A Generalized Structure for Deployment Planning

Follow these steps to help plan and organize your ARES® or public service event.

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According to the Federal Communications Commission, a primary mission of the Amateur Radio Service is to "provide a pool of trained radio communicators." One way we train is by supporting public events. These deployments give us valuable opportunities to test our skills, our equipment, and our ability to function in challenging environments.

Unfortunately, we often don't take full advantage of these opportunities to practice the very important skill of *planning*. This author has participated in well over a hundred ham radio deployments over the past 40 years. Some were resounding successes, others far less so. The difference wasn't merely planning, it was *good* planning.

The Power of a Good Plan

Most ham deployments are planned to some degree. But *good* planning requires a structured approach, which will reduce oversights and the time necessary to make thorough plans. Also, by following the same generalized structure for all deployments, hams become familiar with the routine, making future deployments easier and quicker to plan and implement, which can make a real difference in a true emergency.

The structure presented here is generalized to fit almost any type of organized radio support event, from small neighborhood fairs to large search-and-rescue operations. While presented in terms of a public service mobilization, it can also apply to Field Day or a club special event. It consists of a checklist of 20 items to consider in the planning process. These items are grouped into five steps: (1) Pre-planning; (2) Analysis of the Environment; (3) Staffing and Equipping; (4) Management and Administration; and (5) Debriefing.

Step I — Pre-planning

Item 1: Review debriefings from previous deployments.

The most underrated tool of the planner is the stack of debriefing reports from previous deployments; there is much to be learned from reviewing past successes and failures. An accidental or incidental discovery from the past can be a big help to the present.

Item 2: Contact the event's organizers and administration.

Prior to the event, you should determine who is requesting communications support, what their role is during the event, and the name of the person the hams should report to at the event.

Once the liaison is identified, the ham leadership must make sure the event leadership is fully aware of ham radio's role, capabilities, and limitations. If hams are to be working alongside event workers, those workers need to know how ham radio fits with their work, too.

Item 3: Contact your volunteers.

It is important to assign someone to contact and brief the hams and verify their participation. Imagine a deployment where everyone thought someone else was going to contact the volunteers, then on the day of the event, only the planners showed up!

Step II — Analysis of the Environment

Item 4: Determine the types of situations that will require communication.

The leaders of an event should know *why* they asked for radio coverage. The hams must be briefed about occurrences that would require communications. As an example, say that hams are planning support coverage for a 50-mile bike race on a mountain trail where cellular coverage is spotty or nonexistent. Checkpoints and aid stations are strategically placed along the route. Event leadership and ham leadership should both have a clear idea of the requirements, so these can be communicated to the ham volunteers who are expected to carry them out. Many situations could initiate a need for communication, such as:

- Verification that checkpoints, aid stations, and the finish line are ready for the race to start
- Notifying everyone of the race's start
- An accident or some other need for assistance
- A sudden weather or track situation posing risk to riders or spectators
- An aid station running low on supplies
- Bikers passing a particular checkpoint
- Sweep operations to ensure that all riders have finished the course or are otherwise accounted for.

In some cases, a situation may need to be broadcast to a number of destinations simultaneously. In others, point-to-point queries and responses may be needed. These are different types of communication. Knowing the expected situations will let the planners identify characteristics of the information content.

Item 5: Determine the characteristics of the information content.

Different situations generate different types of information. By considering the *characteristics* of the information to be passed, planners can better prepare for the various types of traffic to be handled. Different types of traffic call for different communication modes. For example, in a high-stress, time-critical situation requiring the spelling of dozens of names, a digital mode would be a faster and more accurate choice than voice.

Item 6: Bridge the gap between the situation and the ham.

An often-overlooked factor is that the location where the *information* originates may not be the same place where the *message* originates! Hams are often deployed to

checkpoints, waypoints, and aid stations, while the reportable event might take place miles away. It is important to determine how the event information will travel to the nearest ham. Any information traveling through non-ham nodes must be just as accurate and reliable as that being handled by ham radio.

Remember that messages may need to move outside the ham network. Emergency services may need to be summoned, participants may need to call home, and coordination with other services may be needed. Planners must consider this, and incorporate these non-ham links into their overall plan.

Item 7: Consider location identification and message addressing.

