EMERGENCY MEASURES RADIO GROUP	**EMERGENCY MEASURES RADIO GROUP**
AMATEUR RADIO RAC EMERGENCY SERVICE	**OTTAWA ARES**

Two Names - One Group - One Purpose

INTRODUCTION TO EMRG

- **Roles & Partnerships**
- **Solutions & Services**
- **Organization & Strategies**

See Slide Notes For Additional Description & Details

WHO WE SERVE

MAIN ROLE

Provide radio communications to support humanitarian response.

The three main humanitarian response groups in Ottawa;

- **City of Ottawa Community Services**
- **Ottawa Red Cross**
- **Salvation Army**

These organizations do not have radio systems, lack capacity on their system, or normally rely on phones and cell phones.

OTHER ROLES

HOSPITALS

Provide a back up radio communications solution, for the Hospitals existing emergency management radio system. (14 sites)

FIRST RESPONDERS - Police, Fire, Paramedics

Provide communications solutions to link key sites that are without phone or radio communications, or offload existing systems of non critical communications. Key sites includes dispatch centres, the EOC or incident sites.

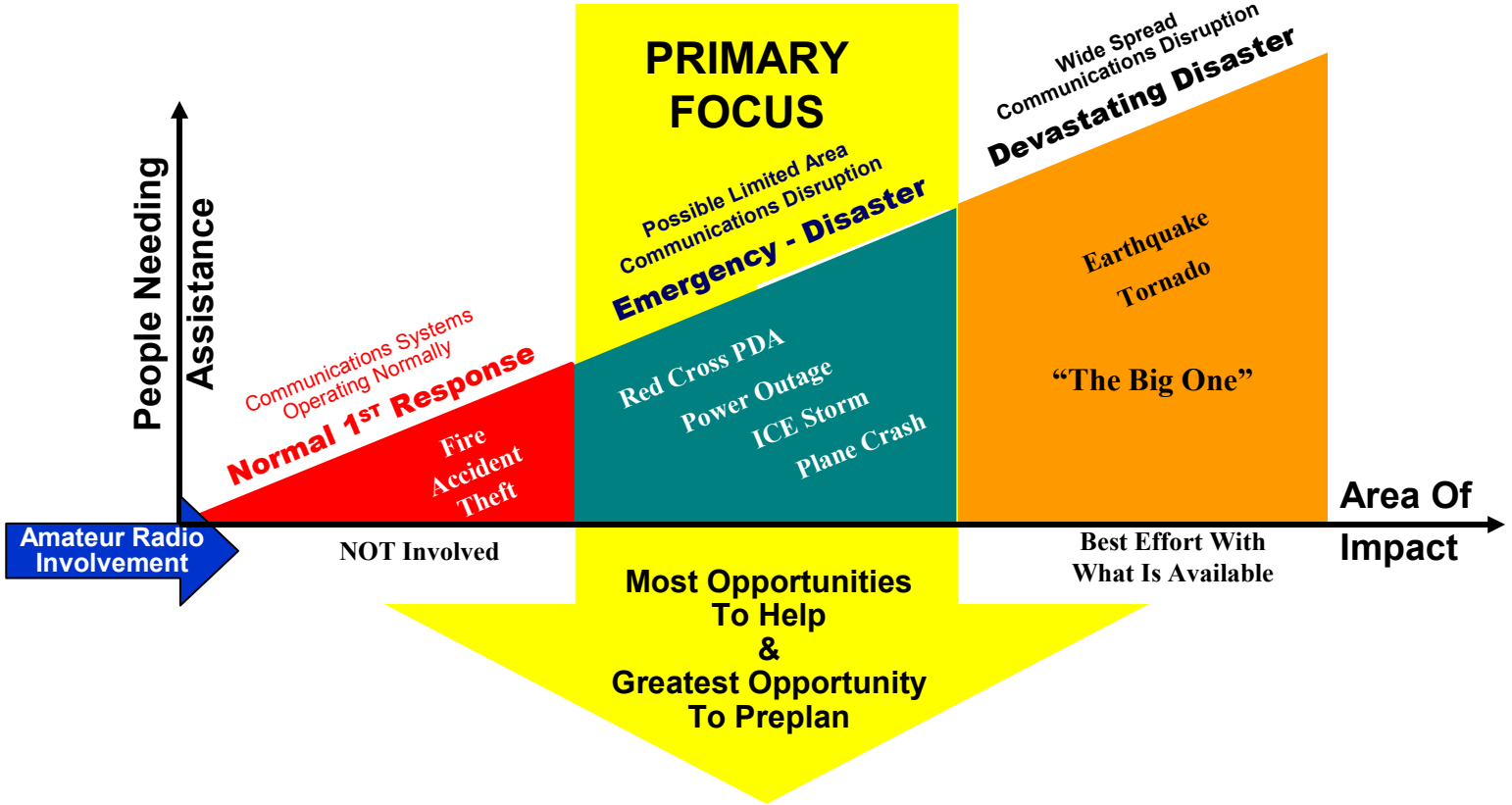
- Not a back up for the hundreds of radios used daily by Police, Fire and Paramedics. The capacity required to replace the whole system is beyond the limits of what Amateur radio can supply.

