assistance for the community.

One way of sharing resources is through local mutual aid agreements. These agreements allow local agencies to borrow equipment and resources from neighboring communities. They also allow the lending community to be covered under the borrowing community's insurance. For example, if a community needs to borrow a pumping unit from a community three towns away and the pumping truck is damaged or is involved in an accident, the borrowing community's insurance will be responsible for damages, repairs or replacement to equipment. Sharing of resources is especially useful in smaller communities where budgets may not allow for extensive equipment.

Depending on event size and needs, the Incident Command System can be very simple or complex. For more information on ICS, contact the Emergency Management Institute or visit the FEMA website, http://www.fema.gov/emi

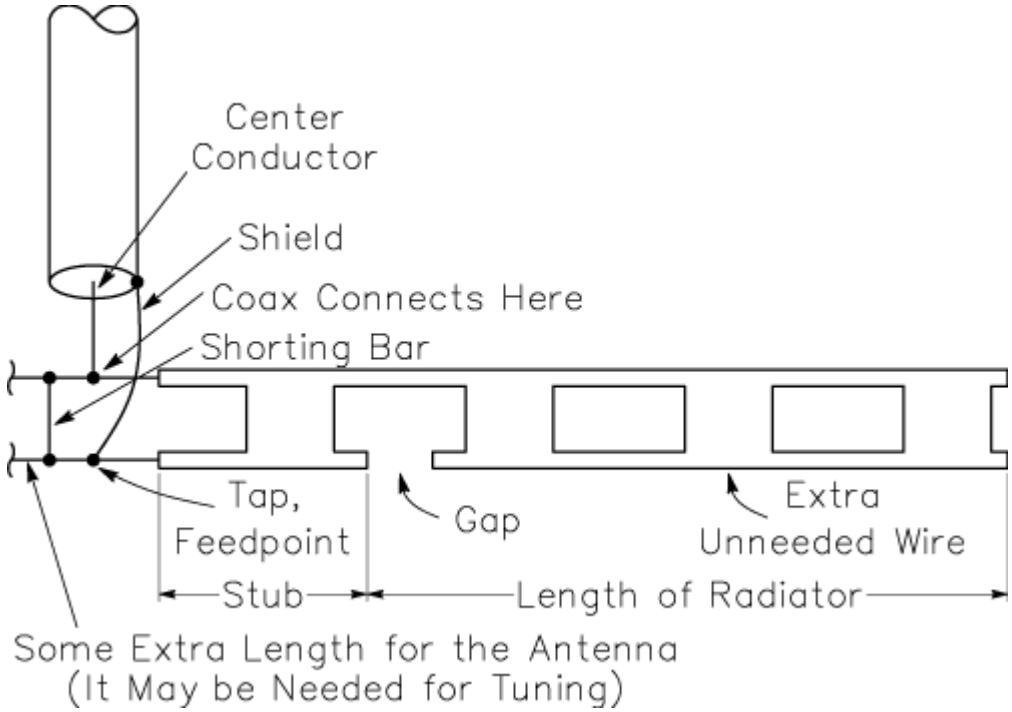
APPENDIX B BUILDING AN EMERGENCY J-POLE

By Philip Karras, KE3FL*, reprinted with permission*

If you look at the antenna, it is a 3/4-wavelength radiating section attached to the matching stub by the shorting bar; all together it looks like the letter J, hence the name J-pole.

Read all of these instructions before beginning your construction project. Nothing is more frustrating than doing something, only to find a hint afterwards that would have made the project go smoother.

See below for a listing of parts and tools you'll need to make up this simple antenna.



Using "ladder line" is a bit different than using solid-dielectric TV twinlead. Before cutting, stretch out the wire so that you can position the proposed cuts at a position that has a center plastic support, and not at a position that has no center plastic. This may not be possible for both the 1/4-wavelength section and the total length position. If it comes down to a choice, I recommend selecting the support at the top.

This plastic melts well and can be melted back together. I have had to melt sections back together in both locations, and the antennas work just fine and hold up to field rigors.