Situations occur at *locations*; messages are delivered to *addresses*. We assign tactical call signs and other identifiers to ham stations. A system for identifying the location of an event must also be prepared.

Meaningful tactical call signs, such as "Milepost 21," "Aid Station 4," or "Race Headquarters," must be determined before the event and conveyed to participating hams, who must also be informed of any identifier changes during the event.

Item 8: Determine scheduling, event progression, and duration of service.

Some operations (a bike race, for example) will follow a known route at a relatively predictable pace; radio operators can be relocated along the route as participants move along the course. Once the "sweep vehicle" has passed a checkpoint, its radio operator can be released and deployed to another location. The lunch stop and the finish line may not need to be manned until several hours after the start of the event. There is no need to have 25 hams show up at 7 AM if only eight will be needed before lunchtime.

Other mobilizations might require full and constant coverage for the entire duration of the activity. Some may require intermittent or periodic coverage in certain areas, while others may need dynamic coverage based on unpredictable patterns.

Once the main activity is completed, communications support might still be needed to facilitate cleanup operations. This may last for several hours after the event officially ends. If this will be the case at the event you're working, make sure your ham volunteers know well ahead of time that the need for communication will extend for several more hours after the event has ended.

Part III — Staffing and Equipping

Item 9: Determine what radio equipment is needed.

The *nature* of the information being passed will dictate what equipment is necessary. You will need to determine if the operation will require handheld transceivers or mobile radios. If repeaters are to be used, the specific machines and any needed tone features need to be identified. Also, you will need to determine if some locations will require mobile rigs or beam antennas.

In addition to repeaters and 2-meter FM voice, other modes can be utilized. For example, packet, CW, APRS channels, backup frequencies, and a direct link to local emergency services can all be made available with some planning. Many of these modes can be in operation simultaneously, saving time. It is incumbent upon planners to choose a mode to match the type of information.

If reliable cell phone towers are available, then incorporate cellular and smartphone technology (or even Wi-Fi) into your communications plan. Don't ignore non-ham communications services when those services are available and reliable. It the situation calls for transmitting a picture, there is nothing wrong with using a smartphone camera to send an image if the capability exists.

Item 10: Consider support equipment: power and other non-radio gear.

Electric power sources need to be considered. Batteries only last for so long. Generators require fuel, which in turn might require fire extinguishing equipment and other safety considerations. Use of liquid fuel or power equipment in certain environmentally sensitive areas (such as national parks or wilderness areas) might be regulated or even prohibited. Outlet strips, extension cords, chargers, lights, fuse replacements, and other equipment may be necessary.

In addition, summer events may require shade, while winter ones may require heat. Any season of the year might require shelter from wind, rain, lightning, and hail. Tables, chairs, coolers — this category can include many necessary items.

Item 11: Consider supplies and expendable operating materials.

There are many consumable supplies that will be necessary, perhaps even critical, during the event.

If much of the radio traffic will consist of routine status reports, shortcuts and templates can be created, allowing quick insertion of details to save time during the operation. If the event covers a geographical area, maps showing routes, landmarks, and checkpoint identities must be made and distributed. If the event involves special terminology, a glossary of such terms could be useful.

The question of access must also be considered. If operators will need credentials to access their posts, you need to arrange to obtain and distribute them.

Flags, banners, arrows, and signs may need to be prepared so event participants can find the ham operators. Something as simple as a length of surveyor tape tied to the antenna might suffice, or operators could wear a particular color of vest, jacket, or hat for identification. Such things can make the difference between a smooth operation and a confusing and ineffective one.

Item 12: Be prepared for operator relief.

Hams on a deployment get hot, cold, sunburned, frostbitten, hungry, and thirsty. It is the planner's job to ensure that items to relieve these conditions will be provided to the operators if, when, and where needed.

Item 13: Match operator abilities and skills to the job requirements.

