BAA Boston Marathon
Amateur Radio Communications

Communication Standards

Presented by the BAA Communications Steering Committee

Amateur Radio Leadership Team

2015

History

Date	Version	Description
Feb. 25, 2015	0.1	Steering Committee review
Mar. 11, 2015	1.0	Public release
Mar. 26, 2015	1.1	Added EMERGENCY message class and prosign
Apr. 1, 2015	1.2	Updated with improvements in formatting and to conform with terminology for Medical and Hydration Stations

Purpose and Audience

This document is required reading for all BAA Boston Marathon volunteers who provide communications (including Net Control operators) with a focus upon the Amateur Radio service. Its purpose is to establish a set of baseline procedures and phraseology standards through which effective general communications may be achieved. All Amateur Radio communicators are required to read, understand, and practice these standards before their participation in the 2015 BAA Boston Marathon.

Rationale

The distinction between radio <u>operators</u> and <u>communicators</u> is becoming more apparent as specialized needs arise in our public service role. Operators are skilled in establishing networks and maintaining links. Communicators possess a working understanding of the needs of our client, can speak their language, and have the knowledge and understanding to work as a member of the team. Before we qualify for specialized roles, we must have a baseline set of communications essentials. This document aims to provide this baseline.

Examining the contents of this manual we find techniques and ideas which most of us consider "common sense", however not all sense is common, therefore it's necessary to set a standard and use it in general practice, consistently. Variations of the standard; arguments for this or that phrase/technique; must be overridden by the necessity and efficiencies of a common dialect. In time, and with experience, methods will be refined. However, as an aid to understanding and acceptance, we offer a rationale for the use of certain techniques and standard phraseology.

Common phraseology are very effective within certain communications specialties, most notably air traffic control (ATC). Here, the life-safety impact of even a single utterance rises to a level one might best associate with the term "body count". A twist of terminology or even the manner in which one communicates aircraft altitudes and headings has serious implications - most especially in the multi-lingual ATC environment. We believe the ATC techniques, coupled with a few universal public safety communications ideas, provides an effective offering upon which we may build.

However, standard phraseology is not a panacea, and there is always the potential for a recipient to "fill in" what is usually expected leading to incorrect assumption. Marginal technology, a challenging environment, and stress are among the factors which make such a mistake possible. The standards consider such issues in order to provide reliable communications.

It is wise to establish a solid foundation for the public service and public safety augmentation roles into which our service is often applied, for just as in ATC, our performance may have serious consequences.

However, before the objectives are defined, let's review the basics.

The Basics

Whether you are new to amateur radio service or an experienced operator, it never hurts to review the basics. Please refer to the following appendices:

Amateur Radio Station Call Signs and Identification Procedure
Phonetics and Numerics
Communication Checks

Terminology

TERM	DEFINITION
CTL	Communications Team Lead (Amateur Radio)
COM-L	Medical Communications Lead - An EMT or other medical professional who will be the designated communicator between any MEDICAL issue and MEMA's dispatch.
MEMA	Massachusetts Emergency Management Agency - The state agency charged with ensuring the state is prepared to withstand, respond to, and recover from all types of emergencies and disasters, including natural hazards, accidents, deliberate attacks, and technological and infrastructure failures. http://www.mass.gov/eopss/agencies/mema/mema-mission.html
NCS	Network Control Station
NCO	Network Control Operator (Net Controller)

The Six Objectives

With thanks to our fellow Amateur Radio Service teams at the Chicago Marathon, we offer these six objectives to serve as guideposts for our communications craft:

1. Maintain a Strict Listening Watch
2. Clarity and Intent
3. Brevity
4. Accuracy
5. Un-ambiguity
6. Efficiency

Maintain a Strict Listening Watch

You are a Communicator first. Whether you are a "shadow", or serving to provide a link between a BAA manager and a group of volunteers, you will not be effective if you're not ready for a call.

It is easy to become distracted, either in incidental conversation with others, through fatigue, or due to a high noise level at our assignment. When we lose focus with the channels we are assigned to monitor we lose focus with our purpose.

Keep conversations unrelated to the task at hand short. Take a break occasionally if a relief is available or simply take some time for yourself away from all the action (while maintaining your listening watch). Use a noise-cancelling headset or earbuds to block outside noise. Check your radio often to make sure it's operating properly and has sufficient volume.

Maintaining a strict listening watch is vital to the job. It will aid in situational awareness and is a key task that should not be overlooked. Information not initially directed to you in your assigned role may later prove important to you in your ability to perform your duties.

Clarity and Intent

Clarity is a direct result of our technique and our intention. If we think clearly, organize our thoughts, consciously consider the intent of our message, follow a standard, and articulate (speak) slowly and plainly, our message will more likely be clearly understood.

As communicators we understand the critical link between our performance and success. Sometimes our clients, especially in the midst of distraction and stress, may fall short in forming an effective message. It is your job to make absolutely certain you fully understand the essence of intent in any message you pass. To achieve this, it is sometimes necessary to briefly discuss your questions with the client or message originator. Achieving this level of understanding is foundational to all of the six objectives and will help avoid multiple exchanges for clarification or - worse - mistaken interpretations all around.

