

# Amateur Radio Emergency Communications



**A R E S**

**Amateur Radio Emergency Service**

**IMS For Amateur Radio**

# **Understanding Emergency Response**

# Expanding Our Horizon

This section provides information to build a broader view of emergency response, in order to build a more comprehensive understanding, which is required to appreciate the flexibility and usefulness of the IMS.

- Amateurs often assume the “Incident” will be the “Big One”, with an incident site, the EOC is activated, there is a declared state of emergency and communications systems are overwhelmed.
- While waiting for the “Big One”, Amateurs overlook the value Amateur Radio can provide for smaller incidents. It is through these smaller incidents that Amateurs and clients build confidence, understanding, and lessons learned.

# Different Views of Incidents

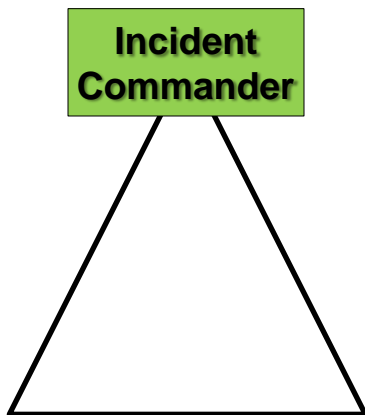
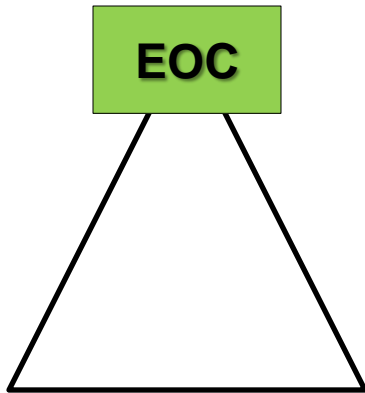
1. An Incident may start with one or more Incident Sites who identify that the situation requires additional resources, which prompts the EOC (Emergency Operations Centre) to be activated. The EOC supports the Incident Commanders (IC) at the Incident Sites.
2. An Incident may start with low impact over a wide area, and there may not be any Incident Sites, such as what happened in the Power Outage and the Ice Storm.
3. An Incident may not require the services of all departments, so a single department such as Public Health or Emergency Social Services may operate a command centre and manage the response without the EOC.

# Different Views of Incidents

**continued**

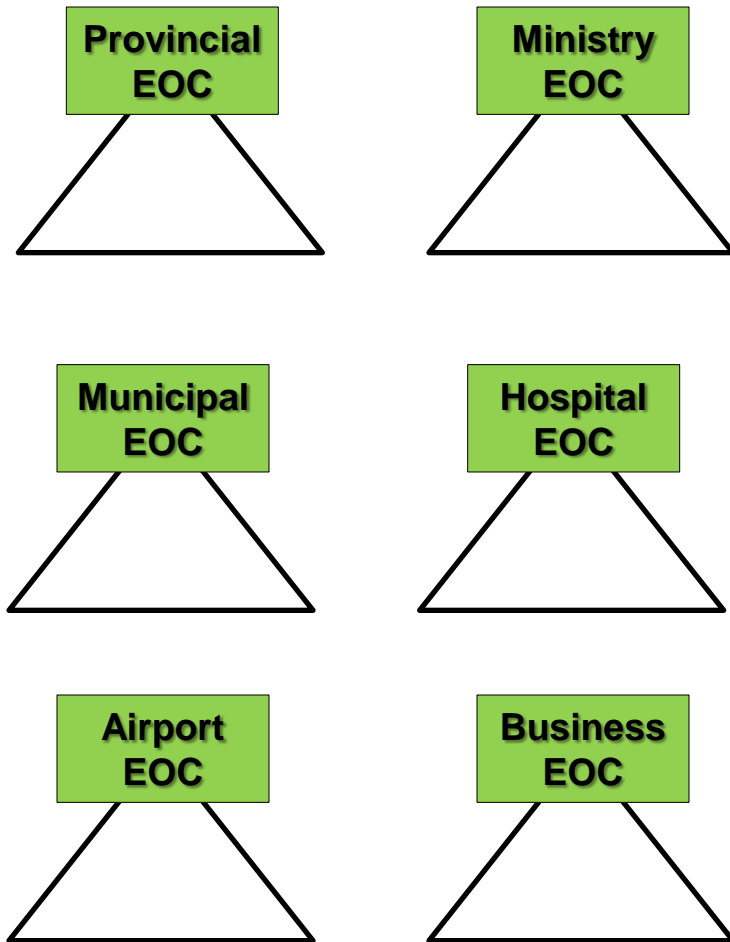
4. Depending on the situation, the Emergency Management Ontario (EMO) Provincial Emergency Operations Centre (PEOC) may be advised.
  - Notification of EMO depends on the size of the incident. For Example, evacuating a high rise apartment building that had a fire is not a Provincial Emergency, so not everything goes to the Provincial level.
  
5. **There may, or may not be a declared state of emergency.** The state of emergency is declared when local resources are overwhelmed, &/or the special powers under a state of emergency are required.
  - Using the example above, evacuating a high rise apartment building that had a fire would not require a declared state of emergency.
  - An incident that will overwhelm one Municipality, may be easily managed by another.