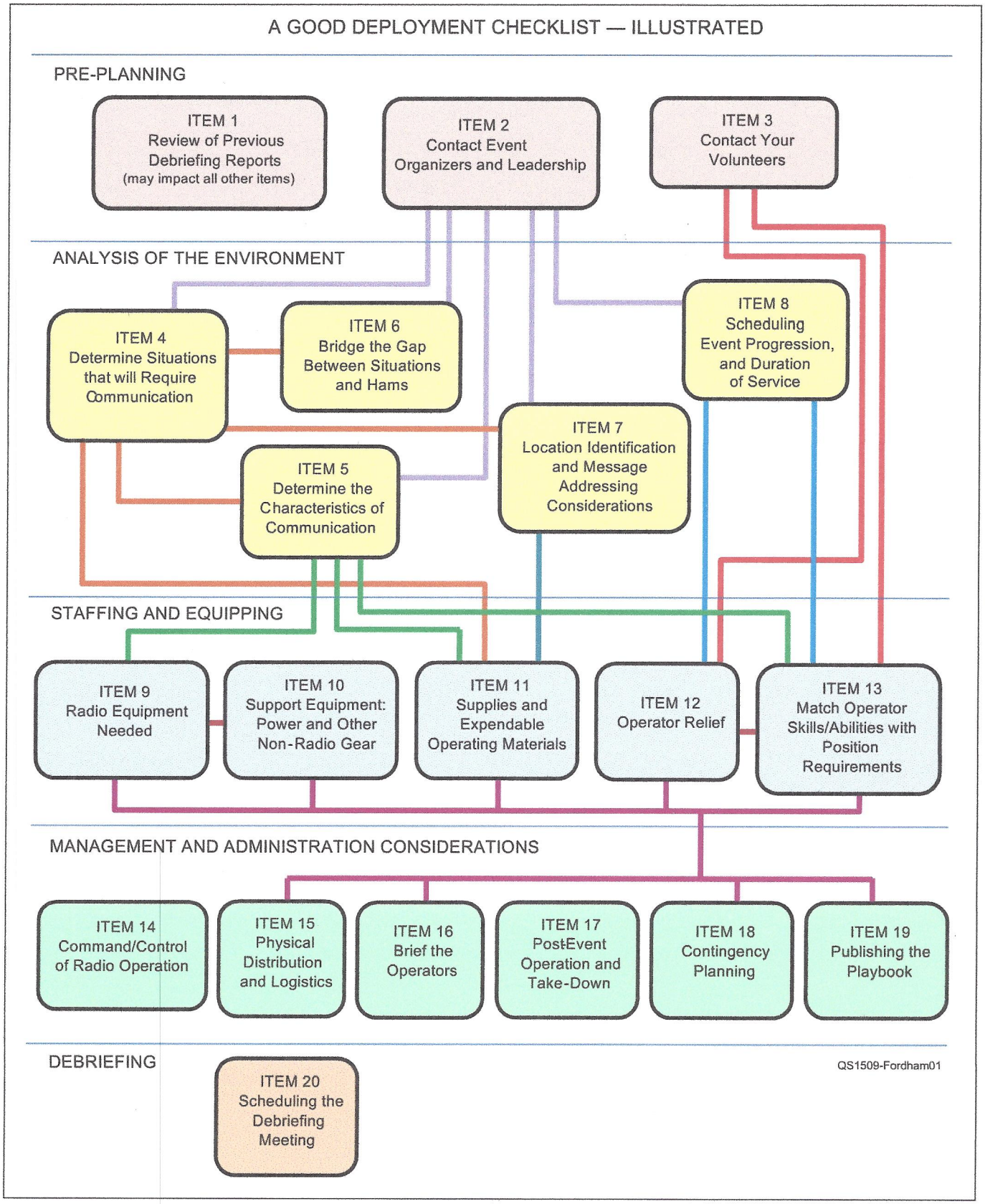
Individual hams vary widely in terms of health, proficiency, experience, reliability, and performance under pressure. These differences must be considered when allocating hams to particular assignments. The fast-paced or high-volume tasks should be assigned to the more agile and energetic operators; low-volume tasks to the less active ones.

Part IV — Management and Administration

Item 14: Consider the optimal command and control structure.

In small events, one or more of the planners will probably serve as net control during the event. All net control operators (including their backups and relief operators) must be *completely* informed of the plan details, especially for their portion of the operation.

There is a common misconception that net control must always be located at the event's headquarters. If net control is too close to the event headquarters, however, interruptions and distractions will interfere with effective network operation.



A flowchart representation of the planning process discussed in the text.

Net control will have unique needs as far as materials and supplies go. It is one of the most stressful assignments, often requiring one or more helpers and more frequent rest periods. Net control is also more critical in terms of having backup power, a more robust shelter, and more reliable equipment.

