Working the Boston Marathon

A Survival Guide for First-Time Amateur Radio Operators

Tim Carter, W3ATB



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Introductory Note from the BAA's Communications Steering Committee

The Boston Athletic Association (BAA) sanctions volunteer participation in the Boston Marathon, including that of the Amateur Radio community. In 2015, the BAA restructured and refreshed its approach to communications services, creating a Communications Steering Committee. This Committee consists of several Amateur Radio operators and representatives from other groups such as MEMA, ambulance services, and BAA Medical.

The Committee is responsible for recruiting, training, assigning, and managing all Amateur Radio volunteers according to communications plans and infrastructure that it creates and implements in cooperation with the other services.

The Committee is grateful to the BAA for this opportunity and privilege to represent the entire Amateur Radio community and will work tirelessly for the advancement of our skills and effective use at this and future BAA events.

The Committee thanks you for your enthusiasm and eagerness to serve the BAA Boston Marathon.

The Committee wishes to express its gratitude to Tim Carter, W3ATB, whose generous and cooperative contribution has permitted us to update and distribute this helpful document to all BAA Amateur Radio volunteers.

You may reach the Committee at this email address: BAA-contact@kd1sm.net

How to use this Survival Guide:

This Survival Guide was authored several years ago as an introduction for new Amateur Radio communications volunteers. The intention is to help prepare you for the BAA Boston Marathon experience: mentally, physically, and logistically (equipment and personal items).

Many operational and security aspects of the Marathon have changed since this Guide was written. You may discover some discrepancies (that we did not catch during editing) between what was, and what is. In all cases, use this document as a helpful introduction for your personal preparation, but defer any questions specific to assignments, security, reporting times, management structure, operational procedures, and other assignment-specific issues to the official Communications Plans for your segment.

Overview:

The Boston Marathon is not only a world-class running event it's a world-class public service event, one demanding the skills and talents of well over 250 Amateur Radio operators. These FCC-licensed volunteers provide communications before, during and after the race. Your participation as a volunteer is sanctioned, organized and managed by the event organizer, the Boston Athletic Association (BAA). As a volunteer, you serve the BAA in providing event day communications, a service upon which the Boston Marathon depends.

Whether you're a new or experienced communicator, the Boston Marathon is a challenging public service event you simply don't want to miss. If you decide to volunteer for this prestigious race, you'll never regret it. By 1 p.m. race day, I guarantee you that you'll have decided to come back again. It's that exciting.

This guide is not meant to scare you or intimidate you into thinking the event is too hard to do. It's my goal to tell you what to really expect so you're prepared and have a great time. I want you to come back year after year to experience the thrills I have on race day.

Rest assured that if you're new to the event, you will not be left out in the cold. In 2015, all Amateur Radio operators will be provided with helpful guidance, including an introduction, a detailed document describing the communications standards used, and detailed assignment information. Each station with more than one operator will have a Communications Team Leader. It will be their role to see that you are effectively tasked, and to afford you every opportunity for experience and enjoyment.

The Boston Marathon is a fast-paced Amateur Radio experience that will really help you hone your skills, regardless of what aspects of the hobby interest you. Working the Boston Marathon will afford you a valuable baseline of skills useful in ARES/RACES and at other public service events.

The Amateur Radio team consists of operators throughout the Marathon's one-of-a-kind linear race course. Assignments range from the starting line, Hydration and Medical Stations along the course, runner transport buses, and at the finish line. Specially-trained radio operators man the net control operations center and serve in liaison and other specialized areas and capacities.

Amateur Radio operators unfamiliar with public service work will quickly discover they're in the center of a sophisticated communications web that requires discipline, diligence and determination. If you've never worked a public service event as an Amateur Radio operator, the Boston Marathon is quite possibly the most demanding and fun event you'll ever work in your lifetime.

While the race is run by world-class runners in optimal conditions in just over two hours, radio operators could be on station and working for at least eight, if not ten hours. It all depends on where you're assigned to work. If the weather is extreme, the experience can be highly taxing, both physically and emotionally.