Before pressing the transmit button take into account the following:

- Do I understand the desired intent of the communications?
- Have I anticipated how the communications will be received (as in, what questions might be asked given the information transmitted)?
- How might I compose the message to communicate both the content and desired intent?
- What form of response is required, and how rapidly is the reply needed?
- Is there a potential for misunderstanding or misinterpreting the message?

Situations:

Case 1
You are a communicator for a medical walking team. One of the medical staff spots a runner who appears to be on the ground in a sitting position, slumped over. You are quickly told to "let the medical tent know". With this information, and given the staff is busy helping the runner, what should you do?

Case 2
Your BAA site manager expresses concern that the weather is turning cold and the supply of thermal blankets is running low. They ask you to inquire if more blankets can be delivered. How might you best form your message request?

Brevity

Keeping our communications brief is a best use for limited communications bandwidth. Unfortunately brevity and accuracy are sometimes in conflict. Brevity may be compromised through external factors such as communications network traffic load and your perception of "how much the recipient can handle". For our consideration, brevity is *the absence of extraneous dialog* (information which fails to offer anything new). Extra information may in fact insert confusion or, worse, the perception in the mind of your recipient that you (and/or your client) are uncertain about the contents of your message. In brief (our pun), too much brevity can sometimes cause more trouble than its absence.

Here's a classic bit of extraneous dialog commonly heard in public safety, "At this time there are no injuries". Well, unless there's a possibility of inflicting more injury, of course it's "at this time". This time is when the report is being made. "At this time" provides no useful information. Consider avoiding these fillers to keep your message brief.

To achieve a good balance of brevity, begin with a sufficient understanding of the message and then consider how standard phraseology and "chunking" of information might help in pre-forming your transmission. Chunking means that, for long and detailed messages, transmitting related pieces of the message with a sufficient pause for readback, keeps the

communications channel open and helps your receiving station better understand the message in its entirety.

Strive to be brief and to keep it simple. With experience and practice, you will discover a good balance and become a more effective communicator.

Situation:

> You are stationed at a Hydration Station. You and your crew notice a runner who appears to be in distress. The concern seems to be sufficient enough to warrant sending a notice to the next Medical Tent. How might you form your message? Where should it be directed?

Accuracy

Accuracy is one of our goals, particularly as its opposite - inaccuracy - is not a good thing when your communications have life-safety implications.

Accuracy is a two-way interchange. We may not know if our message is accurately received without a confirmation or read back.

Ultimately accuracy has bearing upon efficiency, communications channel load, and may involve critical decisions with ultimate consequences.

Here are a few considerations which may assist us in the pursuit of accuracy in communications:

- Taking a "timeout" to get it right
- Use reminder mnemonics, clarifying phonetics and standard phrases
- Be aware that you may be working with a variety of communications skill sets among our colleagues
- Ask for readbacks

In general medical practice, especially in the administration of pharmaceuticals, the use of the mnemonic "right patient, right drug, right dose, right route, right time" offers a thinking pause before action. Inserting a "timeout" before taking action is a good moment to run a personal communications checklist. The Six Principles we offer are a good basis for your list.

Urgency must override a lengthy meditation, but giving 10 seconds to the form and composition of your message can provide great benefits, especially should haste create mistakes and misinterpretation.

We may strive for perfect communication technique and then waste the effort should the recipient be unable to fully comprehend the message content itself. Gentle correction, re-phrasing, and an emphasis upon making certain you are understood with readbacks and other dialog can turn a poor situation into a more productive one When in doubt, even after your best efforts to phrase the communications clearly, invest the time to make sure you're fully understood.

Diction and standard phrases lend themselves to our pursuit of accuracy. Dialects, clipped transmissions, noise, interference, and personal overload are factors which may be lessened by the use of proper and expected phrasing.

Un-ambiguity

Taking action based upon the receipt of a potentially ambiguous request or information can be a waste of time and downright dangerous. For example, if you're asked to "get me an ambulance", making the call in this manner "we have a runner needing transport" leaves some room for interpretation.

As a recipient, it's your job not only to form your messages such that they leave no room for interpretation, but also to make sure the messages your client wants passed meet this same standard. This is best resolved with a confirming question.

When you receive a request for clarification, use it as a lesson improve your work.

Study the sections <u>Communications Cycle</u>, and <u>Callup and Identification</u>, which offer tips to avoid ambiguous communications.

Efficiency

An efficient use of limited communications and personnel resources requires everyone to make thoughtful decisions. Here are some points to consider:

- Is the communications channel busy? Can my request wait a bit longer?
- Is the information or solution being sought through the proper resource?
- Can the problem be solved locally (with a BAA official) without the use of external help?
- Have we achieved a healthy balance between limiting communications and improving situational awareness?

A busy communications path may cause us to assume an equally busy resource. "I shouldn't bother them", one might argue, and therefore withhold a piece of timely information that may well make a difference in overall safety. **Message Triage** can lead to a more effective use of resources. Self-triage (as in think before sending) is a good practice, too.