Because net control is an ideal place to "see the big picture" and gain exposure to all aspects of the deployment, some planners see it as an ideal training ground for new operators with limited net experience. The position can be an immensely valuable experience to a ham who has experience with practice nets if the event has a low level of activity and an experienced mentor is available to step in if needed. Otherwise, it's a good idea to assign a skilled and experienced operator as net control and use lesser-experienced hams as assistants or relief operators during slack times.

Real deployment operations are very different from the typical casual ARES net. No operator, especially net control, should ever transmit for more than 15 seconds at a time in a real event. On a real deployment, tying up a channel with a lengthy transmission might prove fatal.

Item 15: Consider physical distribution and logistics.

In a large-scale event, net control will probably be very busy controlling actual message traffic, so the responsibility of operator support should be placed on someone other than net control. A logistics support person needs to consider how to credential the operators, how to move them to and from their posts, the kinds of vehicles needed to move people and equipment, the types and quantities of supplies needed to support the operators, and the scheduling of breaks.

Item 16: Brief the operators.

Plans must include informing operators of the details of their role and the expectations for their preparation, provisioning, and participation. Planners must familiarize the operators with the event protocols. Operators must understand the type of traffic they are expected to handle, the equipment (radio and non-radio) and supplies they will need, what will be provided, directions to their stations, and instructions on who to report to and how to check in once they are on station. Don't take for granted that because a ham has participated before, he or she will know what to do at a new location or similar event.

Often overlooked is instruction about the interface between the radio operator and the event participants. Brief the operators on the kind of requests, reasonable and otherwise, they might get from participants. Include procedures for handling these requests, specifically including a list of contacts and their individual responsibilities.

Operators must be provided with maps, glossaries, identification and addressing protocols, timetables, and other information that will enable them to do their jobs quickly, effectively, and efficiently. It is a mistake to assume that hams don't need instruction and guidance. Finally, the importance of brevity on the air needs to be stressed. As mentioned above, in an actual deployment operators should make their transmissions as short as possible.

Item 17: Plan for post-event operation and take-down.

For many events, the ham radio operation is not over just because the event is. Event organizers often need communications during the take-down and cleanup operation, and this communication may be different from that which occurs during the event. Of course, good planners will have identified this need in Step II of the planning structure.

A good plan will assign responsibility for dismantling the ham stations, taking down the masts and towers, loading the gear, retrieving any signs, and delivering the supplies back to the club storage area or individual hams' homes. If this is not part of the formal planning, it will be too easy for everyone to disappear once the event is over.

Item 18: Contingencies — expecting the unexpected.

It has been said, "If you plan for problems, they cease to be problems and simply become part of your plan." Once you have prepared a draft of your plan, planners should go through it carefully, to identify problems that might occur at each stage. You will never be able to foresee all the potential issues that will arise, but the more you can find, the more you can plan for.

Item 19: Reviewing and publishing the playbook.

If there is enough time, the best way to inform the operators, net control, and even the event leadership of the details of the plans is to create a written "playbook." This document will serve the same purpose that a screenplay serves for a movie. Having several sets of new eyes (those not at the planning meeting) review the draft before it is published will likely catch a few mistakes, oversights, and problems. The finished playbook should contain the details of the plan, and effectively communicate all critical information to the hams.

PART V — Debriefing

Item 20: Schedule the debriefing meeting.

The final step is to set a date and time for the debriefing, which brings us full circle to Item 1. The leaders, planners, and operators need to get together and talk about what went right as well as what went wrong. Brilliant ideas and gross oversights are vivid when they happened last weekend, but 2 years from now, they may be forgotten. Hold the debriefing and prepare a written report to help the next "generation" of planners.

Conclusion

Overlooking any one item in this structure can, at best, result in discomfort, confusion, and damaged reputations, and at worst, in disaster. Following the structure, time after time, adding and modifying it as necessary will eventually result in your group having a "pool of trained communicators" ready to assist at a wide range of events with a minimum of time, effort, and chance for oversight.

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Cathryn B. DeFabio, KF7VBO, his daughter, has been active in emergency communications in Seattle and is now living outside of Fairbanks, Alaska. She, along with her husband and their husky and beagle, live beyond the range of landlines, cable, and even cellular services. Ham radio plays an integral part of her well-planned communication system.