If you're filled with anxiety and questions, that's normal. Even though I had several public service events under my belt prior to working my first Boston Marathon, I was filled with apprehension as the event drew closer.

I survived because of great advice I received from members of my Amateur Radio club who had worked the marathon in the past.

This guide is a compilation of those tips and ones I discovered myself while working the Marathon. This guide should help give you the confidence to participate in this event.

IMPORTANT NOTE: This Beginner's Survival Guide in no way takes the place of the official documentation, training, assignment information and guidance provided by the BAA. Refer to the official information for all protocols and procedures. Where this Guide and BAA materials differ, the BAA materials must supersede.

This guide has been created to help you prepare mentally and physically as well as paint a picture of what to expect during the race.

Your prime directive as an Amateur Radio operator at the Boston Marathon is safety: for yourself, your team, race participants and the public. You uphold safety primarily though your skills as a communicator. And you are a true communicator, not simply an operator, who works within a complex and planned environment. You will be successful as a communicator if you maintain a listening watch and strive for clarity, brevity, accuracy, un-ambiguity, and efficiency in your work. Finally, remember that you are part of a team in service to the BAA.

They are the boss. You are afforded the privilege of access and the full Marathon experience in exchange for your service to them.

It's imperative that you keep your volunteer role in mind as you read this guide. Your primary job is not to be a spectator, it's not to offer first aid, it's not to move equipment, etc. You may be asked to assist to help other race volunteers during the day. If you're not busy communicating on the radio, by all means provide assistance to others.



Your job is to be ready to communicate at a moment's notice. That means you, and your equipment, must be ready.

Your volunteer effort is absolutely appreciated by countless runners and the hundreds of other volunteers and members of the Boston Athletic Association who tirelessly and proudly work to make this Marathon a success each year.

If you discover this guide helps you survive your first Boston Marathon, I'd love to hear from you. If you come up with other helpful suggestions, I'll gladly revise this guide.

You can reach me at: **tim@w3atb.com**

73's and I'm clear on your final

Tim Carter - W3ATB

Assignments:

There are numerous assignments you could receive as an Amateur Radio operator working the marathon. The trouble is, last-minute changes could cause you to get switched from a location you may have requested when you signed up.

Based upon information you provided when registering, the event organizers will be able to discern your level of experience. No worries. You won't be thrust into an assignment that you can't handle. And, if you're new, you won't be working alone.

Try to be flexible and understand you may be asked to work anywhere on the course. This means you should bring any necessary gear that would allow you to be placed anywhere, and for a potentially lengthy time span.

IMPORTANT NOTE: There's a very good chance you'll be working an assignment where you're not near your vehicle. This is absolutely the case for those assigned to the start and finish lines and locations in downtown Boston.

This means everything you need for the entire day must be carried by you to your assignment location. You may be bused or carpooled to this location, but be aware you'll not have the luxury of going to your car or truck during the day to retrieve supplies.

Security requirements may restrict the items you can bring. Refer to your Assignment information for any restrictions or cautions. Although there will be a prevalence of law enforcement, each Medical and Hydration Station is responsible to maintain the security of their possessions. Keep an eye on your belongings and keep them in a safe location. As items are kept in the open, recognize that theft is a possibility. If it's irreplaceably valuable, keep it on your person or in your vehicle.

Here are the normal assignments:

Medical and Hydration Stations:

The running course has many Hydration and Medical Stations. The Medical Stations have multiple radio operators. The Hydration Stations are usually staffed by one radio operator. Some Hydration Stations occupy opposite sides of the course and in these cases two Amateur Radio operators will each staff one of the two sides.

If you're not confident in your skills and have limited public safety augmentation experience, ask to be assigned to a Hydration Station near the beginning of the course.

Multiple Amateur Radio operators are at the Medical Stations and especially those closer to the finish line. It can get busy at any of the stations, particularly closer to the finish line as runners become fatigued. Medical issues are also affected by temperature, precipitation, sunshine, and humidity.

Most Medical Stations pair two medics to act as an "Away Team". Some away teams will need the services of Amateur Radio as they assist runners in distress and are distant from the

station. *(Editor's Note: In 2015, this has changed. Therefore the following is for reference only).*

If you wish to serve in this capacity you'll need to be in good physical shape.