# The Simple Model



- Amateur radio operators typically refer to a simple model for Emergency Management where the Incident Commander (IC) is in charge, and is located either at an incident site, or in the EOC. Everything that happens is directed by the Incident Commander.
- This view is accurate, so long as the emergency does not impact other Departments, institutions, agencies or levels of Government.
- Amateurs assume that IMS would be applied by the Incident Commander (IC) at the EOC and everything else will report up to that IC.
- This will rarely be the case in incidents where Amateur radio is involved.

# Multiple EOCs



- In reality, there will be many EOCs active in a large scale emergency.
- The larger the incident, the more EOCs that will be activated.
- While the Municipal EOC may coordinate most activity in their jurisdiction, and will coordinate with different institutions, many institutions are accountable to other levels of Government.
  - ❑ Hospitals in Ontario are accountable to the Ministry of Health (MOH).

# Focus On Local Level

- From the Federal Emergency Response Plan, Section 1.1;  
*“Most emergencies in Canada are local in nature and are managed at the municipal or provincial/territorial level.”*
- Most communications failures are at the local level, typically due to a broken cable feeding a particular area, or failure of local switching equipment. There may be multiple local failures which impact a large area, for example in a storm event.
- Information flows from the bottom up, so collection of information at a local level is required first, in order to provide meaningful status information to higher levels of Government.
- Amateur radio with fixed and portable VHF/UHF repeaters can provide communications across a large area, to multiple locations.

# Focus on Municipal Government

## Federal and Provincial Governments;

- Have a specific role, have the tools and backup systems to deliver their services, and therefore are more self sufficient.
- Require fewer communications links, typically for point to point information exchange, such as Province to Municipality.
- Have greater options for communications. Telephones between key centres are likely still working, can use satellite, or service providers can established adhoc solution point to point.
- Are more removed from the details of service delivery to people impacted by the incident. Each level of Government supports the level below, to minimize duplication and maximize assistance provided. It is the local Municipality that will deliver aid to friends and family, across a wide area, that may have lost communications.
- **Amateur radio must support Municipalities directly.**



# Building From The Bottom Up

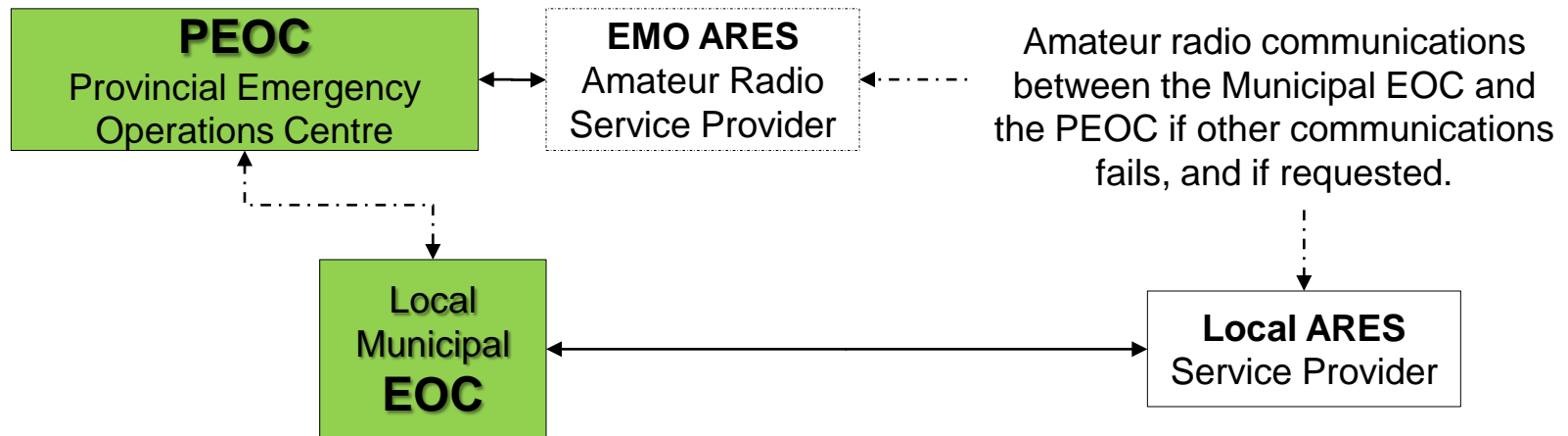
- Amateur Radio emergency communications builds from the bottom up, starting at the local level. This could be your neighbourhood, your part of the Town or City, etc.
- Support includes collecting information as well as providing communications to support relief efforts.
- Organizations working at the local level, the “boots on the ground”, benefit most from Amateur radio, but their communications needs may not be visible at the EOC or higher levels of Government.
- For example, the Red Cross supplies a service and the EOC may assume or expect them to be self sufficient. If the Red Cross needs communications help, it may never be requested through the EOC or other levels of Government.
- **Amateur radio must support these organizations directly.**

# Emergency Management Communications Support

- In many Municipalities, Emergency Management only exists in the EOC. There is no requirement to link multiple sites together with communications.
  - ❑ County EOCs communicating with local Municipal EOCs would be an exception, if other forms of communication fail.
  - ❑ Incident Sites are managed by Public Safety agencies.
- Each agency within the Municipality has their own communications capability for communicating with their organization in the field and for communications from their command centre to the EOC. This may be their own radio system, telephones, or cell phones.
- If communications into the EOC from other EOCs or Command Centres fails, Amateur Radio could be a solution, but this should be considered a possibility, not a mandatory requirement.