Select the bottom of the antenna and strip off about 3 to 3-1/2 inches of insulation from both wires. Tack solder (temporary solder joint) a piece of wire as a shorting bar about 1 inch from the bottom of the antenna (this bar may need to be moved).

To start with, the coax will be connected about 1-1/4 inch from the shorting bar. This connection and the shorting bar connection may need to be moved in order to achieve the best SWR and frequency match.

Measure 17 inches up from the shorting bar on *one end only* and cut a 1/4-inch gap in the wire at this position. (You can melt the plastic back together at this location if needed.)

Now measure 52-1/4 inches up from the shorting bar. If this location has no center plastic support, try to remove as little insulation as needed in order to get at the wire and snip it. Cut out at least one inch of wire, then melt the plastic back onto the locations where you removed it.

I use a sharp knife to cut into the insulation and not into the wire. Then I pry the wire out with a pin and snip it or solder it at the correct location.

PREPARING THE COAX

Bend the coax about an inch from the end, and score the insulation with a sharp knife. This cuts into the insulation without damaging the shield if done gently. Then rotate the coax so you can continue scoring the coax until it is cut all the way around. Cut the insulation from the new cut, up to the end of the coax. You should now be able to pull off the insulation with pliers.

Remember to always cut *away* from yourself!

Never use wire strippers on the large portion of the coax; it only damages the shield. If you have a tool designed for coax, use it.

Prepare the antenna end of the coax: Separate the coax shield and twist it together. Strip off about 3/4-inch of insulation from the center conductor of the coax. (Do *not* solder at this time.)

You'll install the appropriate connector (BNC, PL-259) at the other end of the coax. Follow the installation directions that come with the connector, or consult *The ARRL Handbook* for more information.

CONNECTING COAX TO ANTENNA

Wrap the shield 1-1/4 inch up from the shorting bar around the 17-inch side of the twin lead. Wrap it in such a way that the distance from the coax to the shorting bar is the same for both the shield and the center conductor. Solder the shield to the twin lead.

Wrap the center coax conductor around the longer twin lead wire up from the shorting bar (the same distance that the shield is wrapped to the other wire) and solder it.

Cut off the excess coax wire. Also, cut off all the excess twin lead at the top except for a loop or two. These ladder steps are great for hanging the antenna over a nail or hook, so leave at least one of them.

Your antenna is now ready to test.

TESTING YOUR J-POLE

Get your VHF SWR analyzer or meter. Hang the antenna away from all objects (I hang mine from the top of a window and this seems to work almost as well as from a tree).

For best SWR measurements, the antenna should be at least 2 wavelengths away from any object. (For 2-meters this is approximately 13 feet.)

Set your radio for lowest power and 146.000 MHz simplex. Test out the antenna for 144.000 and 148.000 as well. If all three are below 1.7 SWR and the SWR for 146 is about 1.3 or lower, you are done. If not, see for the sidebar "Help for Lowering the SWR, Changing the Frequency, and Increasing the Bandwidth" below.

Once you are done, slip the shrink tubing onto the antenna over the coax connections, squirt some electrical-connection safe RTV into the bottom of the shrink tubing, and then heat up the tubing from the bottom up. This should push (squeeze) some RTV all the way to the top of the shrink tubing. Wipe off the excess and hang the antenna for 12 to 24 hours to let the RTV dry.

The SWR at 146.0 should be close to and below 1.3 to 1; for 144.0 and 148.0, it should be 1.7 to 1 or lower. If you have difficulty obtaining these results, see Help for Lowering the SWR, Changing the Frequency, and Increasing the Bandwidth, below.

At 445.0 MHz, the antenna should read below 1.5 to 1. I have not checked it out as thoroughly as I have 2 meters, but I do know that it is not a nice one-dip curve; rather, it is a multiple dip/peak curve.