If you work at a Medical Station you must plan to be mobile. You might have to travel as far as one mile (round-trip) to get to a runner. In the heat of the race, you could be moving about for two hours. You need to be able to communicate without being hindered by the mayhem around you.

One Amateur Radio operator is constantly at the Medical Station. This is your Communications Team Leader (**CTL**). The CTL works directly with the Medical Station manager and/or public safety officials.

The CTL has many responsibilities, including looking out for you. H/she must maintain local and regional situational awareness, be available to the Station Manager and you at all times, and keep an ear to Net Control and other systems. Your job is to remain within eyesight of your CTL. Staying close means you don't hover around but are visible and available at a moment's notice.

Start and Finish Lines:

Amateur Radio operators are needed at both Start and Finish for several reasons. Large throngs of people are at both places and one can see the need for the event organizers and leaders to have eyes and ears in the crowd.

The starting line operators provide important communications for all of the race facilities at the start including, but not limited to, the Hopkinton-based team captains, information booths, Athlete's Village, and spectator parking areas. Those at the start line have little to do once all runners have left the start.

The finish line operators don't have much to do until Noon. Be sure to eat lunch by 11:30 a.m. as you'll likely be very busy from Noon until 4 or 5 p.m.

The finish line can be a place of mayhem when the main slug of runners arrives. Many are exhausted, need first aid - sometimes wheelchairs- and are trying to locate friends and relatives, etc.

Runners in distress at the finish can create lots of radio traffic. Be prepared for a busy communications environment at the finish line.

Runner Transport Buses: An organized system of non-medical bus transportation is managed through Amateur Radio. Each bus has a single operator who communicates with a special Net Control called Bus Net. The buses operate on a scheduled basis and along pre-established routes, picking up runners from Medical and Hydration Stations or along the course (some will flag down a bus for assistance). These assignments are generally benign, but it's very possible that a runner in a bus could suddenly require medical assistance. You need to be able to calmly work in a moving vehicle and close the loop to make sure medical assistance is provided promptly. This means you need to have great equipment and training specific to this role. I'll cover equipment in the next section. Training will be provided by the event organizer, the BAA.

Medical Re-Supply: New in 2015, Amateur Radio will assist in the radio traffic necessary to provide medical equipment re-supply to Medical and Hydration Stations along the course.

Radio Equipment:

Radio:



At the bare minimum you need a decent 2-meter handheld radio. I say decent because you must remember that your radio, and its ability to perform at any given moment, could mean life or death for a runner.

I hate to be blunt, but I was in this exact situation at my first marathon. I didn't doubt for a moment that my Yaesu VX-7R would key up when I had to call for a life-support ambulance for a non-responsive runner.

If your radio is a dual receive one, this is all the better. It allows you to monitor the next closest frequency that's up or down course from you if need be.

If you own a second HT bring it. I carry two Yaesu VX-7Rs with me.

Extra Batteries:

You need power. You could need power for ten hours. You can't have enough spare batteries. Remember, net control, Medical and Hydration Station managers, runners and medics are counting on you.

Your radio must work all day. Bring your charger with you, especially if you can operate it from your car. You may be in a location where you can charge a battery while you're using a second one.

I carry three batteries with me as well as my charger.

Extended Range Antenna:

The rubber duck antenna that comes with most HTs may work where you are, but don't count on it along the marathon race course. **I highly recommend a 1/4 wave whip antenna** that's designed for extended range.

Seriously, don't count on any type of rubber duck antenna working. You need a great antenna if you want to communicate. Keep in mind you may be part of a mobile team that's roaming the course. Propagation, although line-of-sight, may vary due to weather conditions and your location. A marginal antenna may work in one spot, only to fail in another.

Optional or Recommended Equipment:

Headset or Audio Headphones:

A headset or audio headphones are HIGHLY recommended. I didn't think so before I worked my first marathon, but the noise at the peak of the race makes it so you can't hear the speaker of your HT.

