Amateur Radio Emergency Communications

A R E S

Amateur Radio Emergency Service

IMS For Amateur Radio

Basic IMS

Setting Context

- For small incidents, local methods of managing response using memory and a few sheets of paper will work fine. The value of IMS is apparent as the event scales up, the number of resources increases, the number of agencies and organizations increases, and resources are brought in from other areas.

- In order for Amateurs to understand the need for, and the value of the IMS structure, one needs to think beyond a small localized emergency, and instead think of something that covers a large area with a significant impact, like a Hurricane or Earthquake.

- Once IMS for large incidents is understood, it is easy to understand how the IMS can be used for small events and how regular use of the IMS builds the skills required for large incidents.

IMS Is A Guide

- The Incident Management System (IMS) is a guide to help manage incidents in a logical manner, allowing the response to scale from very small to very large and to allow resources from different locations or agencies to work together as a single organized response.

- IMS is not a set of rules that dictate what to do. Two incident commanders may define different organizational structures for the same incident, based on their experience and understanding of the situation.

- By everyone using the same guide, IMS, it is much easier to bring together resources from different areas and quickly form an organizational structure.

Minimal Change

- Using IMS for Amateur radio is not a significant change. In any event, resources must be called up, recorded, assigned to positions, equipment is required, shift changes must be planned, and everything must be reversed at the end.

- IMS provides a standardized structure, with standardized forms, so everyone has a common approach and understanding. Resources from City A can go help Amateurs in County B, and integrate into a single structure.

- Without IMS, each group has their own structure, based on what works for them, or based on panic during an event. Each group then has their own forms, or forms created during an event.

- IMS is a recognized standard, that will enhance Amateur radio's ability to provide assistance and utilize Mutual Aid.

ICS For Different Events

The Incident Command System (ICS) was developed for fighting forest fires, which involved primarily fire departments. They developed common standards for organizational structure, and the kind and type of resources. The Incident Commander can use resources from different departments interchangeably, and expand or contract the organizational structure to meet the current needs.

Two realizations became apparent from using ICS;

1. ICS can be used for managing other levels within a response, such as the EOC (Emergency Operations Centre).

2. ICS is effective for managing any type of event (emergency or planned event) and could be effectively used outside the emergency responder community, including Amateur Radio, Hospitals and Business.

Sample IMS Structure
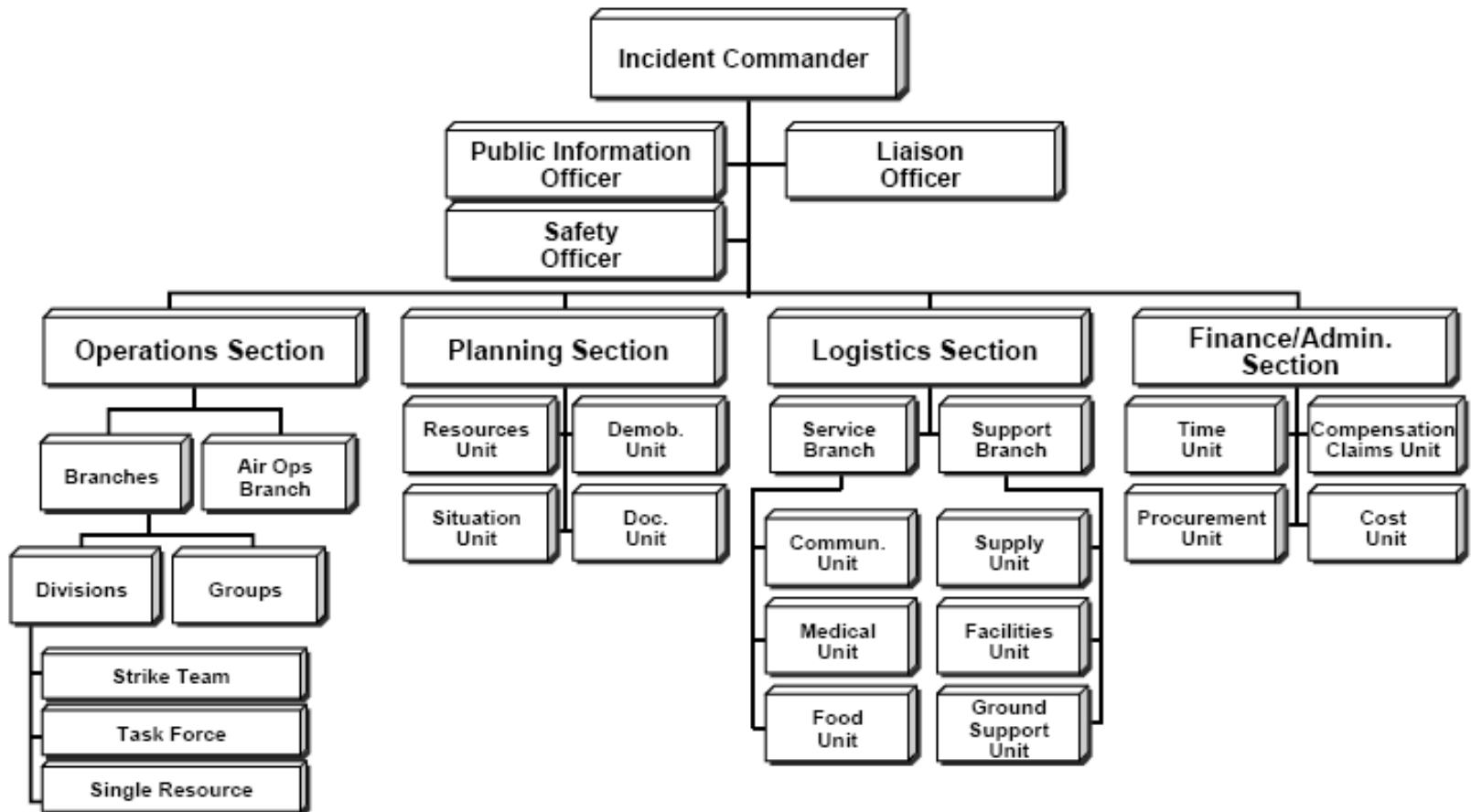
Smallest IMS Structure

- The smallest IMS implementation for Amateur Radio is the same as for all IMS structures, one person, Command.

- Command is the top position in IMS. The title *Incident Commander*, is only used at an incident site. In IMS for Amateur Radio, Command is called the ***Director Amateur Radio***.

- In the beginning hours of an incident, where Amateur radio has not been activated, there may only be one person from Amateur radio involved. The Director fills all positions that are required at that time, the Director may also be the NCS, if there is a net active.

DIRECTOR
Amateur Radio

Build From The Bottom UP

- The IMS structure builds from the bottom up, so there is a director at the top and then there are Resources at the bottom.

- As the number of resources increases, other pieces of IMS structure are introduced to maintain span of control and provide logical management of the response.