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PARTS LIST:

5 feet of 450-ohm ladder line
20 feet of RG-58 or similar coax
2 inches of heat-shrinkable tubing

NECESSARY TOOLS:

Soldering iron (20-30 W)
Solder
Wire cutters
Wire strippers
VHF SWR meter or antenna analyzer
Sharp knife
Pliers
RTV silicone sealant
Heat gun or hair dryer (for heat-shrinkable tubing)

Help for Lowering the SWR

If your antenna did not have a nice low SWR at the desired center frequency, try moving the shorting bar down about 0.1 inch at a time until you get the lowest SWR you can--even if this is nowhere close to 1:1. You may have to move it back up if you go too far. Normally I find that I have to move the shorting bar down, ie, *away from the feed-point*, but it's always possible that it will need to go the other way too.

If you have already cut the extra wire off the bottom of the antenna, you will need to add some back if moving the shorting bar closer to the feed-point only makes the SWR worse. Add about two inches to both the matching stub and radiator at the bottom of the antenna.

Once the position of the shorting bar to the feed point that produces the lowest SWR has been found, move the coax contact points and the shorting bar together until you can get this lowest SWR match at the desired frequency. The *important* point to remember here is that the distance between the feed-point and the shorting bar determines the lowest SWR. This distance must *not* change while trying to get the lowest SWR at the desired center frequency.

If the lowest SWR you can get by moving the shorting is not 1:1, it will turn out to be closer to 1:1 once you move both the shorting bar and the coax feed point so that the lowest SWR is at the desired center frequency.

Help on Shifting the Frequency

If you need to shift the frequency and moving the tap point doesn't change it enough, you can cut the J-Pole. You should *not* have to do this for this antenna since the dimensions for this antenna have been worked out over years of experience by many different people.

Here are the two rules of thumb for changing the center frequency of any antenna:

LLL: Longer antenna = Longer wavelength = Lower frequency

SSH: Shorter antenna = Shorter wavelength = Higher frequency

When cutting the antenna shorter, I recommend making only *one-half* the change you calculate. In this way you may be able to prevent making too large a cut and having to undo it.

All changes are interactive, some more so than others, but expect to see SWR changes for length changes, and frequency shifts when moving the shorting bar/feed-point up and down. (Remember to move both the feed-point and the shorting bar in tandem, keeping the distance between them constant when trying to re-center the lowest SWR at the frequency you want.)

Help on Increasing the Bandwidth (BW)

Once again you should not ever have this problem with the 2-meter J-pole since the dimensions have been worked out by calculation and by trial and error by many people. However, if you are trying to design for a new frequency, you might need to be able to change the BW.

A very narrow BW may be an indication that the radiator is too long, or it is too long in relation to the matching stub. I have only performed one experiment so far. In this experiment I added one inch of wire to the top of a good working J-pole antenna for 2-meters. The bandwidth dropped to about 0.6 MHz. When I removed the extra wire, the BW returned to about 3.8 MHz between 1.7:1 SWR points.

Other things I've tried made such small changes in the bandwidth that I was never sure the data was significant. Was the change due to the method tried or did I do something else a bit differently that caused the change?