As in "right patient?", we might ask "right recipient?" before sending a request. If we have the option of a more appropriate channel/recipient, be sure to select the right one for the task.

Situational awareness demands awareness first and communications next. In addition to scheduled status reporting, appraising our command structure about (a) what happened, and (b) the action/s taken to address what happened, helps things along. As our Net Control moves in its operating philosophy from control centre to information and resource centre, maintenance of situational awareness becomes a critical function.

When we appraise the central resource of our situation, we're also broadcasting this information to others within the tactical listening radius of our field station. Vigilance, defined as a focused listening watch, is a good first step towards situational awareness. The next, is communicating relevant information to our client (the on-site BAA manager, Red Cross Captain, or others), with due consideration to its applicability, usefulness and completeness.

The Communications Cycle

The ultimate endpoint of effective communications is simple to define: it is one which achieves the desired result.   Depending upon the type of messaging involved, our communications "cycle" may not in fact represent the interconnected, interdependent circle that this term ordinarily evokes. Sometimes, and in our common experience more often than not, the circle remains broken. Such an unclosed loop poses a challenge. Do we let go and trust our messaging effort to luck? Is there a better way to close the loop without placing a burden upon our systems?

Let's examine the four types of messages we will most likely encounter and define a communications cycle for each. As we do, consider how a single message transmission can contain all four types (something we may wish to avoid)! We will also describe the Message Priority Class which we should consider in each message we pass. This Priority Class will determine how fast our communications is satisfied and place further emphasis upon closing the big loop.

Commo///// n Message Types
- Interrogatory
- Directive / Task
- Information
- Request

Interrogatory
In this type of message we are asking a question and expecting a response. It is worth considering that, in all but the simplest of cases, a single question-reply cycle may not be sufficient. When we pass a question on behalf of our client, and as we construct the

interrogatory message, consider including any content that you anticipate a recipient might need to know. This is important, for our communications service does not afford the benefits of rapid conversation between our clients that a direct conversation allows. Unless sufficient forethought is applied, interrogatories may well be limited to the simplest of tasks.

NET, NET [FROM] TWO TWO ALPHA
NET answering TWO TWO ALPHA
22 ALPHA say location of closing crew
22 ALPHA, closing crew leaft 21 Bravo at 1630.
22 ALPHA HAS THE MESSAGE. THANK YOU [ID]
Net at 1645 [ID]

Example 1: Simple interrogatory exchange.

Directive/Task

Ordinarily, but there are exceptions, messages of this type are sent from the BAA or public safety through Net to one or more field units. When receiving a Directive/Task message, write down the information. Within the noisy and often distracting environment at the Boston Marathon, details may be overlooked. Should the message appear to be incomplete, discuss your concern with the recipient first.

When underline forming a Directive or Task message, several components are worth considering.

1. If more than one Directive or Task, are they presented in order of priority (if necessary)?
2. In addition to order of execution, should certain tasks be made more critical than others to complete?
3. If a Directive and/or Task is optional, is this stated?
4. Is progress and/or completion feedback required and in what form?
5. Should the message be destined for a specific individual or role?
6. Is there a time period beyond which the Directive and/or Task may be rendered invalid?

If you are the originating station of the directive or task it is best to state the authority that issued it. In this example, you are asked to direct a non-medical sweep bus to a location that is not on their standard route: "**From BAA Division Manager**, divert to 237 Washington Street and advise your arrival. Acknowledge".

Information

In a well-functioning communications system the phrase "If only I knew" does not exist. Information is the life's blood of our communications craft. Information critical to a well-functioning event such as the disposition of certain resources are ideally known at all times by our Net control and must available to all units. Some information we acquire by maintaining a disciplined listening watch. Some is learned locally. Critical information, like the expected arrival time of an ambulance crew, should already be accounted for within the communications cycle.

Information flow is two-way, for we may request information and offer it, too. When offering, consider that too much information can clog our system and fog our vision and thinking. When requesting, make absolutely certain it's really needed.

Request

A request may be distinguished from an interrogatory in that it asks for an action, information, resource or clarification. A request is ordinarily associated to an active task or one about to be made active.

Information Request

NET, NET [FROM] TWO TWO ALPHA, REQUEST
TWO TWO ALPHA say REQUEST
22 ALPHA from Red Cross Captain, say ETA sweep bus to our location
22 ALPHA, sweep bus ETA 10 minutes. Acknowledge
22 ALPHA copies sweep bus ETA 10 minutes. Thank you <ID> OUT
Net at 1645 [ID]

Example 2: Information Request

When we request an ambulance we're not inquiring if one is available. It would be improper and confusing to say "Is there an ambulance available to respond to our location?" Whether one is available or not is not our primary concern. We simply need one. "Ambulance Request" is direct, simple, and unambiguous.

Message Class

Message Class is a traditional element within the preamble of a standard message form. Establishing the Message Class is a useful formality. It removes any guesswork on the recipient's side and provides assurance that your accepted message will be handled with due regard to its urgency.