- Span of Control is the ratio of supervisor to personnel. The recommended span of control for a supervisor is from 3 to 7 personnel, with 5 as the optimal.

- Span of control can exceed 7, based on experience. For example, in a situation where there are multiple Amateur stations activated, but in a backup capacity with minimal traffic, the Director may decide to increase the span of control beyond 7.

Single Resource

EMO IMS Doctrine, Page 20, Item 42:

Single Resource: May be an individual, a piece of equipment and its personnel complement, or a crew or team of individuals with an identified supervisor.

The **Single Resource** is the smallest unit within the IMS structure and is the base unit on which the Amateur Radio IMS structure is built.

- A resource may be one radio operator on foot or in a vehicle, or several radio operators and loggers at a shelter or other site.

- The resource typically has a tactical name, such as Ottawa EOC, Patrol 1, West Shelter, and all the radio operators are part of that resource, even if they provide different functions, such as radio operator, logger and runner.

Single Resource

One person will be designated as the Amateur Radio Leader for a resource. This is the person who is accountable to the position above in the IMS structure.

If there is only one person, they are the leader. This may be one of two radio operators, or at a busy location, it may be a dedicated position as Leader. It depends on how many people and how busy the resource.

Each building location, vehicle, or portable that requires Amateur Radio, is a resource

1 Person
Radio Operator

1 Person
Radio Operator

1 Person
Radio Operator

3 People
Radio Operator
Logger
Runner/Assistant
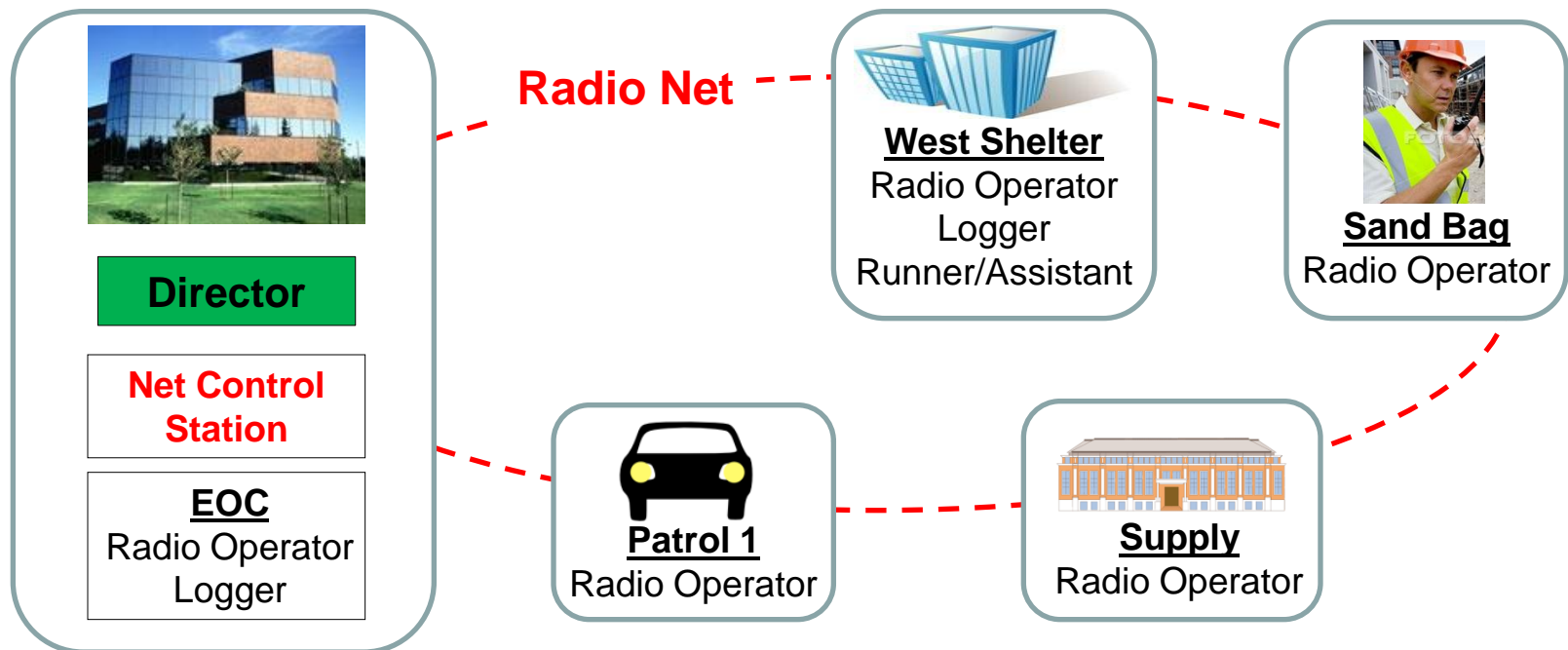
Net Control Station (NCS)

- The NCS (Net Control Station) is the Amateur Radio equivalent of a Radio Dispatcher, and controls communications between stations on the radio network.

- The NCS is a single resource in the IMS structure, equal to other stations (resources).

- The NCS is a separate resource even if located at the same place as another resource. For example, if the NCS is located at a shelter, the NCS is a separate resource in the IMS structure, so there is a shelter resource and an NCS resource.