APPENDIX C ARES STATION LOCATIONS and CALL SIGNS

City and Borough of Juneau Emergency Operations Center

EOC 586-0723 fax 586-0666

Juneau Police Station 586-0600
6255 Alaway Ave, Juneau

Office of the Governor
Capital Building

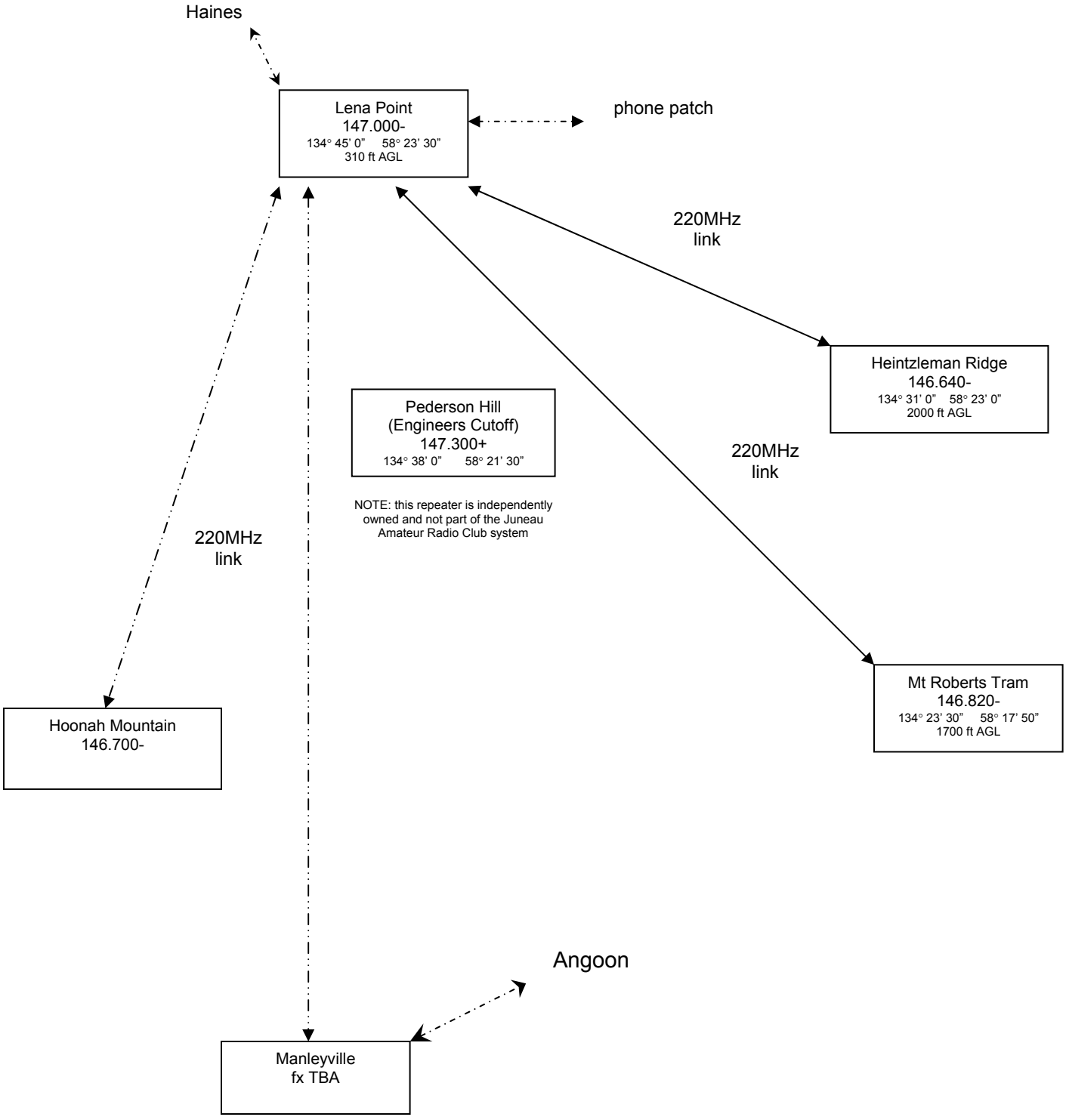
National Weather Service
8200 Mendenhall Loop Rd