The three Message Classes in increasing order of importance are:

- **ROUTINE** - (*Default*) Low/normal; all non-medical requests
- **URGENT** - High; medical dispatch, security issues
- **EMERGENCY** - Extremely high; immediate danger and potential for loss of life. No Medical/Public Safety present.

Note: URGENT is used instead of PRIORITY in order to eliminate confusion with Patient Priority used by medical staff to describe the patient's transport urgency. **Although medical staff may assign a Patient Priority, the medical dispatch system used at the BAA Boston Marathon assumes an URGENT priority for each and every call.** A*ll ambulance requests are classified as* URGENT

The Message Class is stated within the request itself. "URGENT AMBULANCE REQUEST", "NON-MEDICAL TRANSPORTATION REQUEST", "URGENT SECURITY INFORMATION", etc.

Your client may not realize the Message Class options available. Should you suspect that a Message Class other than ROUTINE is warranted, be sure to discuss this and establish the Message Class before it is transmitted.

As a recipient, should you suspect the content of the message demands a higher Message Class, ask. If further information is difficult to obtain, make the message URGENT.

Operators who are assigned within a medical environment are encouraged to discuss protocol preferences with the EMT Communicator or station leader before communications are required.

Note that URGENT and EMERGENCY are available as *prosigns* (see section below) in the call-up sequence.

Station Call-up and Identification

We will examine how to make a call, how to reduce traffic and station ID below.

Call Up

When calling another station your desire is to get their attention.

NET, NET, SAFETY 1 on HOTEL 5
NET answering SAFETY 1
SAFETY 1 is on station
SAFETY 1 we have you on station at <time>
SAFETY 1 <call sign> OUT

Example 5: Enhanced Call-up Sequence

There's an emphasis upon the use of the Tactical ID. This is especially practiced by the field unit (SAFETY 1). The NCS, in responding, states categorically (a) who they are, (b) that they are answering a call and (c) who they are answering. SAFETY 1 begins <u>every</u> transmission with their Tactical ID, assuring both NCS and any listening units as to who is sending the traffic. This topic is expanded upon below in the <u>Identification</u> section.

2-phase Method

To reduce the amount of time required in exchanging information, and where communications conditions are reliable, use the 2-phase method which removes the initial call-up preceding the transmission of the status information itself.

From:

NET, NET, SAFETY 1 on HOTEL 5
NET answering SAFETY 1
SAFETY 1 is on station

To:

NET, NET, SAFETY 1 on HOTEL 5. SAFETY 1 on station
SAFETY 1 roger, we have you on station at <time>

Identification

When several units share the same communications channel and where the operating environment is noisy, distracting and stressful, the potential for cross-messaging exists. This is where one station believes the message is for their action. Often the mistake is discovered through context. However, if two field units are involved in a similar task, a message exchange for one unit may easily be confused as relevant to another. To avoid cross-messaging, we apply the discipline of <u>identifying our station in each transmission</u>. Note in the example below the Net Control does not identify in quite the same manner. In this case repeating the ID of the field unit (SAFETY 1) removes any ambiguity as to whom the message is directed.

Identification example with exchange:
Text bolded for emphasis

NET, NET, SAFETY 1 on HOTEL 5
NET answering SAFETY 1
SAFETY 1 - say location and ETA of closest Sweep bus
SAFETY 1, sweep bus departed station MIKE 22 at time 1345. ETA 10 minutes
SAFETY 1 has the message \<id\> OUT
NET \<id\> OUT

Example 6: Tactical Identification

Standard Phrases and Prosigns

Prosigns

Although our communications facilities at the Boston Marathon can host a lot of radio traffic, there's not much variety in the types of messages passed. Usually we are asking a question, providing information, passing instructions, or requesting assistance. These message types can be categorized into a few common message categories known as a Prosign. The term is a derivation of Procedural Signal and helps a recipient in better understanding the intent of a message.

A Prosign tells the other station our immediate intentions and expectations. It primes the communications channel (which ultimately is between two individuals connected by radio) to a certain set of expectations. Use of a Prosign, where applicable, can reduce guesswork and improve accuracy.

A few of the more common Prosigns are: REQUEST, PRIORITY, URGENT, INFORMATION, INSTRUCTIONS, COMM CHECK, CHECKING, STAND BY TO COPY.