EMERGENCY RESPONSE & AMATEUR RADIO

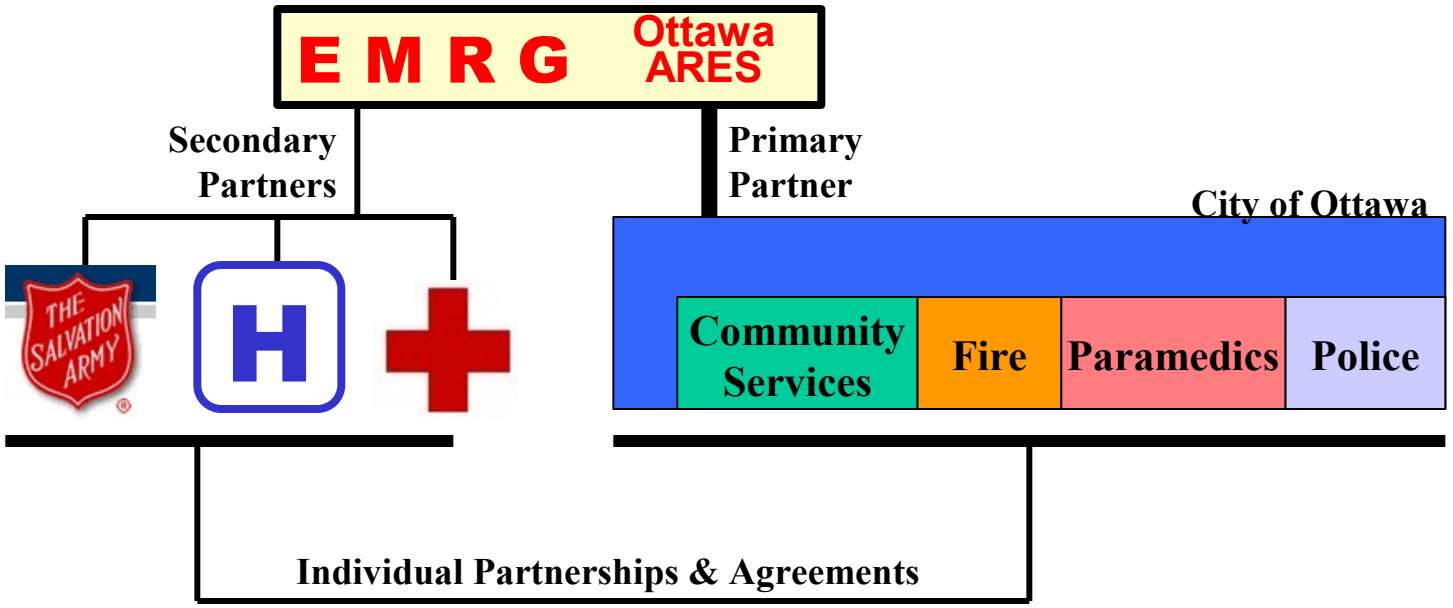
AMATEUR RADIO INVOLVEMENT

EMERGENCY RESPONSE PYRAMID

PRIMARY FOCUS



PARTNERSHIPS



The City of Ottawa, Emergency Measures Unit is the primary EMRG partner. In the event that there are insufficient EMRG resources, EMU will assign priorities for EMRG.