- The NCS is not a supervisory role, so it allows the NCS to coordinate communications for more than 7 stations, not exceeding the IMS span of control.
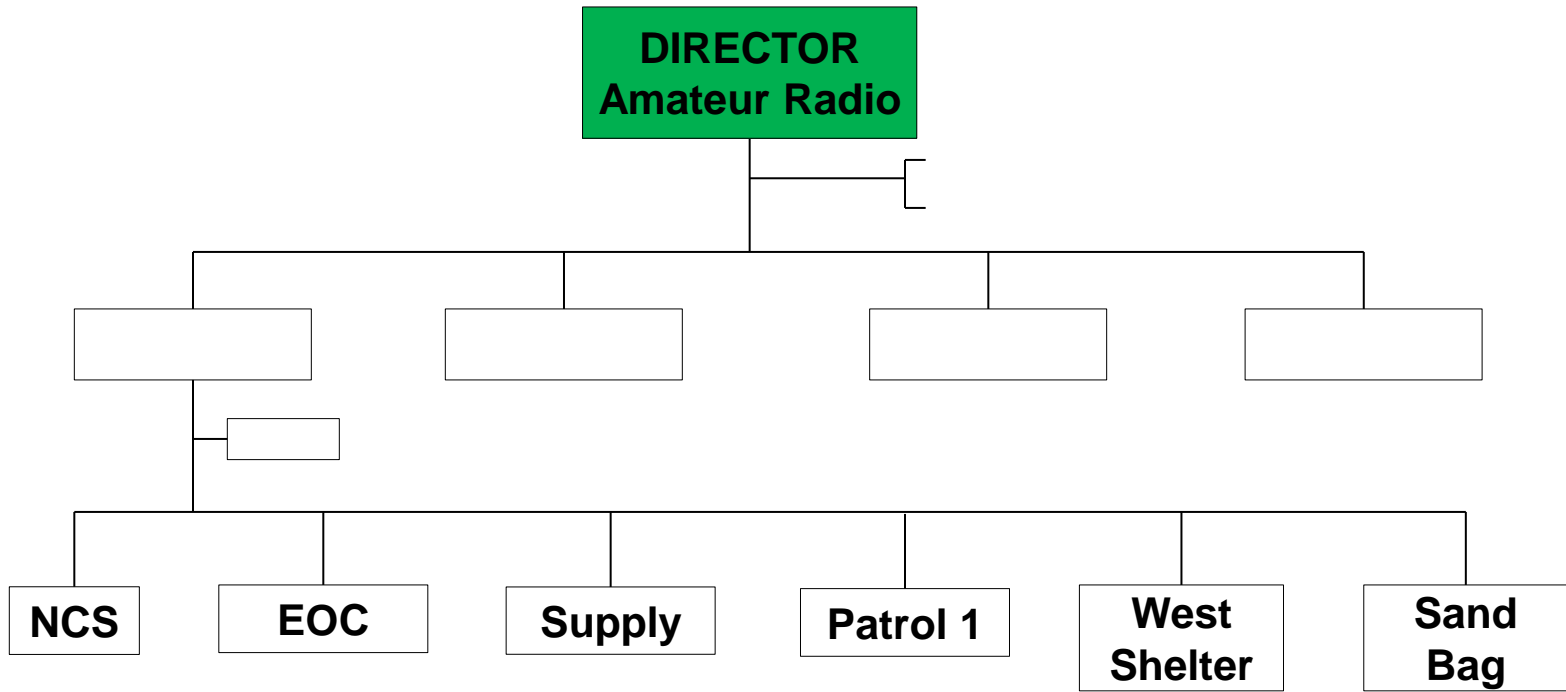
Net Control Station (NCS)

- The NCS function can be performed by someone higher in the IMS structure. (One person can support multiple roles), but it is listed as a separate resource function in the IMS structure.

- Because the NCS is not a supervisory role, it also allows the individual stations to be grouped in various arrangements to maintain the IMS span of control. For example if there are a lot of shelters, they can be grouped into two divisions, with the single NCS shared across all the shelters.

Multiple Resources

- In the diagram, the Director and the NCS are located at the EOC. In the IMS structure, both of these are separate from the EOC resource that provides radio communications in and out of the EOC.

- The three functions, Director, NCS and EOC could be using the same people, but they are separate IMS functions.

Director

Net Control Station

EOC
Radio Operator
Logger

Radio Net

West Shelter
Radio Operator
Logger
Runner/Assistant

Sand Bag
Radio Operator

Patrol 1
Radio Operator

Supply
Radio Operator

IMS Structure (For Previous Slide)

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                    ┌──────────────────┐
                    │    DIRECTOR      │
                    │  Amateur Radio   │
                    └──────────────────┘
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| NCS | EOC | Supply | Patrol 1 | West Shelter | Sand Bag |

- Command (Director Amateur Radio) is at the top and the resources are at the bottom.

- The empty boxes are standard IMS positions that are not required in this example, so the Director has those responsibilities, if required.

Local Marathon Example

IMS can be used for large and small events, emergencies or public service events. The following example shows how Amateur radio would apply IMS for a small Marathon.

Event Description

Local school marathon, 500 kids, on local Agricultural farm, crisscrossing roads. Start = finish, with 3 check points, one location used twice, so only 3 sites.

Haley's Hill   **Sandy Point**   **Centennial Park**
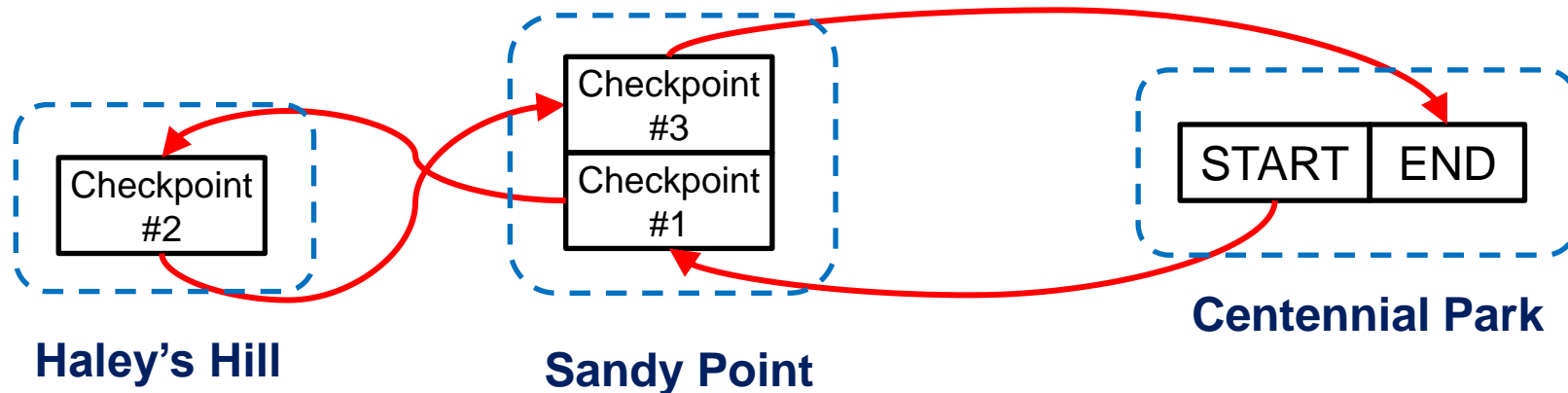
Amateur Resources

Bill is coordinating Amateur radio for the event and has created a list of the functions that will be required.