PROSIGN	PURPOSE
REQUEST	The **REQUEST** prosign prepares the recipient to receive a request
URGENT	**URGENT** prepares the recipient that you have non-routine traffic that must take precedence over any ROUTINE activity.
EMERGENCY	**EMERGENCY** is used judiciously to tell the recipient that there is an immediate danger with a real potential for loss of life.
INFORMATION	**INFORMATION** tells the recipient that you have some information pertaining to a prior request or that you are offering information which may assist in an ongoing exchange.
INSTRUCTIONS	**INSTRUCTIONS** tells the recipient that critical instructions are to follow
COMM CHECK	**COMM CHECK** is a request for a "radio check".
CHECKING	**CHECKING** is a request for general or task-specific status.
STAND BY	**STAND BY** is a direct request to a specific unit (or all units) to wait
STAND BY TO COPY	**STAND BY TO COPY** instructs a called unit, or ALL STATIONS, to prepare to copy (possibly write down) a message

Table 1: Prosign List

Standard Phrases

The efficiencies and other advantages of any communications procedure will be hampered when we lean upon untested colloquialisms, 10-codes, slang, and abbreviations such as "QSL". Simple English language expressions are a better option and are understandable by any recipient with a basic command of English. A set of standard phrases (and words) are offered below with their intended purpose and usage examples. Strive to memorize and use these phrases. When made a part of your lexicon, your skill as an effective communicator will be enhanced.

PHRASE/WORD	INTENT	EXAMPLE
HAS THE MESSAGE (or WE COPY)	Replaces WILCO, WILL DO, UNDERSTOOD, 10-4, QSL, OK	**NET:** TWO SIX ALPHA, ADVISE WHEN AMBULANCE ON SCENE **26 A:** TWO SIX ALPHA **HAS THE MESSAGE**
IN WORK	Replaces OK, WILL DO, WILCO, UNDERSTOOD, DOING IT NOW, 10-4, QSL, TASK IS BEING DONE	**NET:** TWO SIX ALPHA, BEGIN CLOSING STATION **26 A:** TWO SIX ALPHA, CLOSING STATION **IN WORK**
ANSWERING	Replaces GO AHEAD	**NET:** TWO SIX ALPHA [FROM] NET **26 A:** TWO SIX ALPHA **ANSWERING**
[GOOD] READ BACK	Provides assurance as to message content	**NET:** TWO SIX ALPHA, TWO SIX ALPHA, [THIS IS] NET WITH A REQUEST **26 A:** TWO SIX ALPHA ANSWERING **NET:** TWO SIX ALPHA YOUR RUN NUMBER IS 243. **READ BACK** **26 A:** TWO SIX ALPHA HAS RUN NUMBER 243 **NET:** TWO SIX ALPHA GOOD READ BACK
COMM CHECK	Replaces "How do you hear me?"	**26 A:** NET, NET [FROM] TWO SIX ALPHA, **COMM CHECK** **NET:** TWO SIX ALPHA YOU ARE CLEAR AND READABLE, HOW ME **26 A:** TWO SIX ALPHA UNDERSTOOD. NET YOU ARE ALSO CLEAR AND READABLE.
PRIORITY/URGENT	Establishes priority	**26 A:** NET, NET [FROM] TWO SIX ALPHA, **URGENT** **NET:** TWO SIX ALPHA GO AHEAD WITH YOUR URGENT TRAFFIC
ADVISE	Frames a question or says "tell me"	**NET:** TWO SIX ALPHA, TWO SIX ALPHA, NET **26 A:** TWO SIX ALPHA ANSWERING **NET:** TWO SIX ALPHA, **ADVISE** SWEEP BUS ARRIVAL YOUR STATION **26 A:** TWO SIX ALPHA HAS THE MESSAGE

PHRASE/WORD	INTENT	EXAMPLE
SAY	Asks for a specific detail item	**NET:** TWO SIX ALPHA, TWO SIX ALPHA, NET **26 A:** TWO SIX ALPHA ANSWERING **NET:** TWO SIX ALPHA, **SAY** LAST SWEEP BUS ARRIVAL TIME **26 A:** TWO SIX ALPHA LAST SWEEP BUS ARRIVAL TIME 1342
ACKNOWLEDGE	Replaces "did you get that?"	**NET:** TWO SIX ALPHA, NET. AMBULANCE DISPATCHED. **ACKNOWLEDGE** **26 A:** TWO SIX ALPHA HAS THE MESSAGE
BREAK	I've completed one exchange and am initiating another	**NET:** TWO SIX ALPHA, THANK YOU. **BREAK**. 18 BRAVO, 18 BRAVO, NET. **18 B:** 18 BRAVO ANSWERING NET.
AFFIRMATIVE	Replaces "Yes", "UhHuh". "Roger" and "Yup"	**NET:** TWO SIX ALPHA, IS THE SKY BLUE? **26 A:** TWO SIX ALPHA, **AFFIRMATIVE**
NEGATIVE	Replaces "No", "Nope"	**NET:** TWO SIX ALPHA, IS THE SKY BLUE? **26 A:** TWO SIX ALPHA, **NEGATIVE**
SWITCH AND ANSWER	A directive (or request) for establishing communications with another unit on another channel.	**NET:** TWO SIX ALPHA, **SWITCH AND ANSWER** CHANNEL DELTA FOR UNIT 22 BRAVO. ADVISE RETURN THIS CHANNEL. ACKNOWLEDGE **26 A:** TWO SIX ALPHA, SWITCHING TO CHANNEL DELTA FOR 22 BRAVO. WILL ADVISE ON RETURN THIS FREQUENCY. OUT [ID] **NET:** TWO SIX ALPHA THANK YOU [ID]
OVER	My transmission is ended. Go ahead. This is an optional construct which may be used should the communications environment require it.	**NET:** TWO SIX ALPHA, IS THE SKY BLUE? **26 A:** TWO SIX ALPHA, NEGATIVE, **OVER** **NET:** TWO SIX ALPHA THANK YOU. OUT [ID] **NET:** TWO SIX ALPHA [ID] OUT
OUT	I am finished. Good bye. This does NOT indicate that a station is closing its listening watch.	**NET:** TWO SIX ALPHA, IS THE SKY BLUE? **26 A:** TWO SIX ALPHA, NEGATIVE, **OVER** **NET:** TWO SIX ALPHA THANK YOU. **OUT** [ID] **NET:** TWO SIX ALPHA [ID] **OUT**
AVAILABLE	Indicates unit status as in service and available for assignments/tasks/operations	**26 A:** NET, NET [FROM] TWO SIX ALPHA. TWO SIX ALPHA IS **AVAILABLE**. **NET:** TWO SIX ALPHA AVAILABLE AT 0945 [ID] **26 A:** TWO SIX ALPHA. [ID]