State Emergency Coordination Center
Ft. Richardson

APPENDIX D REPEATERS IN THE JUNEAU AREA

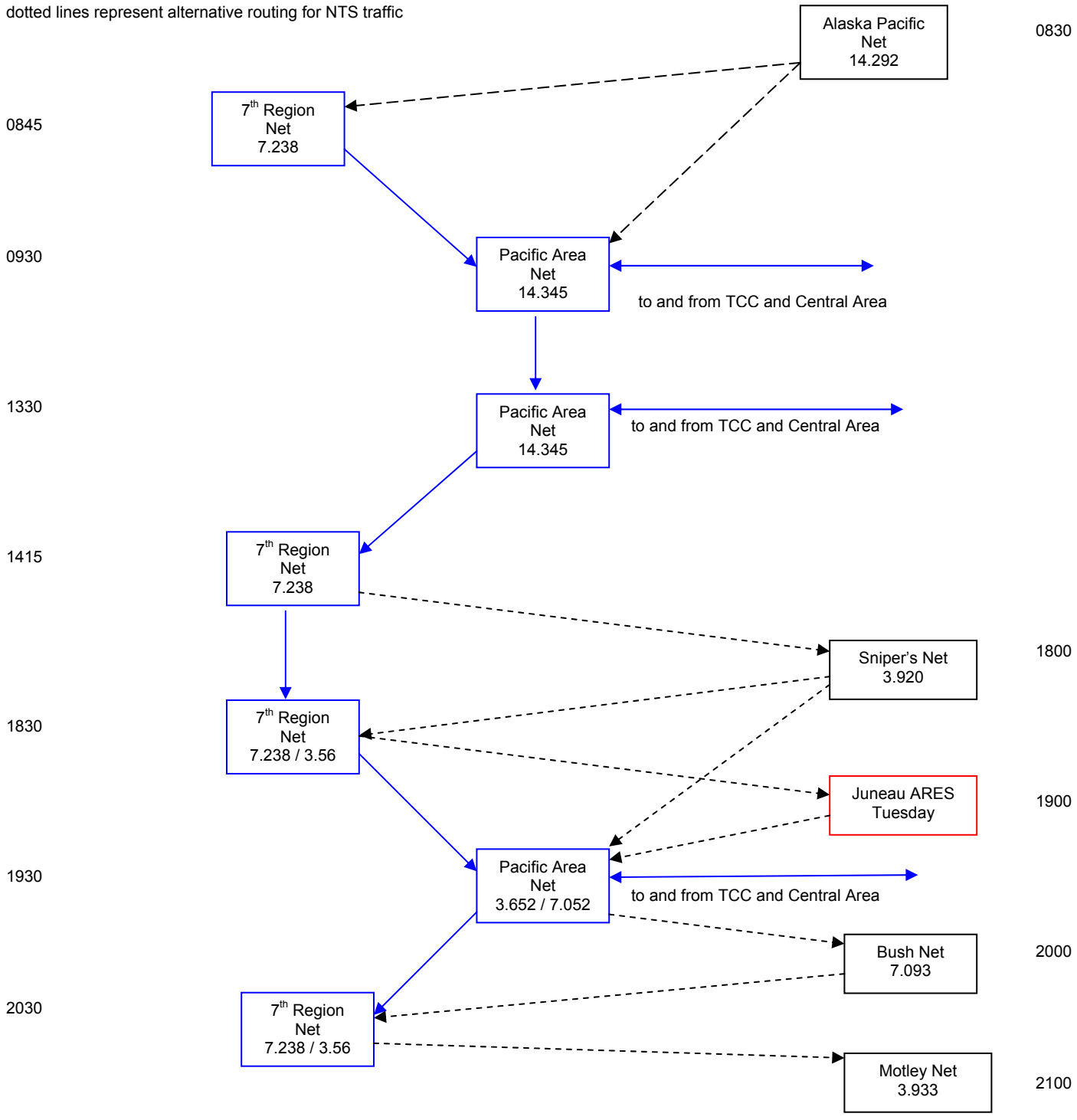
Unless otherwise stated the repeaters are owned and maintained by Juneau Amateur Radio Club (JARC)

Phone patch with reverse phone patch capabilities are available off the JARC system, contact a club officer for access information