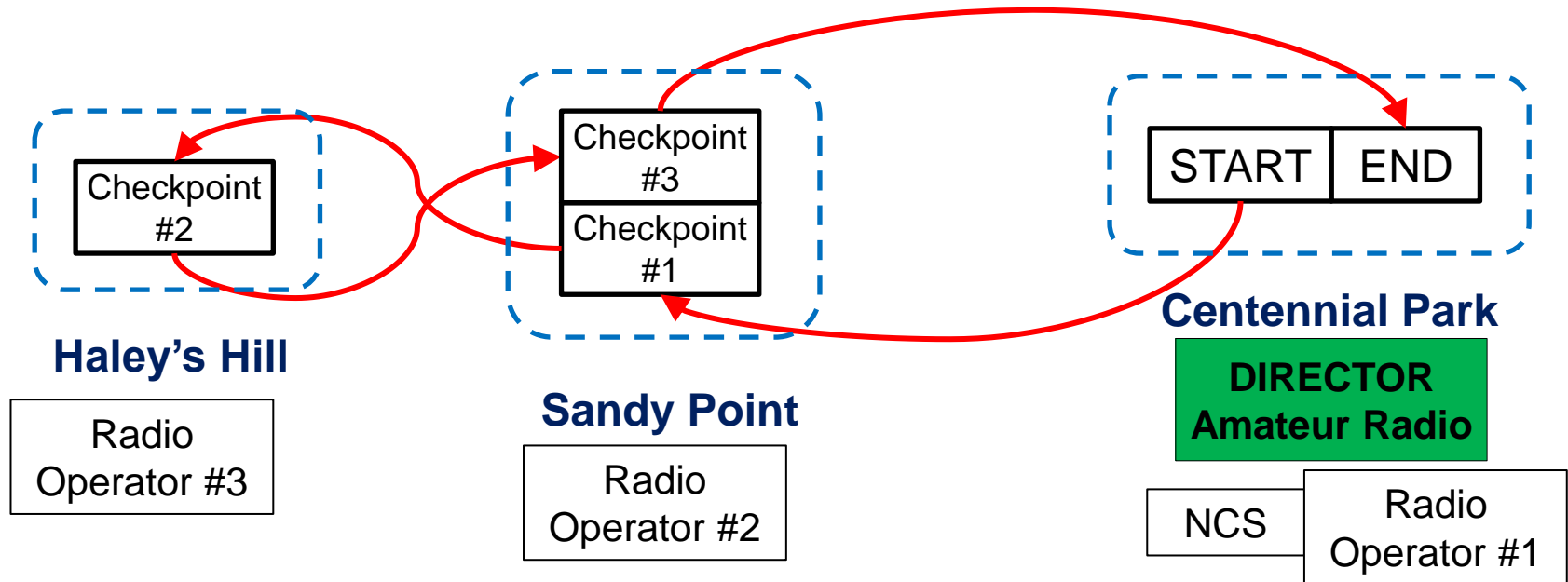|	
DIRECTOR Amateur Radio	Manage Amateur Radio & liaise with event coordinator
NCS	Manage information flow of radio communications
Radio Operator #1	Start Line
Radio Operator #2	Check Point #1 & #3
Radio Operator #3	Check Point #2

Amateur Locations

Checkpoint #2 — **Haley's Hill**
Radio Operator #3

Checkpoint #3 / Checkpoint #1 — **Sandy Point**
Radio Operator #2

START | END — **Centennial Park**
DIRECTOR Amateur Radio
NCS | Radio Operator #1
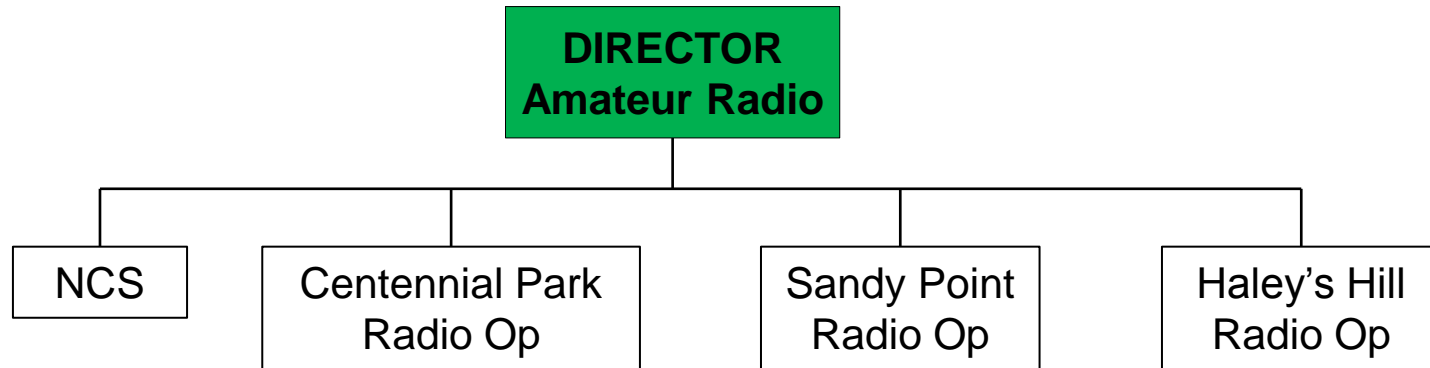
- Bill decided that 4 Amateur radio operators will be required, one at each location, plus himself.

- Since Bill organized Amateur radio for the event, he is in charge and will interface with the event coordinators at the Start Finish line.

- Since NCS is the first and last station on the air, Radio Operator #1 will be the NCS and the Radio operator for that site.

IMS Organization Structure

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                    ┌──────────────────┐
                    │   DIRECTOR       │
                    │  Amateur Radio   │
                    └────────┬─────────┘
         ┌──────────────┬────┴────┬──────────────┐
    ┌────┴────┐  ┌──────┴─────┐ ┌─┴─────────┐ ┌──┴──────────┐
    │   NCS   │  │ Centennial │ │ Sandy     │ │ Haley's Hill│
    │         │  │ Park       │ │ Point     │ │ Radio Op    │
    │         │  │ Radio Op   │ │ Radio Op  │ │             │
    └─────────┘  └────────────┘ └───────────┘ └─────────────┘
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- This event can easily be done without using IMS.

- By using IMS, if additional resources were brought in through Mutual Aid, the incoming resources will understand that the Director is in charge. They may not know Bill, or that he is the local leader, or that in this area the leader is called the Exalted Amateur.

- Through standardization using IMS, there is no need to explain local names and customs.

IMS Organization Structure
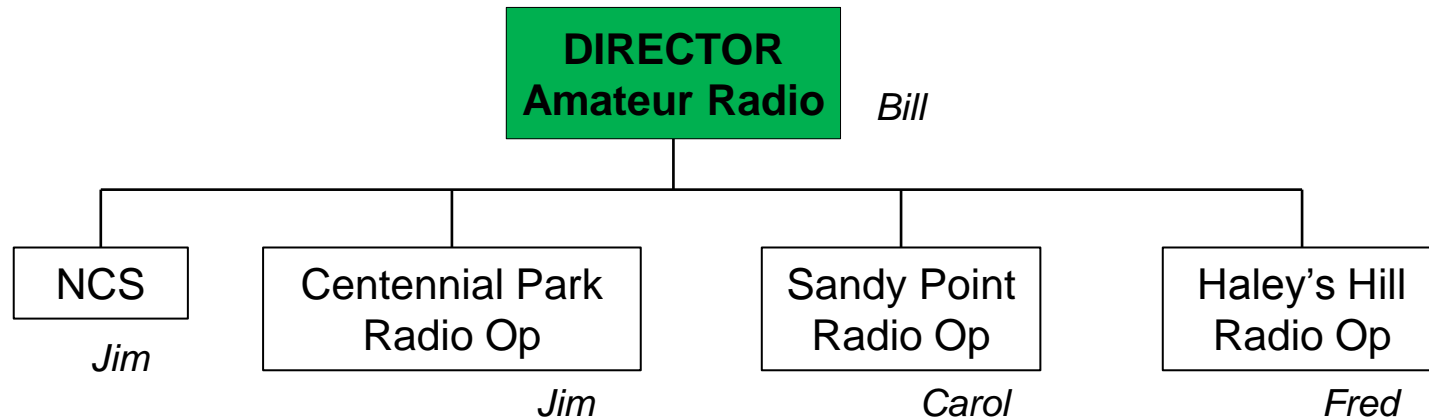
- Bill assigns names to each of the positions.