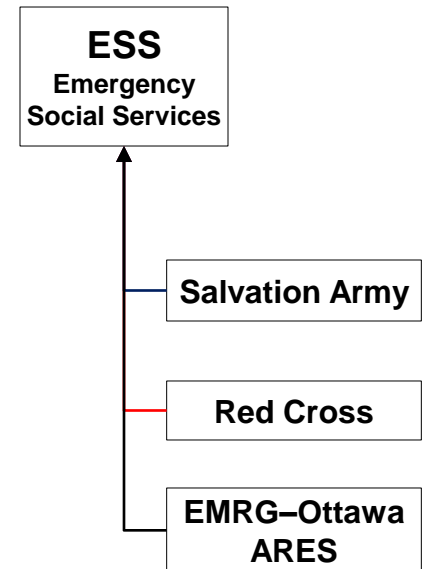
# Municipal EOC - Provincial EOC

- The local Municipal EOC (Emergency Operations Centre) and Provincial EOC exchange information during an incident.
- In the event that all other forms of communication fail, Amateur radio could be used to relay information from the Municipal EOC to the Provincial EOC, through EMO ARES.



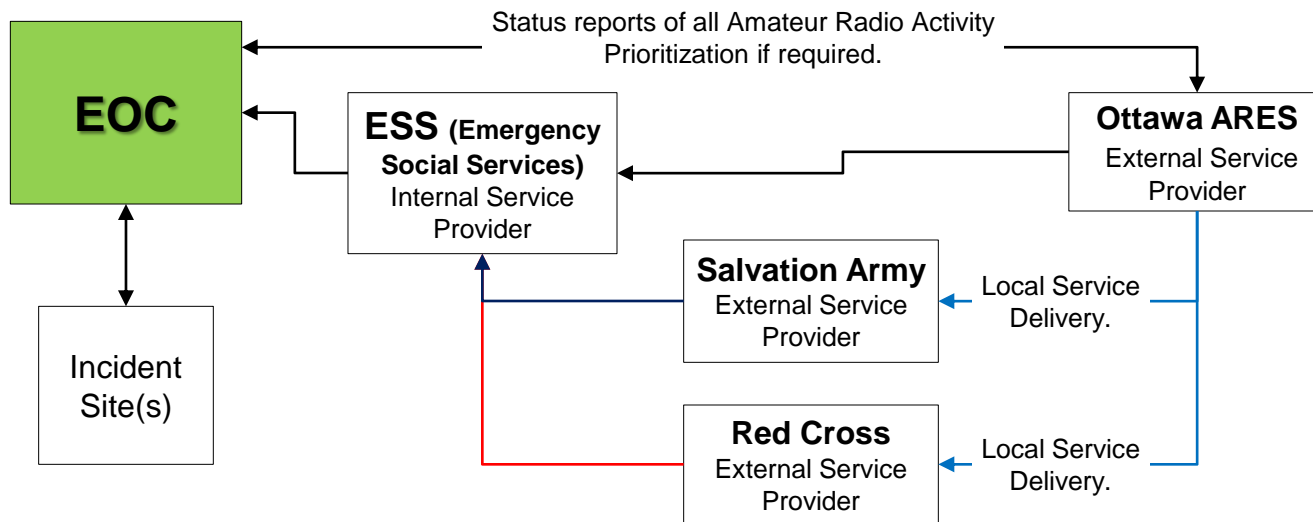
# People Need Assistance

- If the situation impacts the general population, and support is required, Emergency Social Services (ESS) will be activated.
- In Ottawa, ESS is a virtual organization made up of people from multiple City departments.
- Some Municipalities have an MOU with the Red Cross to provide ESS, while some Provinces manage ESS at a Provincial level.
- ESS in Ottawa has agreements with the Red Cross, Salvation Army and Ottawa ARES, for support services.
- Ottawa ARES can be involved in several ways, providing service to ESS directly, &/or providing service to the Red Cross and Salvation Army.



# Amateur Radio Support

- ESS may ask the EOC to activate Ottawa ARES. Once activated to support ESS, ESS is the client, not Emergency Management, and Ottawa ARES answers to ESS.
  - There is still status reporting from Ottawa ARES to the EOC.