APPENDIX E National Traffic System and other Alaska Nets

dotted lines represent alternative routing for NTS traffic



insert Juneau Emergency Contact Numbers

APPENDIX G SE ALASKA CONTACT NUMBERS

	POLICE	AST/VPS	FIRE[9]	EMS[10]
Angoon	788-3631		788-3635	788-3411
Coffman Cove[3]				329-2213/2302
Cordova	424-6100			
Craig[3]	826-3330			826-3330
Edna Bay[3]				594-6335[BF]
Elfin Cove				239-2205[F]
Game Creek (Hoonah)			945-3234[BF]	
Greens Creek				789-8116
Gustavus				697-2290
Haines	766-2121	766-2552	766-2115	
Hollis[3]				530-7006[B]
Hoonah	945-3655	945-3620		945-3631/3540/3608[B]
Hydaburg[3]		285-3321	285-3333	285-9616 / 3375[B]
Hyder				(250) 636-2722
Juneau	586-0600	465-4000	586-7554	
Kake				785-3500
Kasaan				542-2207[BF]
Ketchikan	225-6631	225-5118	225-9616	225-9612
Klawock[3]				755-2341/2626[B]
Klukwan				767-5599[BF]
Metlakatla				886-7922/6602/3143[B]
Meyers Chuck				946-8309[BF]
Naukati				629-4234[BF]
Pelican		735-2212	735-2212	735-2245/2243/2313[B]
Petersburg	772-3838	772-3100	772-3838	772-3830
Point Baker[3]				559-2218/2212[F]
Port Alexander				568-2210[BF]
Port Protection[3]				489-2220[F]
Prince of Wales Island			826-3330	
Sitka	747-3245	747-6729	747-3233	747-3245
Skagway	983-2232			983-2300
Tenakee Springs	736-2211			736-2211[FB]
Thorne Bay[3]		828-3905	825-3313	828-3313[B]
Ward Cove				225-1950/247-2697[B]
Whale Pass[11]				846-5315[B]
Wrangell	874-3204		874-3304	874-3223[B]
Yakutat	784-3206	784-3206		784-3206[B]

[9] If a separate number is not shown for EMS contact the number listed for fire
[10] If number marked with "B" this is a business, work or home number, contact 911, fire or police for emergency dispatch if no answer
[F] First Responder service
[11] Part of Prince of Wales Island EMS – contact Prince of Wales Island dispatch

ARES OFFICIAL MESSAGE FORM

(to be used for all ARES formal traffic for agencies served)

#	PRECEDENCE ☐ EMERGENCY ☐ PRIORITY ☐ WELFARE ☐ ROUTINE	STATION OF ORIGIN	CHECK	PLACE OF ORIGIN	TIME (ZULU)	DATE (dd mmm yyy)

TO: _____

ADDRESS: _____

PHONE: _____

FROM: _____

SUBJECT: _____

BT

TEXT (5 words per line, 10 lines max – uppercase typed or handwritten block letters)

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____
SIGNED PRINTED NAME AGENCY / TITLE

END

☐ SENT TO or ☐ RECEIVED BY (CALLSIGN) _____ TIME: _____

METHOD: ☐ ARES ☐ OPSECURE ☐ SHARES ☐ MARS ☐ OTHER _____

FREQUENCY: _____ MODE: ☐ VOICE ☐ PACKET ☐ OTHER _____

RELAYED THRU: _____

ARES EMERGENCY MESSAGE FORM

COMMUNICATIONS LOG	INCIDENT #	DATE:
FOR OPERATIONAL PERIOD #	INCIDENT NAME:	
RADIO OPERATOR NAME:	STATION I.D.	