PHRASE/WORD	INTENT	EXAMPLE
NOT AVAILABLE	Indicates unit status as not available but still maintaining a listening watch. This may be used by a field unit already on an assignment which is not able to handle additional tasks.	**NET:** TWO SIX ALPHA WALKING TEAM 1,TWO SIX ALPHA WALKING TEAM 1, [FROM] NET. ASSIGNMENT. **26 A TEAM 1:** TWO SIX ALPHA WALKING TEAM 1 IS **NOT AVAILABLE**. [ID] **NET:** TWO SIX ALPHA WALKING TEAM 1, UNDERSTAND YOU ARE NOT AVAILABLE. NET AT 1234 [ID]
CLOSING STATION	Indicates unit status as closed. No listening watch will be maintained. Replaces "leaving", "signing off", "securing".	**26 A:** NET, NET [FROM] TWO SIX ALPHA. **NET:** ANSWERING TWO SIX ALPHA **26 A:** MEDICAL SERVICES DEACTIVATED. TWO SIX ALPHA REQUESTS PERMISSION TO CLOSE STATION. **NET:** TWO SIX ALPHA PERMISSION TO CLOSE STATION GRANTED AT TIME 1730 **26 A:** TWO SIX ALPHA CLOSING STATION [ID][1]
SWITCH TO AND MAINTAIN LISTENING WATCH ON [CHANNEL]	Indicates unit/s to should change to a specified channel for operations (due to interference or other failure)	**NET:** ALL STATIONS ALL STATIONS STAND BY FOR AN ANNOUNCEMENT. **NET:** ALL STATIONS ALL STATIONS **SWITCH TO AND MAINTAIN LISTENING WATCH ON** CHANNEL CHARLIE. (NET then performs roll call) **NET:** 22 ALPHA ACKNOWLEDGE **22 A:** 22 ALPHA HAS THE MESSAGE **NET:** 23 BRAVO ACKNOWLEDGE **23 B:** 23 BRAVO HAS THE MESSAGE ...
STAND BY	Request for a unit to wait for additional traffic, an answer to a question, or other purposes.	**NET:** ALL STATIONS ALL STATIONS, PRIORITY TRAFFIC HAS BEEN DECLARED. **STAND BY** UNLESS URGENT.
ALL STATIONS	A form of address (NCS use only) that indicates a broadcast message is to follow.	**NET: ALL STATIONS ALL STATIONS STAND BY** FOR AN ANNOUNCEMENT
SAY AGAIN REPEAT	Asks a unit to repeat their message	**NET:** TWO SIX ALPHA UNREADABLE. **SAY AGAIN [REPEAT]** YOUR MESSAGE.
UNREADABLE	Indicates to a station that you cannot understand the message	**NET:** TWO SIX ALPHA **UNREADABLE**. SAY AGAIN YOUR MESSAGE.

Table 2: Standard Phrases

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[1] Note: Station Closing decisions are made by the BAA and will be sent through the Amateur Radio communications network.

Marathon Details

Communication Networks

As described in Amateur Radio at the Boston Marathon: an Introduction, for communications purposes the Marathon is broken down into three segments; START, COURSE and FINISH. Each of these segments typically has their own network with several channels each, typically:

- **Alpha** - Primary channel used between stations and NCO
- **Bravo** - Secondary channel for use when directed by NCO
- **Charlie** - Tertiary channel for use when directed by NCO
- **Simplex** - Direct point-point communications for use when directed by NCO, CTL or the COM-L

Note: The actual frequency assignments and Channel ID's are dependent on position and may be found in the ICS 205 document, and in the Communications Plan for each segment.

Tactical ID's

Management of communications at events large and small are made more efficient and understandable through the use of a Tactical Identifier for each unit. In this section we will outline the Tactical ID's you may hear, or be assigned to use.