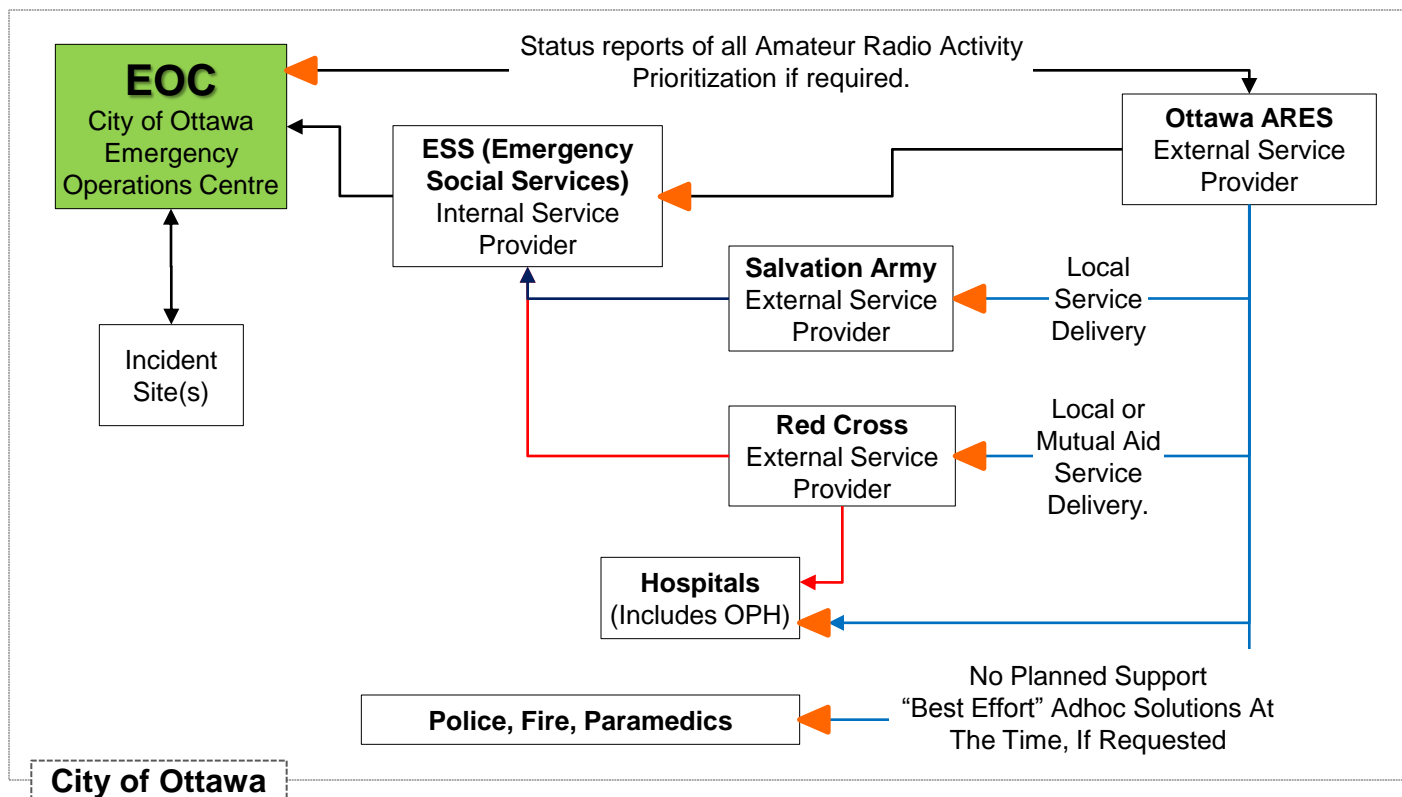
- The Salvation Army and /or the Red Cross, may also request radio communications, to support their service delivery to ESS.

# Single Management of Amateur Radio

- The next slides show the varied and interconnected relationships for Amateur Radio within an area. The communications requirements cannot be served using multiple Amateurs or Amateur Radio organizations working independently.
- In order to effectively and efficiently deliver amateur radio communications, there must be a single Amateur Radio management structure for all resources working in an area.
  - Coordinate people, equipment, radio nets, repeaters and frequencies
- Resources must be allocated based on prioritization of requirements, so resources are not wasted.
- Delivering service to multiple sites, with proper management of service delivery and shift changes, requires a **LOT** of Amateurs.

# Potential Requirements Within The City of Ottawa

The Orange triangles show each of the individual support relationships and points of accountability for Ottawa ARES within the City of Ottawa.

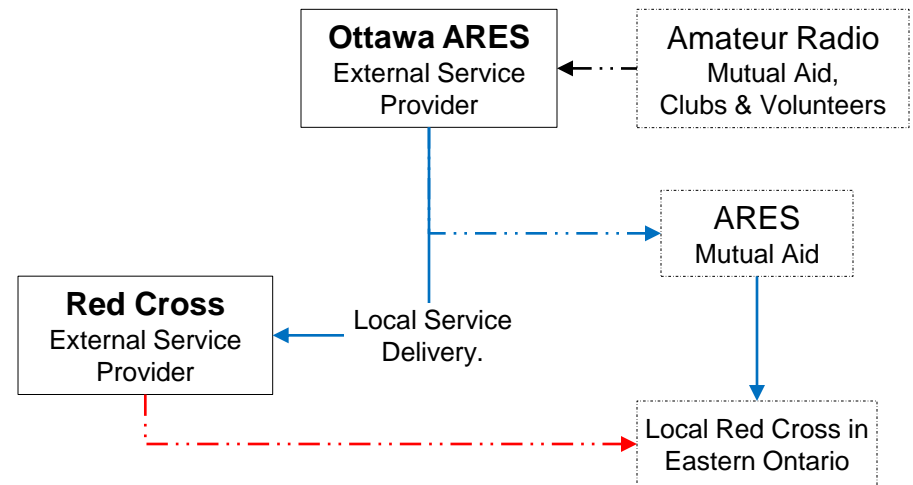


# Outside The City of Ottawa

There are 3 scenarios where Ottawa ARES may be involved with radio communication outside Ottawa;