- Bill will be the Director, while Jim will be both NCS and Radio operator for the Start Finish at Centennial Park. NCS and Radio Operator are separate functions, so they are both shown in the IMS structure. One person can perform more than one function, but the functions are listed separately.

- If the event grew in size, Bill has the option to get another Amateur for NCS, establishing a dedicated NCS position.

Staff Positions

- As an event or incident expands in terms of the number of resources, complexity and/or duration, the IMS structure will expand to meet the needs.

- It may be necessary for the Incident Commander to designate a Command Staff who report directly to the Incident Commander, and provide information, liaison, and safety services for the entire organization.

- The Director performs all Command and General Staff responsibilities unless the IMS functions are delegated and assigned.

Command Staff

- The decision to activate Command Staff positions is up to the Director, and the would only be activated if there is a requirement to have someone dedicated to the tasks.

- The Command Staff positions, like all positions in IMS, will only remain active as long as there is a requirement for someone doing that job. As soon as that job is no longer required, the position should be demobilized.

DIRECTOR
Amateur Radio

Emergency Information Officer

Safety Officer

Liaison Officer
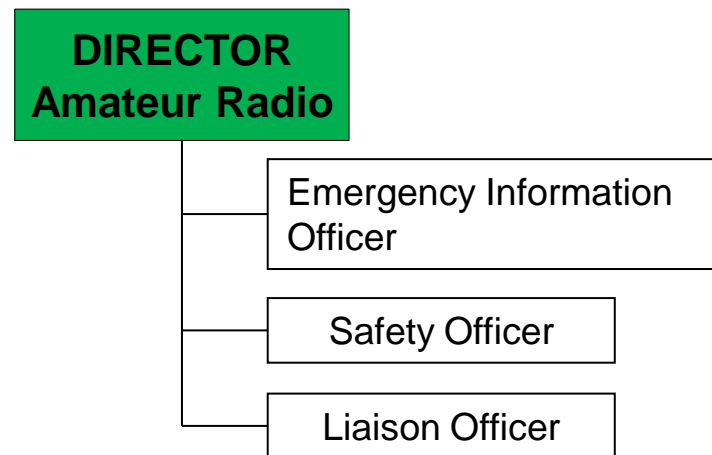
Emergency Information Officer (EIO)

- Advises the Director on information dissemination and media relations and prepares information for release, regarding the incident.

- The Director approves all information released by the EIO.

- In most cases, Amateur Radio will point to the clients Information Officer and the clients Information Officer may request input from Amateur radio.

Safety Officer

- The Safety Officer advises the Director on all issues regarding incident Safety.

- While all leadership is responsible for the safety of people working under them, the Safety Officer is responsible for the overall health and safety.

- Ensures the safety of all Amateur Radio volunteers and makes sure Amateur Radio is not a safety hazard to others.

- The Safety Officer may also act as a liaison to the clients local contact in a site such as a shelter, since the Safety Officer will be visiting the site anyway.
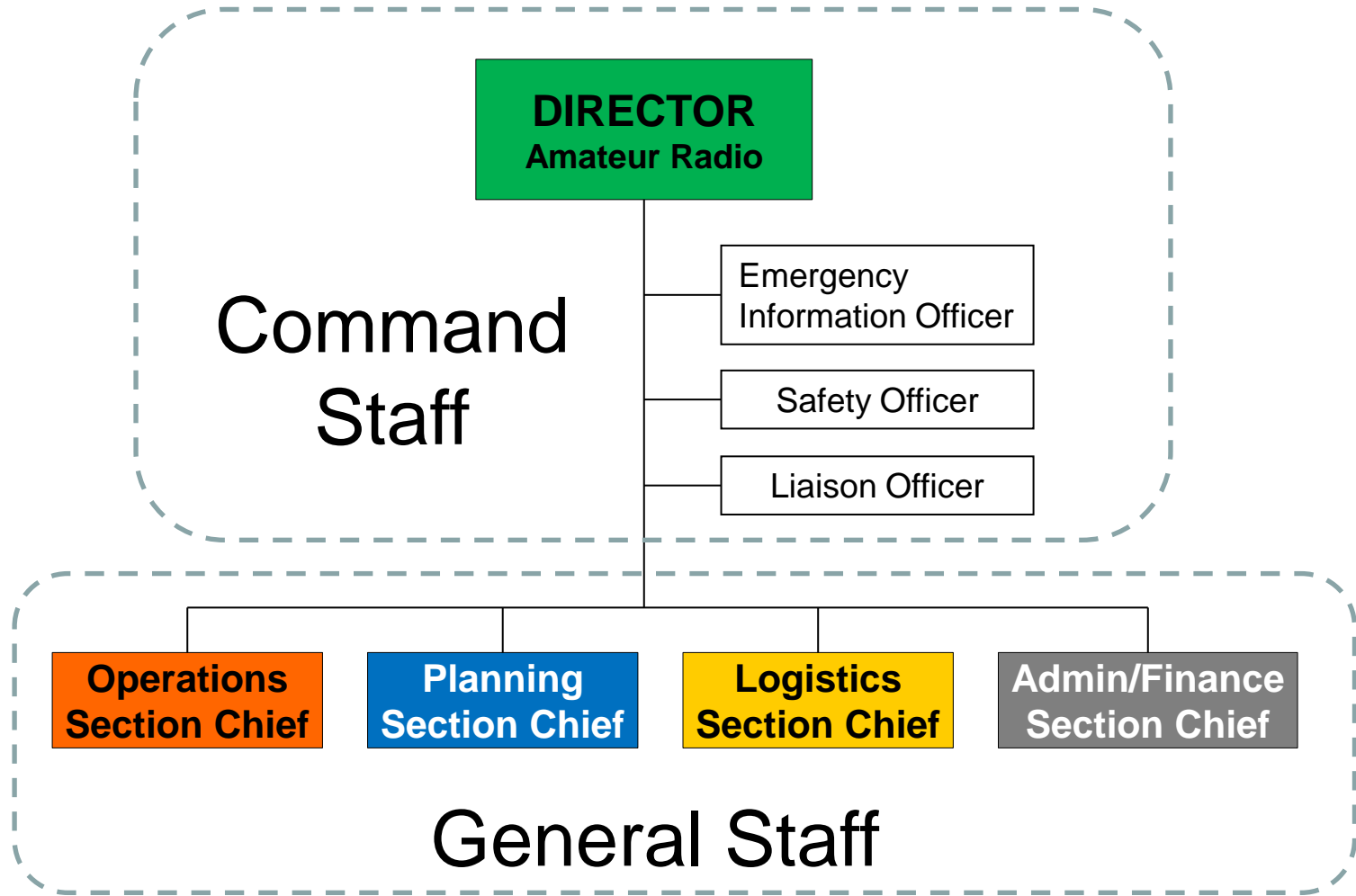
Liaison Officer (LO)

- The Liaison Officer assists the Director by serving as the point of contact for agency representatives who are helping support the organization.