Tactical ID Chart

TACTICAL ID	FUNCTION OR INDIVIDUAL
START	START Liaison operator
FINISH	FINISH Liaison operator
MEMA	MEMA Liaison operator
NET	A Net Control operator
MIKE [01-26] [A-E]	A Medical Station unit.
HOTEL [01-26] [LIMA/ROMEO]	A Hydration Station unit (Left or Right)
BUS [1-31]	Non-medical transport Bus
ELITE BUS [1-4]	Elite Runner non-medical transport Bus

Table 3: Tactical ID's (Examples only. See your segment Communications Plan)

Tactical ID's for Medical and Hydration stations start with "M" and "H" respectively. Each volunteer at these types of stations will be assigned an ID consisting of the Station Type, Station Number, and a letter. The letter A is reserved for the communications team leader (CTL). Not all tactical ID's are listed here. See the Communications Plan which gives greater detail for each segment.

Medical Stations use the tactical ID MIKE. Station 23 is expressed "MIKE TWO THREE".

Hydration Stations use the tactical ID HOTEL. Station 15 is expressed as "HOTEL ONE FIVE ROMEO/MIKE" ROMEO = Right side of course (direction of runners); LIMA = Left side of course.

NCS Internal ID Chart

The following list of ID's is used internally at the NCS and rarely heard in operations.

TACTICAL ID	FUNCTION OR INDIVIDUAL
CHRIS	Event Manager, Chris Troyanos
JOSH	BAA Event Manager, Josh Nemzer
DIVISION MANAGER [1-4]	BAA Division Manager
BAA LIAISON	BAA Operational Liaison/Shadow
BAA MEDICAL	BAA Medical Liaison/Shadow
SEGMENT COORDINATOR	Amateur Radio Segment Coordinator
NETWORKD	Technical Services
PROCEDURES	Assists with procedural work flow
INFO	Assists with situational awareness

Table 4: NCS Internal ID's

On the Move

Note: Although Amateur Radio communications will not be used by Medical Walking Teams in 2015, use the procedure below to cover any contingency.

When away from your station location, on any assignment, indicate your away status in your Tactical ID. There are two occasions where you would be away from station. The first is when you are on an assignment (for example, to take a lunch break). The next is when you are accompanying medical personnel as a Medical Walking Team. In both instances you will ordinarily maintain a listening watch on a Simplex channel assigned and maintained by your

CTL. Should you need to be contacted by your CTL, or you wish to call your CTL or NET, a suffix indicating your away status is appended to your Tactical ID.

Note: At the time of this writing, the Walking Team will consist of two medically-trained staff and a MEMA medical communicator, or two medical staff with one serving as the MEMA medical communicator. In either configuration, Amateur Radio communicators will not be used. In fact, a reduction in staffing levels at each MEDICAL facility is expected given this decision. However, it is useful to brief this operation as if we will provide such a service, and for two reasons:

1. To better understand the existing structure
2. To be competent in this service should circumstances in the field occur.

When away from station with a Medical Walking Team, use WALKING TEAM as your suffix.

In the following example, you are assigned to Station M 23 and your Tactical ID is M 23 B. You have been assigned to accompany a Medical Walking Team. You need to contact your CTL (M 23 A).

MIKE 23 ALPHA, MIKE 23 BRAVO WALKING TEAM on Simplex
Answering MIKE 23 BRAVO WALKING TEAM
...

Example 7: Walking team Identification

In the next example, your CTL has asked for a volunteer to acquire bandaids at a local druggist. You, M 23 B, volunteered for the assignment. While in the drug store you need to call your CTL.

MIKE 23 ALPHA, MIKE 23 BRAVO ROVER on Simplex
Answering MIKE 23 BRAVO ROVER
...

Example 8: Rover team Identification

When a COM-L is present at your Medical Station, you do NOT need to notify your NCS when leaving station. Your CTL will know you're on the move and will maintain a simplex link for your communications needs. When a COM-L is NOT at your station, your CTL will notify NCS of your away status. Should assistance from NET be needed, your CTL may direct you to SWITCH AND ANSWER for NET, or may relay the information.

Appendix

Amateur Radio Station Call Signs and Identification Procedure

The FCC requires all Amateur Radio operators to identify transmissions with their FCC issued call sign according to the following rule:

> *"Each amateur station, except a space station or telecommand station, must transmit its assigned call sign on its transmitting channel at the end of each communication, and at least every 10 minutes during a communication, for the purpose of clearly making the source of the transmissions from the station known to those receiving the transmissions. No station may transmit unidentified communications or signals, or transmit as the station call sign, any call sign not authorized to the station."[2]*

Note: a *communication* is not identical to a *transmission*; it can be a series of individual transmissions. Save time by not saying your FCC call sign until the end of the *communication*.