LOG

TIME	STATION I.D. TO	STATION I.D. FROM	SUBJECT

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REV 99/02/01

MISSING PERSON QUESTIONNAIRE

DATE:			AST INCIDENT #:	
HOW MANY IN THE PARTY:		SUBJECT #: OF		
FULL NAME OF SUBJECT:				
AGE:	DOB:	HEIGHT:	WEIGHT:	BUILD:
HAIR COLOR: LENGTH:		SKIN COLOR:		
LAST SEEN: TIME/DATE:		TIME THEY WERE CONSIDERED OVER DUE:		
PLACE LAST SEEN:				
DIRECTION OF TRAVEL OR PLANNED ROUTE:				
VEHICLE				
PLATE:	COLOR:	MAKE:	MODEL:	
LOCATION VEHICLE LEFT:				
CLOTHING *INDICATE COLOR, MAKE, TYPE, MATERIAL*				
RAIN GEAR:				
COAT/JACKET:				
PANTS:				
GLOVES:		HAT:		
SHOES (INCLUDE TREAD):				
GLASSES/EYEWEAR (INCLUDING SUN GLASSES:				
EQUIPMENT *INDICATE COLOR, MAKE, MATERIAL ETC*				
PACK (INCLUDE CONTENTS):				
TENT (INCLUDE SIZE, COLOR AND COLOR OF FLY SHEET):				
SLEEPING BAG:		SPACE BLANKET:		
FLASHLIGHTS (NUMBER):	EXTRA BATTERIES (Y/N):	STROBE LIGHT (Y/N):		
MATCHES/FIRE MAKING:		COMPASS: GPS: MAP:		
WHISTLE: OTHER NOISE MAKER:		FLARES (QTY IF KNOWN):		
FOOD (TYPE/BRAND):				
FIRST AID KIT:		MEDICAL TRAINING:		
KNIFE:	FIREARM (CALIBER & QTY AMMUNITION):			
RADIO/C-PHONE ETC (FREQUENCY, CALL-SIGN, NUMBER):				
CLIMBING/ICE EQUIPMENT:				
MEDICAL				
ALLERGIES:				
MEDICAL PROBLEMS:				
MEDICATIONS (IF YES DOES SUBJECT HAVE WITH THEM):				
HABITS / TRAINING / EXPERIENCE				
PHYSICAL CONDITION:				
EMOTIONAL CONDITION:				
SURVIVAL TRAINING/EXPERIENCE:				
KNOWLEDGE OF AREA:				
WHAT DO YOU THINK THEY WOULD DO:				
NAME OF PERSON INTERVIEWED:		RELATIONSHIP:	PHONE #:	
NEXT OF KIN NAME:		RELATIONSHIP:	PHONE #:	
COMPLETED BY:		DATE / TIME :		

ICS 302-D (09/17/01)

TIME CONVERSION CHART

GREENWICH MEAN TIME UTC (ZULU)	EASTERN STANDARD TIME	CENTRAL TIME	MOUNTAIN TIME	PACIFIC TIME	ALASKA TIME	HAWAIIAN TIME
0000	1900	1800	1700	1600	1500	1400
0100	2000	1900	1800	1700	1600	1500
0200	2100	2000	1900	1800	1700	1600
0300	2200	2100	2000	1900	1800	1700
0400	2300	2200	2100	2000	1900	1800
0500	0000	2300	2200	2100	2000	1900
0600	0100	0000	2300	2200	2100	2000
0700	0200	0100	0000	2300	2200	2100
0800	0300	0200	0100	0000	2300	2200
0900	0400	0300	0200	0100	0000	2300
1000	0500	0400	0300	0200	0100	0000
1100	0600	0500	0400	0300	0200	0100
1200	0700	0600	0500	0400	0300	0200
1300	0800	0700	0600	0500	0400	0300
1400	0900	0800	0700	0600	0500	0400
1500	1000	0900	0800	0700	0600	0500
1600	1100	1000	0900	0800	0700	0600
1700	1200	1100	1000	0900	0800	0700
1800	1300	1200	1100	1000	0900	0800
1900	1400	1300	1200	1100	1000	0900
2000	1500	1400	1300	1200	1100	1000
2100	1600	1500	1400	1300	1200	1100
2200	1700	1600	1500	1400	1300	1200
2300	1800	1700	1600	1500	1400	1300

NET ASSIGNMENT WORKSHEET

time period_____

TACTICAL CALL SIGN	AMATEUR CALL SIGN(S)	LOCATION
NET CONTROL		
EOC (should be NCS)		
COMMAND POST		
BRH		Hospital
HF Gateway		
RED CROSS		Red Cross office
SHELTER 1		
SHELTER 2		