- Supporting Agencies could be local radio clubs, or other ARES groups providing Mutual Aid.

- The Liaison Officer provides information to and answers questions from the supporting agencies.

General Staff

- The General Staff supports the Director by overseeing and carrying out the key management functions for Operations, Planning, Logistics and Finance & Admin.

- Each of these key functions is organized into a section, each headed by a Chief.

- The function of each Section is to coordinate and carry out the incident objectives as set out in the current Incident Action Plan (IAP). The IAP will be explained later.

Command & General Staff

DIRECTOR
Amateur Radio

Command Staff

Emergency Information Officer

Safety Officer

Liaison Officer

Operations Section Chief

Planning Section Chief

Logistics Section Chief

Admin/Finance Section Chief

General Staff

Operations

- Operations is the management of all the people who are actively engaged in delivering service to clients (tactical operations, the Doers)

- The Operations section will expand and contract based on the needs of the incident. Only the positions required are filled and only for as long as they are required.

- Initially Operations contains the first few amateur radio resources activated, reporting to the Director. As additional resources are assigned, the Operations Section is activated under the direction of the Operations Section Chief.

- Operations develops from the bottom up using Groups and Divisions first, then breaking out into Branches.

Planning

- The Planning Section is responsible for collecting and evaluating information from the incident, preparing status reports, maintaining the resource status and developing the Incident Action Plan.

- Technical Specialists, advisors with special skills, initially report to the planning section.

- The planning section can be organized into 4 unit level positions if required;
  - Resource Unit
  - Situation Unit
  - Documentation Unit
  - Demobilization Unit

Logistics

- Logistics is responsible to provide the services and support required to meet the objectives of the incident or event.

- Important to activate Logistics early in an event to maintain control and ensure timely delivery of services and support. (Not activated unless Director determines there is a requirement)

- Responsible for 6 main activities;
  - Communications
  - Medical support for Amateur Radio volunteers
  - Food for Amateur radio volunteers
  - Supply of equipment and materials
  - Facilities (operating positions, such as Net Control)
  - Ground Support

Finance & Admin

- The Finance & Admin Section will bring the reports and forms together on a daily basis and compile them into a package that can be handed to the client when the incident is over.

- Finance & Admin also track resources (who was where and for how long) and where required, track expenses.

Groups & Divisions

GROUPS

- Method of organizing operations resources based on functional groups. Similar functions are grouped together, such as Shelters, Hospitals or Checkpoints.

- Each group is managed by a Group Supervisor.

DIVISIONS

- Method of organizing operations resources based on geographical divisions. Resources in a common area are groups together, such as East and West, or 1st floor, 2nd floor.

- Each Division is managed by a Division Supervisor.

Amateur Radio Fit in IMS

- Clients will provide objectives to Amateur Radio, such as "we need to speak from shelter A to the Red Cross office".

- The client objectives will most likely come from someone within the clients organization who is responsible for support services, not from the Incident Commander, or an EOC director.

- Clients will not provide the strategy for Amateur Radio communications, such as "use VHF repeater ABC for wide area shelter net".

- Clients will not provide tactical deployment plans, such as "send 2 people to shelter A with a UHF to VHF cross band repeater and 3 UHF portables".

- Amateur radio IMS must take the objectives and develop a strategy and deployment plan.

Client Objectives Example

- City hall is attached to a sports complex, and the EOC has asked Amateur radio to provide communications from the EOC in City Hall, to the shelter in the attached sports complex.
  - Amateur Radio has decided to use portable radios on simplex.

- A second shelter is opened, and the EOC has asked Amateur Radio to provide communications between the EOC, Shelter 1 & Shelter 2.

  - Amateur Radio has decided that simplex is no longer a suitable solution, so a local repeater is used to link the 3 sites.

  - The EOC has a permanent radio, but shelter 1 does not, and a portable radio cannot reach the repeater, so a cross band repeater is deployed at shelter 1.

  - Shelter 2 is located near the repeater, so a portable radio works fine from inside the shelter.

Client Objectives Example

- The EOC is not involved in the decision to use simplex, repeaters, cross band repeaters, etc. This is the responsibility of the service provider, Amateur Radio.
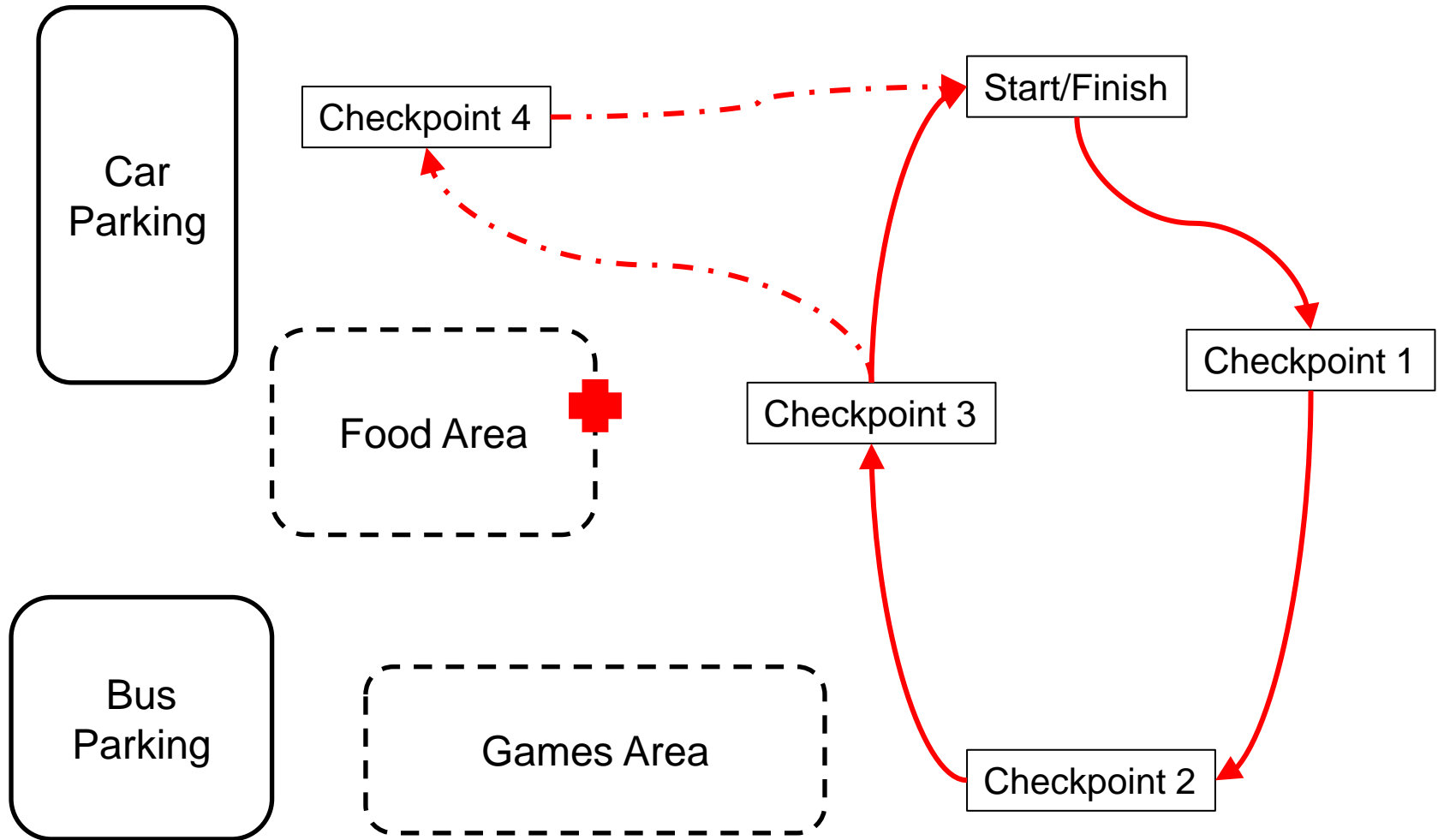
Incident Action Plan