Remember, you must be able to communicate - that is your only job. You can't be distracted. You can't be asking net control to repeat transmissions. The frequency must be as open as possible at all times and not cluttered with you saying, "Net control, can you repeat? It's so loud here I can't hear you."

I prefer the Bose IE2 headphones
because they are super comfortable and I
can take one out of an ear to listen to a

Medical Station manager or someone else while monitoring the radio traffic in my other ear.

Speaker/Microphone:



While not absolutely necessary, you'll never regret having one. I have a Yaesu Vertex MH-34B4B. It has an earphone jack for my Bose IE2 audio headphones.

The speaker microphone will be a valuable asset if you couple it with the audio headphones and a chest radio harness.

You'll discover most speaker microphones are equipped with a clip on the back that allows them to be attached at or near your lapel.

You see police with this setup all the time with their waist radios. The microphone on your lapel allows for very crisp outbound transmissions.

Built-in microphones within waterproof handheld radios like my Yaesu VX-7R don't always produce the best audio because of the waterproofing membranes that protect the electronics inside the radio.

Magnetic 1/4-Wave Antenna:

If you get assigned to a runner transport bus, you may need a magnetic antenna that you can put on the hood of the bus. Don't assume your HT whip antenna will always work inside the bus.

Radio Owner's Manual:

You must have your radio owner's manual. You just never know what you might need to do with your radio.

Pre-Programming:

Your Assignment documentation will include all the frequencies, splits and PL tones you'll need on event day. Program these into your radios before the event. The dynamic, sometimes noisy, and often stressful Marathon environment is not an ideal place to be figuring out how to program your HT.

Radio Harness or Sturdy Platform:

I didn't have a chest radio harness for my first marathon, but I ordered one just after the race. Once I saw how it protected the radio, allowed for both hands to be free unless keying the microphone, I was sold. This is NOT REQUIRED, but I have used it on other events since the marathon and love it.

The chest harness puts the radio exactly where it needs to be. It's safe on your chest. Radios in pockets can fall out. Radio on belt clips may not be comfortable for eight or ten hours.



The whip antenna is slanted so it's out of your way and will not poke you in the eye during the day. *Just be careful that it won't poke anyone else*. Some harnesses have an antenna retaining loop which will prevent you becoming the initiator of a medical incident! The remote microphone can easily attach to the over-the-shoulder straps just below your head so you can easily key it.

I purchased the BlackHawk harness. It's worked well for me in numerous events, and many Amateurs have ogled mine just like I did the first time I saw it.

If you don't want a chest harness, then perhaps a great belt clip setup will work for you.

You want to test your setup weeks before the race. Remember, the radio needs to be comfortable on your body all day, and all day might be 8 or even 10 hours, depending on your assignment.

The best setup is one where you don't even know the radio is on you. You don't even feel it.

Waterproof Notebook and Pens:

If you work a First Aid station, you'll have to keep notes about runners, ambulance dispatch information, etc. You need to write this down. If it's raining, traditional notepad paper becomes mush. Waterproof paper pads are readily available at large office supply stores or online.

Wristwatch:

It's important to keep accurate time of written events in your notebook. Don't think about using your mobile phone. Your hands will be full with your radio, your notebook, your pen, etc. Just rotate your wrist and look at a traditional watch.

Communications Guide:

The communications team for the Marathon has produced over the years a superb Communications Manual. This document is emailed to all Amateur Radio operators that register to volunteer. In 2015, the level of information and available training is increasing and the aforementioned manual consists of several documents.

READ EVERYTHING YOU RECEIVE. READ IT TWICE.

Don't assume you know what to do because you've worked other public service events. The Boston Marathon is a unique event. Some of the organization and procedures will be new to you. Be prepared to learn, and to grow your skills as an effective communicator.

Please **listen to different transmissions** between operators and net control from the 2012 Boston Marathon. Note how voice tones change as the situations change. (Note that the procedures demonstrated here may not match those used in the 2015 Boston Marathon).

https://www.youtube.com/watch?v=zc3foaw_jnE



Clothing:

I don't know if records have been kept for weather conditions for the Boston Marathon, but I can tell you my first event was the hottest one on record. I was sunburned and beat to death by the sun by 5 pm. I'm sure other marathons have been run in snow.