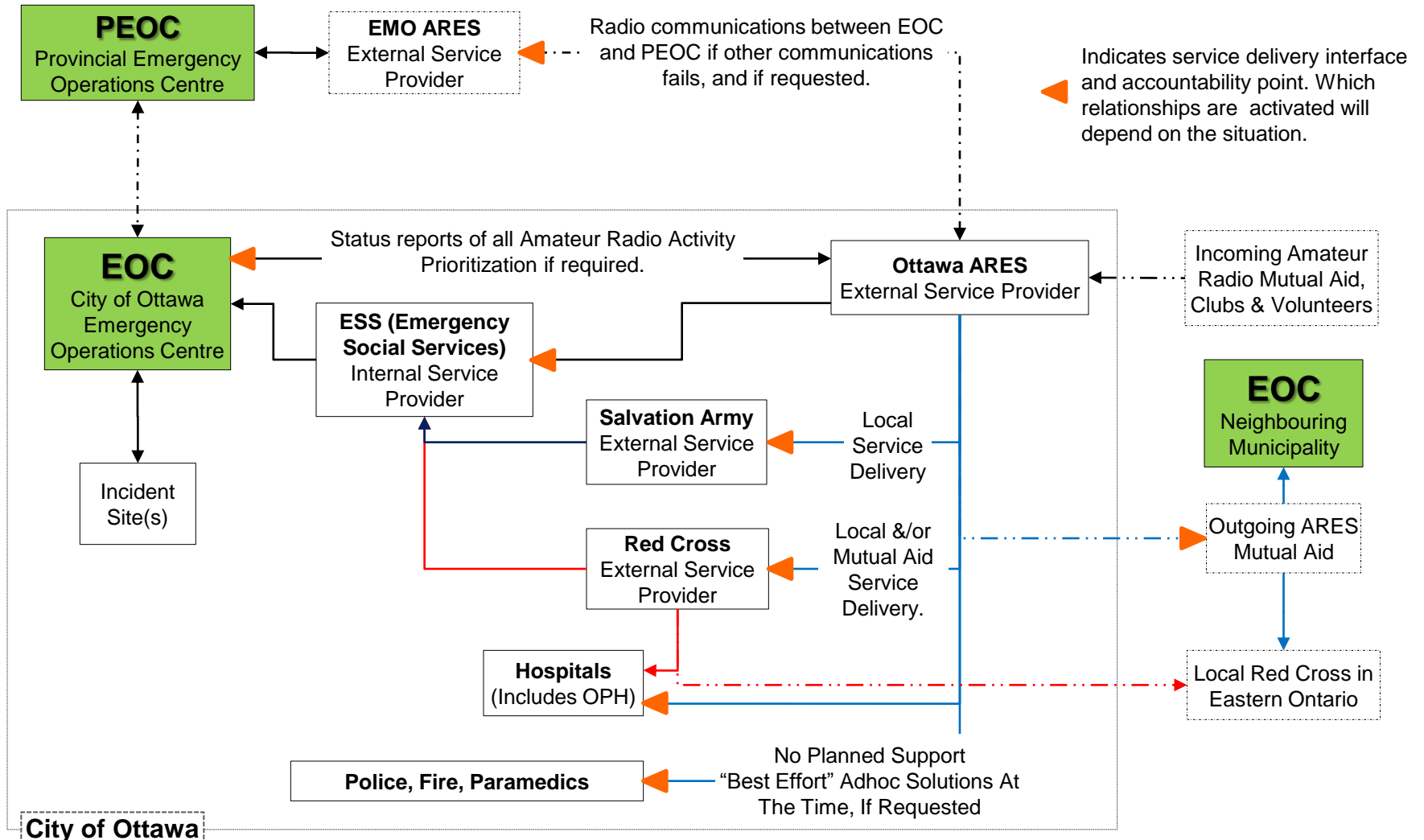
1. Requesting Mutual Aid from neighbouring ARES groups, or offers of assistance from out of town Amateurs.
2. Providing Mutual Aid to a neighbouring ARES Group.
3. Providing radio communications for the Ottawa Red Cross office, to support Red Cross efforts outside Ottawa.

The Red Cross Ottawa office provides support across Eastern Ontario, so Red Cross groups in neighbouring Municipalities may require Amateur radio communications with the Ottawa Office.