- Every incident or event needs an Incident Action Plan (IAP) so there is a common direction for future actions.

- The IAP can be verbal or written, depending on the incident. Written plans should be used when there is a full implementation of the IMS, Mutual Aid is invoked or there will be overlaps in personnel (shift changes)

- The IAP records the objectives that are to be achieved, while the Incident Briefing summarizes the current situation as a record, or to assist with transfer of command.

Marathon Year 2

- Nearly a year had passed since the school marathon and Bill received a call to see if Amateur radio could help again this year.

- Bill met with the coordinators and realized there were a lot of changes, so he would need a new plan.

- The marathon had been so well received, that it was being expanded to include schools from two counties, with a total of 3000 students.

- Amateur radio would be required to support more locations and services this year, so Bill started to PLAN. Getting more help early would be a good start, so Bill took on the role of Director and got Harry to take on the role of Planning Section Chief.

Event Layout For Year 2

Car Parking

Bus Parking

Food Area

Games Area

Checkpoint 4

Start/Finish

Checkpoint 1

Checkpoint 3

Checkpoint 2

Planning

- With emergency communications incidents, Operations is activated immediately and then, depending on the incident, the Planning section is activated.

- When using IMS for public service events, the planning work is done first, then the operations is activated on the day of the event.

- The initial IMS structure for the Marathon is two positions; Director and Planning Section Chief.

DIRECTOR
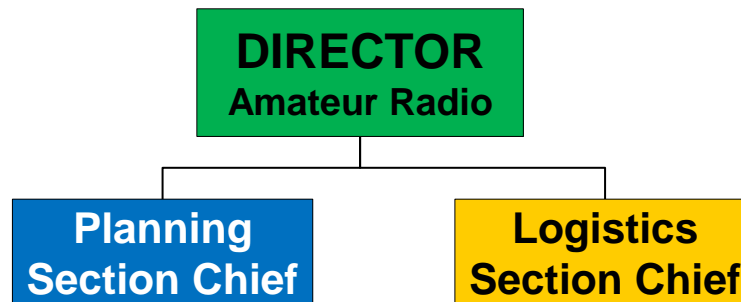**Amateur Radio** *Bill*

Planning Section Chief *Harry*
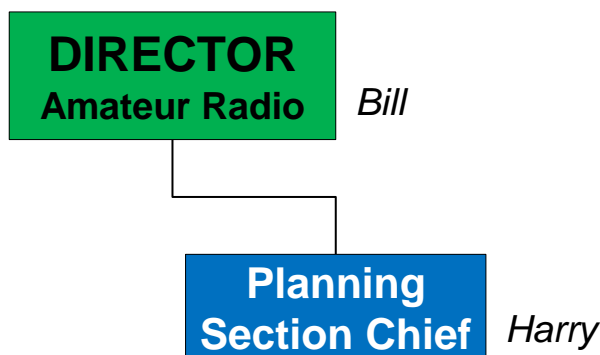
Logistics

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            DIRECTOR
          Amateur Radio
          /          \
  Planning          Logistics
Section Chief      Section Chief
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Incident Action Plan

- Bill and Harry discuss the Event Layout and information Bill has collected from the event organizers. From this information, they created an Incident Action Plan (IAP)

- When does the event start, when does it end (Operational Period).

- Based on the event times, when do Amateurs need to arrive in order to get set up and when would they be finished and ready to leave. (This defines the operational period for the event, from an Amateur radio point of view).

- Any special considerations, such as will it be dark when the OP starts or ends.