You must be prepared for any weather. To make it even more challenging, particularly as you'll probably not be able to bring your car to the assignment, all of your extra clothing must be easy to carry.

You will be given an official Boston Marathon windbreaker jacket. These are to be worn at all times. These jackets distinguish volunteers and volunteer roles according to colour. If you're assigned to a first-aid station, your station manager will be looking for that colored windbreaker if he or she needs you.

Comfortable waterproof shoes are a must.

Consider a small Camelback backpack that contains a water bladder. If you're a mobile away-team operator, you might not be near water for hours. The backpack can carry other must-have supplies while you're away from your larger primary backpack.

Fantastic raingear is a must. You must stay dry.

If it's a cold day, you could be outdoors for seven or more hours. Need I say more?

Pack extra clothes in case you do get wet and have the ability to change somewhere.

Sunglasses, a hat, gloves, etc. could be needed.

If rain is forecast, have a waterproof jacket that has a large hood that will keep your head dry. I love the yellow one I purchased from LL Bean. Just be sure that your Marathon jacket is worn as outerwear.

You'll be asked to wear black pants and a white shirt. That's the official uniform of the American Red Cross. Your professional appearance makes a difference. Remember, you represent the BAA, Medical and public safety professionals, and your team.

Extra Supplies:

My best advice is to imagine you're going camping for an overnight. You could need toilet paper even though there are porta-potties scattered all along the course.

You'll need food, water, medication, etc.

You might be at an assignment where you can set up a nice fabric folding chair, but don't count on it.

Some supplies will come in very handy if you're lucky to be assigned where your car or truck is parked close by your assignment.

For example, the large sign that runners look for identifying the Medical Station I worked had no way to be mounted high up on a utility pole. It was leaning against the pole and impossible to see in the heat of the race with all the spectators.

I tried to secure it to the pole as high as I could just standing on a bucket, but if I had thought to bring a ladder, that sign would have been clearly visible to all runners hundreds of feet away from the station.

As mentioned previously, you will need small notebooks that you can easily store in a pocket. If there's a chance of rain, be sure to have a waterproof notebook. The brand I use is Rite in the Rain. Wherever you're assigned, you may need to make notes.

Be sure you have multiple writing instruments, pencil or pen. Be sure they work in the rain.

You must have an accurate wrist watch. Do NOT depend on a cell phone. You don't want to be going in and out of your pocket looking at a cell phone to record times.

You'll never regret having access to the following:

- a digital camera or mobile phone camera
- Tylenol, Advil or Aleeve - preventative meds to help you through the day
- a toolbox filled with normal hand tools
- small folding multi-tool that fits in a backpack
- a small 4-foot step ladder
- great pocketknife
- multi-pocket vest
- waterproof pocket notebooks
- a roll of duct tape
- a 10x12-foot tarp
- thin rope or parachute cord
- nails or screws to attach signs to poles
- a cooler with ice
- paper towels
- rags
- hand or foot warmers
- emergency blanket

Depending upon your assignment, carrying all these materials may be impractical. Be assured that the BAA has prepared your station with its full needs in mind.

Medical Needs and Emergencies:

If you're assigned to a Medical Station, you may witness a part of humanity that you've never seen before. Some runners have very little modesty, so be prepared for that.

Be prepared to see runners vomit near or on you. They're not doing it on purpose.

Be prepared to see runners that can't talk they're so out of breath.

If you're a man, be prepared for female runners to expose a breast, or two, to apply Vaseline on their sore nipples. It's neither sexy nor erotic.

Be prepared for runners to apply Vaseline in their crotches in front of you. They're on a mission. It's absolutely not sexy.

Most of this will happen and you'll not notice. You'll probably be far too busy keeping a listening watch on the radio, which is the way it should be.

Most importantly you need to be psychologically prepared to handle the shock of seeing other humans in excruciating pain. Runners will cramp up and if not caught in time, it racks their bodies in pain so great they scream at the top of their lungs.

You need to be prepared to see them writhing in pain and not be able to do anything about it. If you've never seen this before, you'll possibly become frozen. I know as it happened to me.