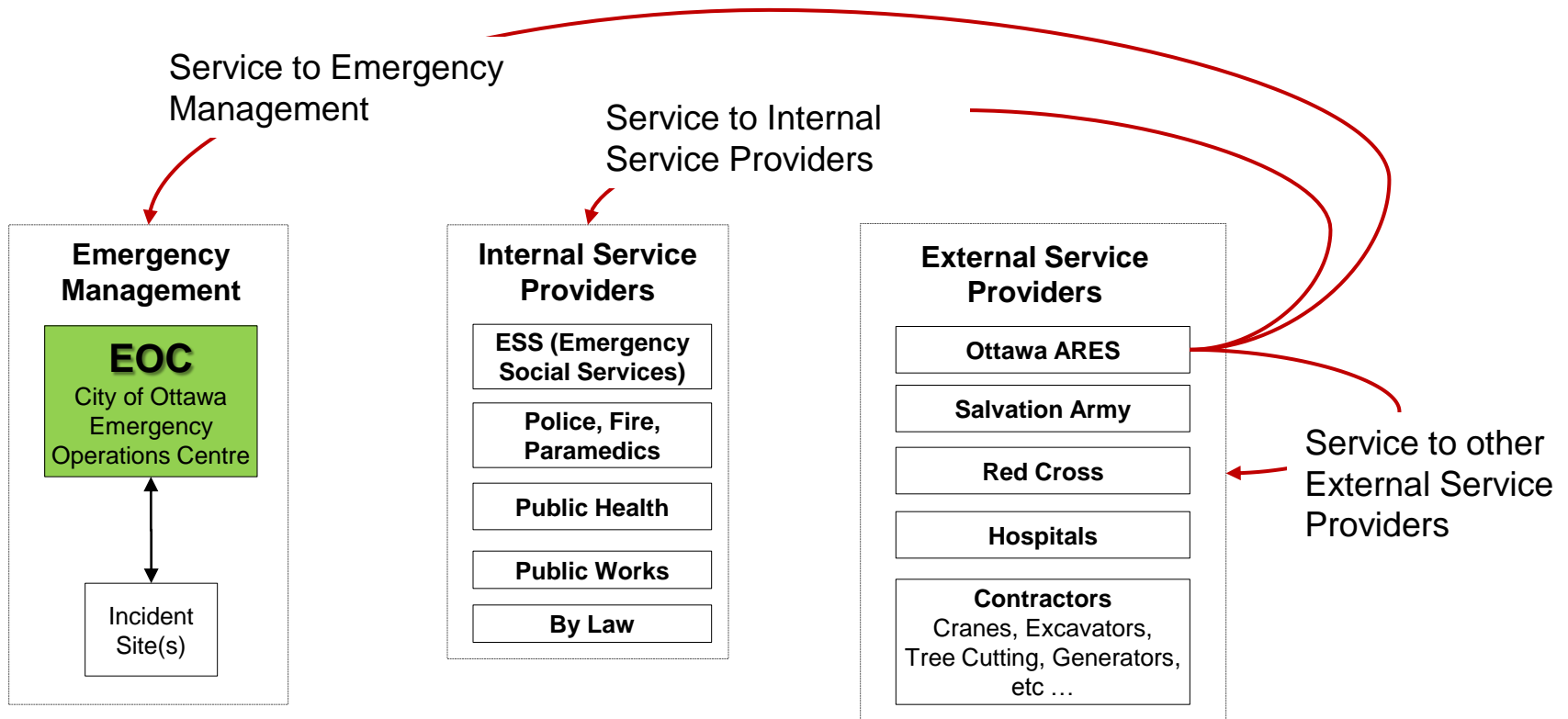


# Full Set Of Relationships & Accountability For Ottawa ARES To Manage In An Emergency



# Service Provider Model

The relationships between organizations and agencies can be viewed as a service provider relationship, where Internal Service Providers are Municipal departments, and External Service Providers are NGOs, Amateur Radio, Hospitals and Contractors.



# Amateur Radio Self Activation

- With a management structure, Amateur radio can be ready when required, not hours after the initial request.
- If Ottawa ARES is aware of a potential situation, there is a procedure for self activation.
- Self activation may be just sending a single person as the Director to the EOC to monitor events.
- This can expand up to activation of the Ottawa ARES communications centre, with a NCS (Net Control Station) and Operations Section Chief, with a standby activation of the membership (no deployment).
- Deployment of Ottawa ARES would come from a client request, such as the City of Ottawa, Red Cross, Salvation Army, Hospitals, or ARES Mutual Aid.

# **Moving Beyond Basic Emergency Management ICS/IMS Structure**

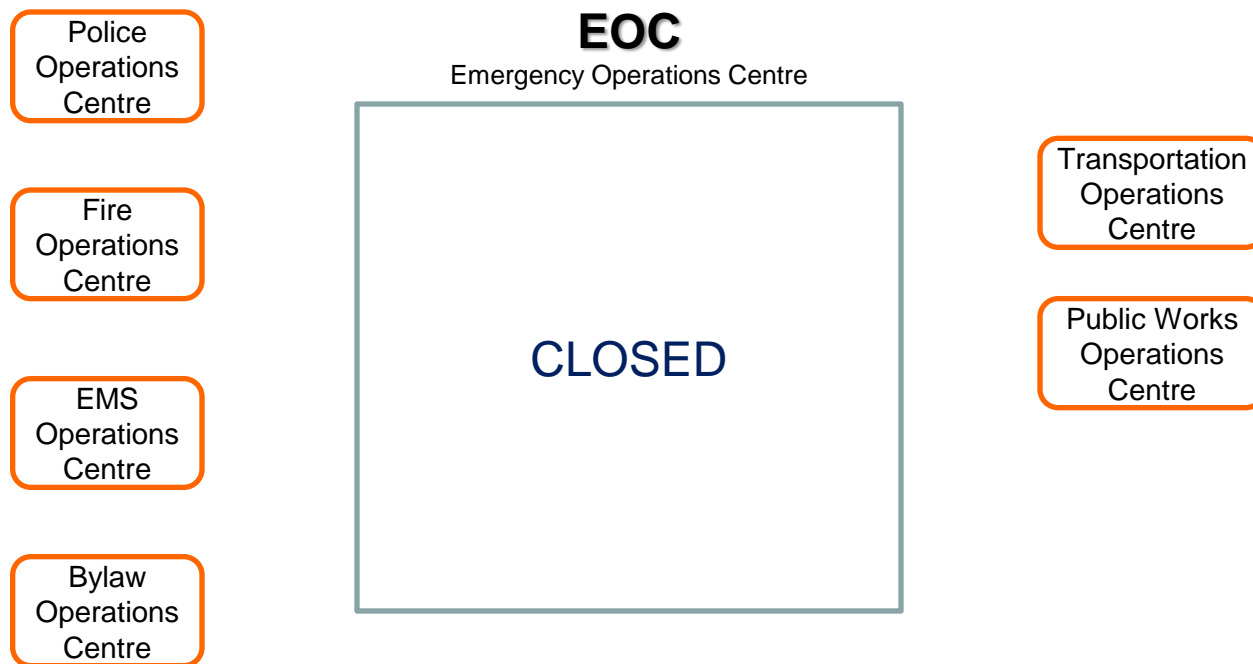
- Most ICS / IMS training, documentation and examples focus on the Incident Site, with some references to the organization of the EOC. The scenarios are typically focused on fires, especially forest fires.
- In order to understand IMS for Amateur Radio, we need to expand the ICS / IMS model beyond basic Emergency Management, to include management of service delivery by all Service Providers.
- Amateur Radio is a Service Provider, and will typically be providing services to other Service Providers such as EOC, ESS, Red Cross, Salvation Army and Hospitals.