- Any special needs, safety concerns, …

Functions Required
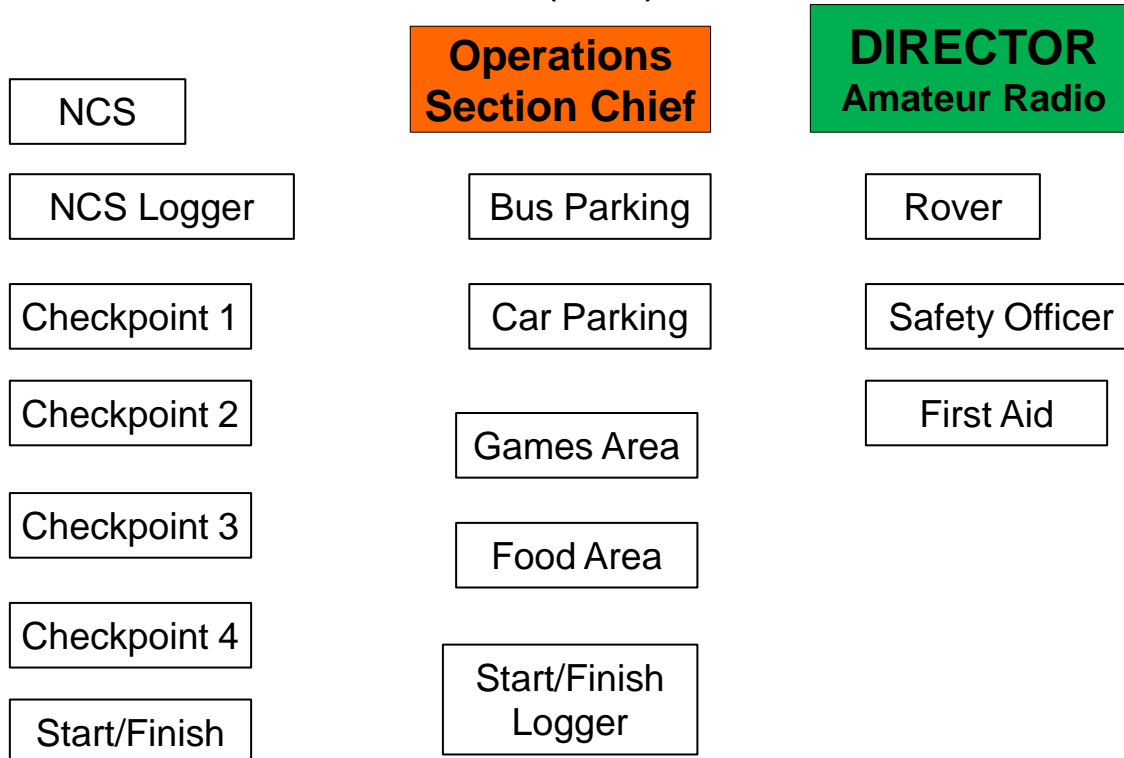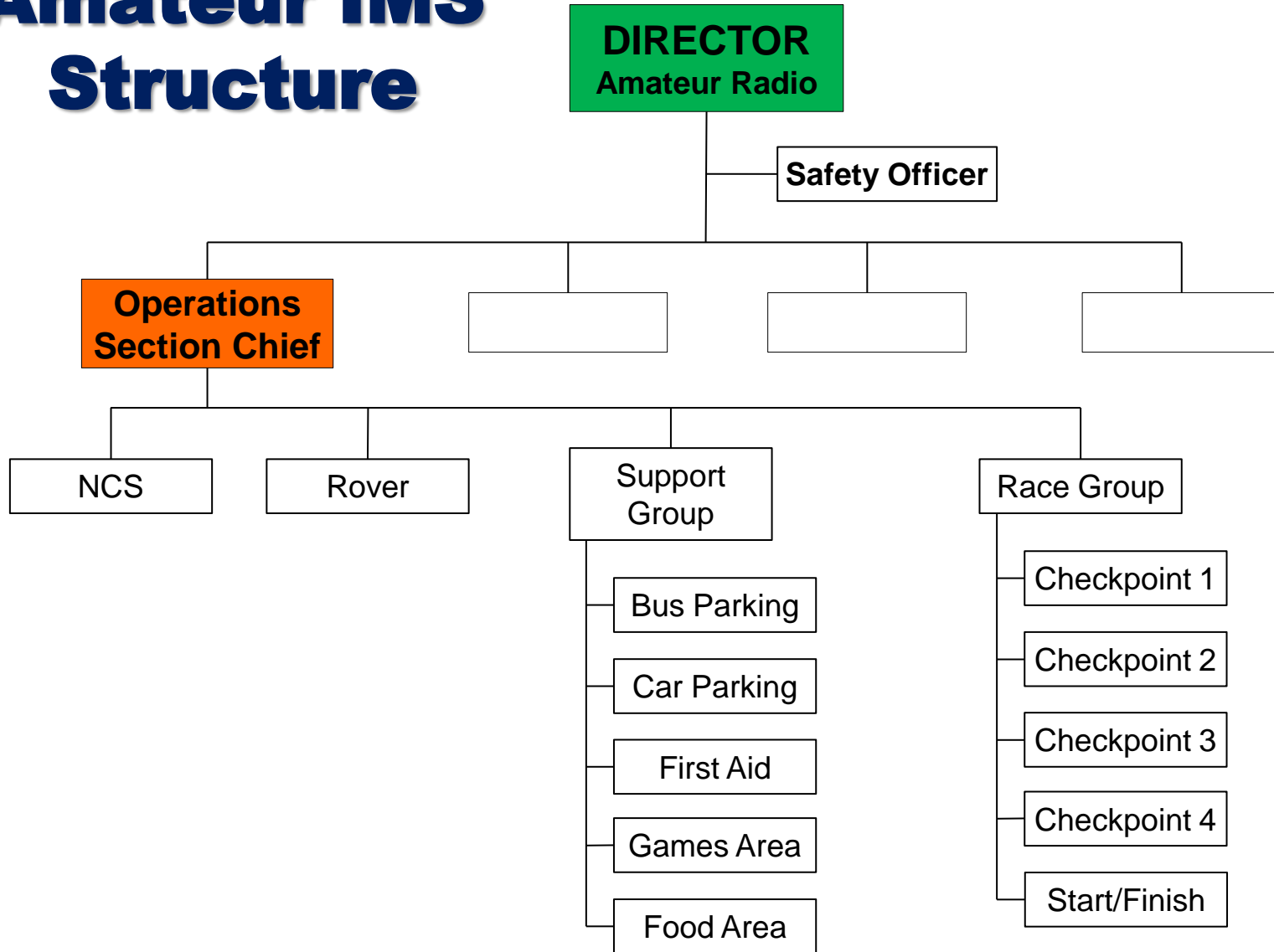
Bill and Harry discuss the Event Layout and information Bill has collected from the event organizers. From this information, they created an Incident Action Plan (IAP)

NCS	**Operations Section Chief**	**DIRECTOR Amateur Radio**
NCS Logger	Bus Parking	Rover
Checkpoint 1	Car Parking	Safety Officer
Checkpoint 2	Games Area	First Aid
Checkpoint 3	Food Area	
Checkpoint 4	Start/Finish Logger	
Start/Finish		

Amateur IMS Structure

```
                          DIRECTOR
                          Amateur Radio

                                  Safety Officer


  Operations
  Section Chief

  NCS      Rover        Support              Race Group
                        Group
                                             Checkpoint 1
                        Bus Parking
                                             Checkpoint 2
                        Car Parking
                                             Checkpoint 3
                        First Aid
                                             Checkpoint 4
                        Games Area
                                             Start/Finish
                        Food Area
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More To Come

- This section is being worked on, but the document has been posted to allow comment on what has been created so far.

Review

- To be added

Answers

- To be added

Acronyms & Definitions

- ESS – Emergency Social Services

- SCC – Service Command Centre

- Internal Service Provider

- External Service Provider

- EOC – Emergency Operations Centre

- EMO – Emergency Management Ontario

- IMS – Incident Management System

- ICS – Incident Command System

- NIMS – National Incident Management System

www.emrg.ca

The EMRG web site provides links to all the IMS documentation and training at;

http://www.emrg.ca/ims.htm

Information: ims@emrg.ca