Be mentally prepared to see unresponsive runners carried into a Medical Station and have medics work on them to save their lives.

REMEMBER, your job is to do one thing - Communicate. Move away from any situation that you find is uncomfortable or where you are simply in the way.

You can't communicate if you're frozen in fear by the suffering of another human. You can't communicate if you get hurt because you're not paying attention and get run over by the mass of runners trying to get to the finish line.

If a person needs medical help, allow the medics to do their job. Don't try to be a hero with a band-aid. You're job is to communicate, effectively, judiciously, and under the helpful direction of your CTL.

If you're assigned to a medical away team, be aware there is a protocol for entering roadways filled with runners. Runners ALWAYS have the right of way.

You just can't cross a roadway to get to a runner as you might normally cross a street.

You need to carefully merge into the flow of runners upstream from the disabled runner and work your way down to them. The same is true leaving a roadway. You must work your way down the road and merge onto the side of the roadway. Most importantly - follow the guidance of your team.

Language Barriers:

You need to be prepared for runners that don't speak English. Runners come from all over the world to participate in this bucket-list race.

Think ahead of time how you can use hand signals to communicate. If you're assigned to an away team that's on the course, the medics are well trained in how to communicate with foreign-speaking patients.

On a medical team your job is to communicate precisely what you're asked to communicate. Your job is not to make a medical assessment. Let the medical team do that. They'll tell you how urgent a call may be. The medical team works directly with the runners, however you may be asked to assist with moving a runner to the medical tent. Follow their directions precisely, and you'll do fine.

Self Care:

During the marathon it's natural for you to be focused on the runners and the team members you may be working with. All too often you may overlook your own needs.

Weather, stress, fatigue, etc. can all eat away at your performance. Never forget, your entire team is counting on you to be at the top of your game and you must be able to communicate clearly at all times.

Don't be a hero. You may be at a location where your Communications Team Leader (CTL) may periodically ask you, "How are you doing?" He's not doing this to be friendly. He's doing it to check on you. Be HONEST with her / him.

If you need a break, take it. If you don't feel good, tell her / him. If you need something, ask for it.

Here's a handy checklist that may prove useful:

- Make it a practice to check in with your own experience, emotions, and physical status
- Respond trustingly, appropriately and compassionately to your personal needs
- Seek the assistance of your CTL or other colleagues if you need a little help along the way
- Take a few minutes away from all the chaos every so often. Give yourself a "breather".
- Keep yourself well hydrated; remember to eat, and have a snack occasionally, too
- Remember: the sum is only as good as each part

No professional that's working with you will think the less of you if you take a break. Encourage your other team members to take care of themselves too.

Checklist:

A comprehensive checklist of things to bring is at the end of this document.

TOP FIVE MUST-DO'S:

1. Focus on your job. You're a Communicator. You must be able to communicate. Maintain a strict listening watch and be ready to respond when called.

2. READ all the material provided to you before the event. Bring a copy of these materials with you for reference.

3. Pre-program into your radio the race frequencies and label them as directed if your radio can do that. TEST all equipment before race day.

4. Get mentally prepared. Be confident. You can do it. You WILL do it.

You Will Survive.

You'll NEVER forget the experience.

73s

Tim Carter W3ATB

Acknowledgements:

I wish to thank Steve Schwarm, W3EVE for providing the impetus to create this Beginner's Guide. While I volunteered to do it, it was Steve's polite nudge that made it happen.

I'd also like to thank Andrew Maroney, W2AJM and Patrick O'Malley, K1PRO. Both helped edit and polish this guide. They also provided the audio track of the actual radio traffic of a past Boston Marathon.

Andrew and Patrick's deep experience working past Boston Marathons was instrumental in providing some of the survival secrets that only pros would know.

I'd also like to thank Bob DeMattia, K1IW for the use of his photo and for his helpful input about race particulars.

This guide was updated for the 2015 Boston Marathon, however all material provided you by the BAA supersedes anything within this document which may be in error or conflict.

I'd like to thank the entire 2015 BAA Communications Steering Committee for helping revise this document to keep it as fresh and relevant as possible.