# The IC or EOC Director

- In a very large incident, the Incident Commander or EOC Director can be thought of as the head of a giant corporation, with the Command Staff and General Staff being the VPs. While the IC or EOC Director are technically accountable for everything that happens, their view at the top is very high level.
- The working level control and management is delegated below and the use of Amateur radio may be managed well down in the IMS structure.
- 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.

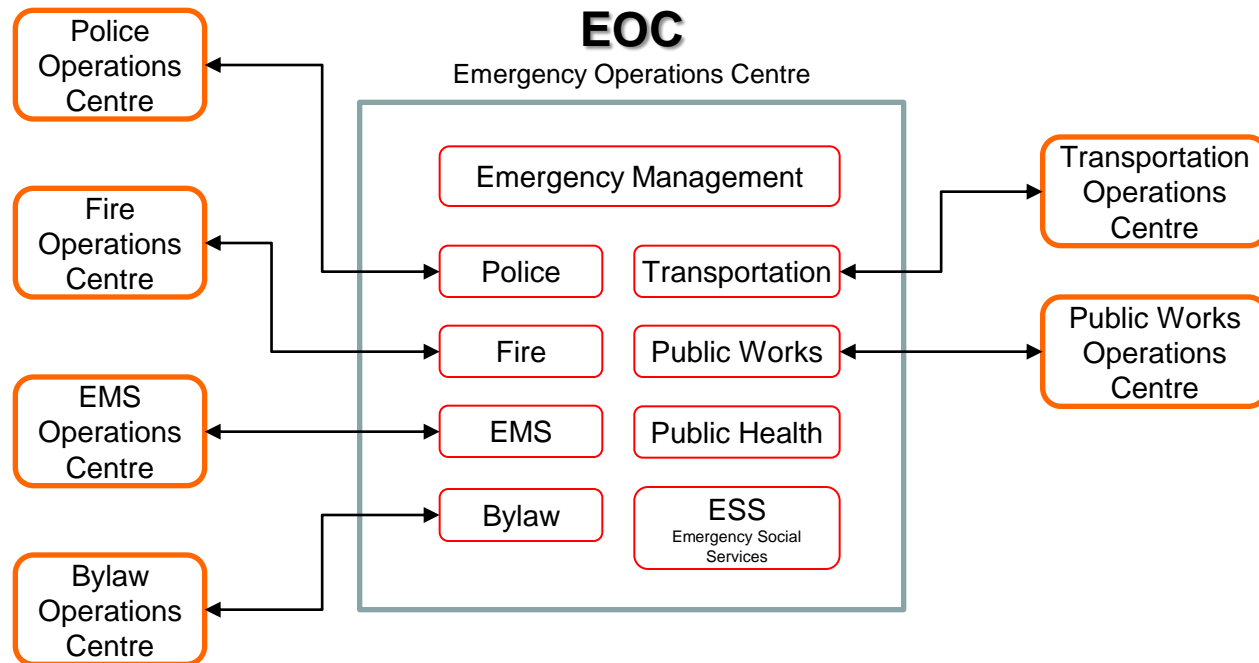
# Normal Operations

- Each agency manages their normal operations from their offices, or a dedicated operations centre.
- The operations centre may be a few desks, or a large facility.