A special event call sign, **W1M**, will be used by all NCS stations. Special FCC rules apply:

> *"When transmitting in conjunction with an event of special significance, a station may substitute for its assigned call sign a special event call sign as shown for that station for that period of time on the common data base coordinated, maintained and disseminated by the special event call sign data base coordinators. Additionally, the station must transmit its assigned call sign at least once per hour during such transmissions."[3]*

Our operations are designed to comply with and exceed this requirement. The following procedures will be used:

1. **Net Control Operators**
   NCS operators should identify
   a. Every 10 minutes or less using the Special Event Call Sign in the following manner: "THIS IS W1M, [NORTH SECTOR] NET CONTROL FOR THE BOSTON MARATHON STANDING BY AT [time]"
   b. Every 60 minutes or less as follows: "THIS IS [operator's FCC call sign] OPERATING SPECIAL EVENT STATION W1M, [NORTH SECTOR] NET CONTROL FOR THE BOSTON MARATHON STANDING BY AT [time]"
2. **Field Units**
   Field units should identify every 10 minutes, but preferably at the end of a series of transmissions. If you forget to ID, to remain within the rules use the following procedure but ONLY when the communications channel is clear of traffic: "HERE IS

---

[2] FCC Part 97 Section 119 (a)
[3] FCC Part 97 Section 119 (d)

[Your assigned Tactical ID] [operators FCC call sign] FOR ID"

NCS is not required to answer.

Note: the initial call-up and bulk of communications are conducted using the Tactical ID <u>only</u>. There is no need to over-identify.

Phonetics and Numerics

Phonetics is first defined as a branch of linguistics "that comprises the study of the sounds of human speech"[4], and speech sounds are the backbone of our work. When we question a communication with "It sounded like…", it's time for a linguistic cure called a Phonetic. A Phonetic sounds-out each letter and so, too, each number from zero to nine. Where accuracy and unambiguity is demanded, use Phonetics to spell it out.

ICAO Standard

The ICAO (International Civil Aviation Organization) developed a set of Phonetic equivalents for the English alphabet and the expression of numbers in the 1950's. Their initial work was adopted and adapted for various specialties. For our communications we will rely upon the ICAO FAA variant (with noted exception for punctuation).

ICAO FAA Phonetic Standard for English Alphabet
Bold Phonetic indicates syllabic emphasis

LETTER	FAA STANDARD
A	**AL**PHA
B	**BRAH**VO
C	**CHAR**LEE
D	**DELL**TAH
E	**ECK**OH
F	**FOKS**TROT
G	GOLF
H	HOH**TELL**
I	**IN**DEE AH

---

[4] Wikipedia https://en.wikipedia.org/wiki/Phonetics

J	**JEW**LEE ETT
K	**KEY**LOH
L	**LEE**MAH
M	MIKE
N	NO**VEM**BER
O	**OSS**-SCAR
P	PAH**PAH**
Q	KEH**BECK**
R	**ROW**ME OH
S	SEE**AIR**AH
T	**TANG**GO
U	**YOU**NEE FORM
V	**VIK**TAH
W	**WISS**KEY
X	**ECK**SRAY
Y	**YAN**GKEY
Z	**ZOO**LOO

Table 5: ICAO FAA Phonetic Alphabet

ICAO FAA Phonetic Standard for Digits
Bold Phonetic is stated with syllabic emphasis

NUMBER	FAA STANDARD
0	ZERO
1	WUN
2	TOO
3	TREE

4	**FOW**ER
5	FIFE
6	SIX
7	**SEV** EN
8	AIT
9	**NIN** ER

Table 6: ICAO FAA Numerics

Phonetic Standard for Punctuation

SYMBOL	OUR STANDARD
/	SLANT
.	DECIMAL
,	COMMA
-	DASH

Table 7: Recommended Punctuation Phonetics

Expressing Digits

The general convention in public safety is to repeat numbers for clarity. A typical example is "patient age is forty nine... four niner." When extended to bib numbers in the tens of thousands this convention becomes impractical. For the Marathon the convention is say the digits, the word repeat, then the digits again. For example: "patient age is four nine repeat four nine."

Call signs and tactical ID's are excluded from this convention.

Acceptable	**NOT** Acceptable
STATION TWO SIX ALPHA	STATION TWENTY SIX ALHPA
BIB THREE FIVE NINER [REPEAT/THAT'S] THREE FIVE NINER	BIB THREE HUNDRED AND FIFTY NINE
NINER SEVEN EIGHT [REPEAT/THAT'S] NINER SEVEN EIGHT MASS AVE	NINE HUNDRED AND SEVENTY EIGHT MASS AVE
PARTICIPANT AGE IS FOUR NINER, [REPEAT/THAT'S] FOUR NINER	PARTICIPANT AGE IS FORTY NINE

Example 9: Expressing digits

Communication Checks

A COMM CHECK (also known as a "Radio Check") is a request to a called unit (normally the NCS) for an indicator of how effective the communications channel is between the units. The NCS and caller should reply with a plain English description.

Communications Quality Descriptors

DESCRIPTION
Loud and clear
Dropping in and out
Weak but readable
Unreadable

Table 8: Communications Quality

Loud and Clear is equivalent to "full quieting". Dropping in and out means that the communications varies from strong and clear to moments of weak but readable quality. Weak but readable describes continuous noise. Unreadable means that one or more factors have made the communications unreliable.