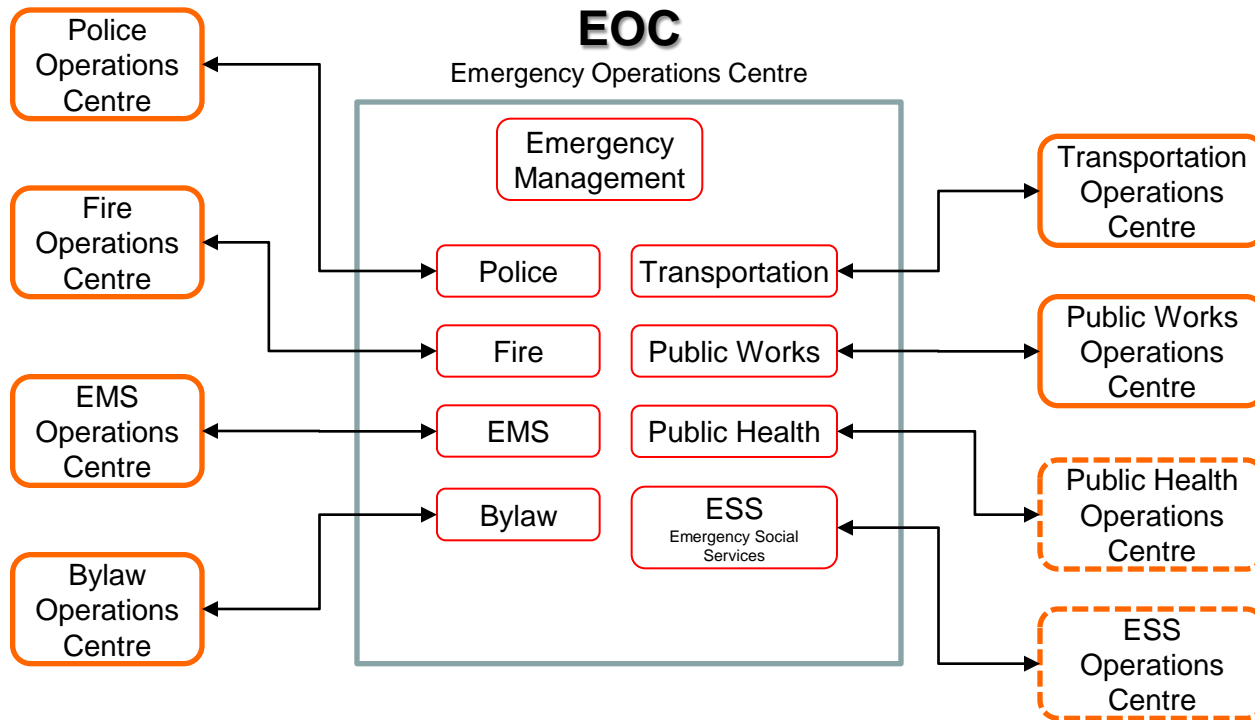
# In An Emergency

- When the EOC is opened, each agency sends a representative, or representatives who will act as the liaison for that Agency.
- The agency continues to manage its operations from its own operations centre.
- Some agencies such as Public Health and ESS do not normally have an operations centre active, so they start with a representative in the EOC.



# Virtual Operations Centres

Agencies that do not use an operations centre on a daily basis, such as Public Health and ESS, will open their virtual centres in the designated facility. The operations centre may normally be a meeting room.





# Scale and Structure Will Vary

- Each incident and each Municipality will utilize a different response structure. This is why IMS is an ideal structure for Amateur radio because it can scale from a single radio operator, up to thousands.
- In a small Municipality, or for a small incident, all functions may be managed from the EOC. As the incident scales up, or in larger Municipalities, some functions may move to separate, dedicated Command Centres.
  - ❑ Police, Fire and Paramedics operate their own command centres all the time and continue to do so in an emergency.
- Some Municipalities may use internal resources for Emergency Social Services (ESS), or may have an MOU with the Red Cross and Salvation Army to provide services.
- Some organizations such as Red Cross, Salvation Army and the Hospitals, may cover more than one Municipality.

# Multiple Clients & EOCs

- The relationships in a large emergency or disaster are unlikely to be as simple as a single Municipal EOC through which everything is directly managed.
- There may be multiple EOCs involved, all working in parallel.
  - Provincial (PEOC, OPP, MOH ...)
  - County and multiple local Municipalities
  - Major Airports
  - Hospitals
  - Businesses
  - Government offices within the affected area
- There may be multiple support organizations working within the impacted area, operating under more than one support agreement.
- **IMS provides a scalable solution to make this work together!**

# Amateur Radio Is A Managed Service

There are too many combinations and possibilities for clients to select and assign resources.

- Resource components can be pre-defined, then assigned by **knowledgeable** people who understand the capabilities and limitations of these resources.
- Solutions provided are based on client requirements and the resources available at the time. (Clients and Amateur radio may be all volunteer)

Must be able to simultaneously support multiple agencies, with different requirements, boundaries and timelines.

- Red Cross boundaries may go outside the City and their role may continue after other organizations stand down.
- May be EOCs at the County & local Municipal level to support.

# Managing Resources

- Many sites such as the EOC have permanent radios, and as much as possible, the equipment in temporary sites such as shelters should not change with each shift. This ensures a consistent level of service and allows planning to focus on only people for shift changes.
- Most Amateurs are “entry level” volunteers, so they are not all equal in radio skill, training and physical capability.
  - The right resources need to be assigned to the right location, by someone who understands the resources and volunteer capabilities.
- Requires amateur radio to be organized as a group, with some equipment owned and operated by the group, such as portable repeaters and other infrastructure.

# People

## The Most Important Resource

- Contrary to most Amateurs claim, Radio Amateurs are no different than the regular population. Only a **small** percentage of licensed Amateurs have an interest in community events or emergencies.
- Within the Amateurs interested in community service, there is a smaller sub set that are committed and willing to take on personal responsibility to be prepared and to help the group be prepared.
- With a limited number of Amateurs available in an Emergency, there must be a plan to ensure efficient use of this limited resource. There will be permanent radios at some sites and Amateurs who are willing to lend their radios. The challenge is getting enough radio operators.
- IMS is an excellent tool to efficiently manage resources, including Amateur Radio operators and equipment.

# SUMMARY

The IMS structure is flexible to cover different situations that may be encountered by an ARES group. This includes situations such as;

- There is no declared state of emergency
- The EOC is not opened, but there are shelters
- The local Municipality does not require emergency radio communications, but the Red Cross, Salvation Army and/or the Hospital(s) do require Amateur Radio support.
- The disaster is in a neighbouring Municipality, but through Mutual Aid, you are providing a radio gateway (NCS in non impacted area), or volunteers into the impacted area.

# Review

- To be added

# Answers

- To be added



# **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](mailto:ims@emrg.ca)