OTTAWA FIRE SERVICE

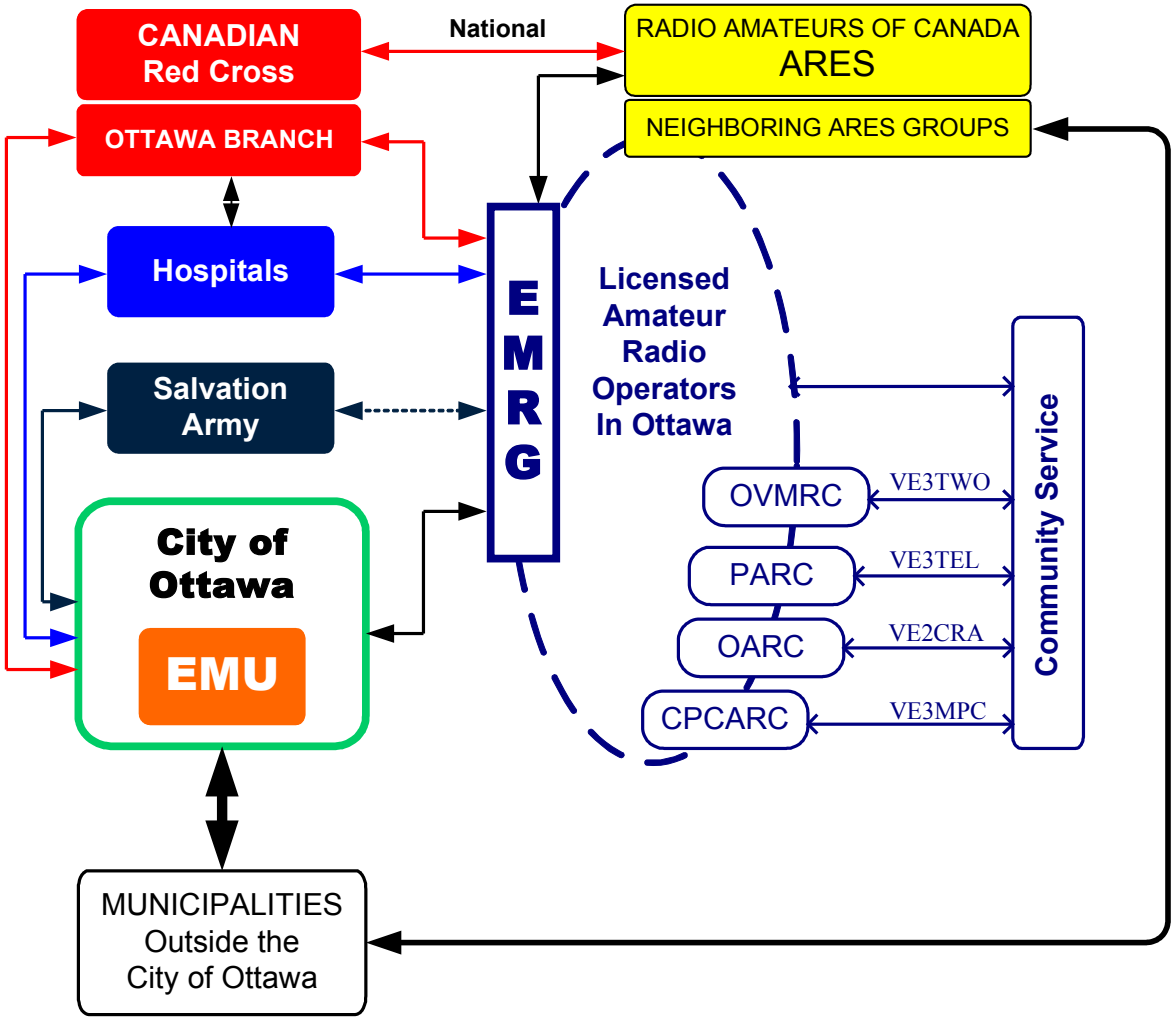
OFS is the prime infrastructure partner for EMRG, working in partnership with EMU, OFS provides;

- Dedicated EMRG Radio room at Fire Dispatch with access to antennas on the roof and the tower
- Storage space for equipment
- Radio repeater sites at key locations in the City
- Surplus radio equipment
- Access to the training centre

SHELTER OPERATIONS

- Shelters in Ottawa are managed by the City of Ottawa, Community Services.
- The Ottawa Red Cross PDA (Personal Disaster Assistance) program is responsible for incidents with up to 50 people displaced, such as a large fire.

INTERFACES WITHIN THE COMMUNITY



EMERGENCY MEASURES RADIO GROUP

WHAT WE PROVIDE

AMATEUR RADIO EMERGENCY SERVICE RAC

Solutions

Services

Amateur Radio Communications

Communication Types

VOICE
- Radio to radio
- Radio Telephone

DATA
- Text messages
- File transfer
- Email

Operational Models

- One to One
- One to Many
- Managed Group
- Multi Channel
- Multi Type (voice & data)

Network Configurations

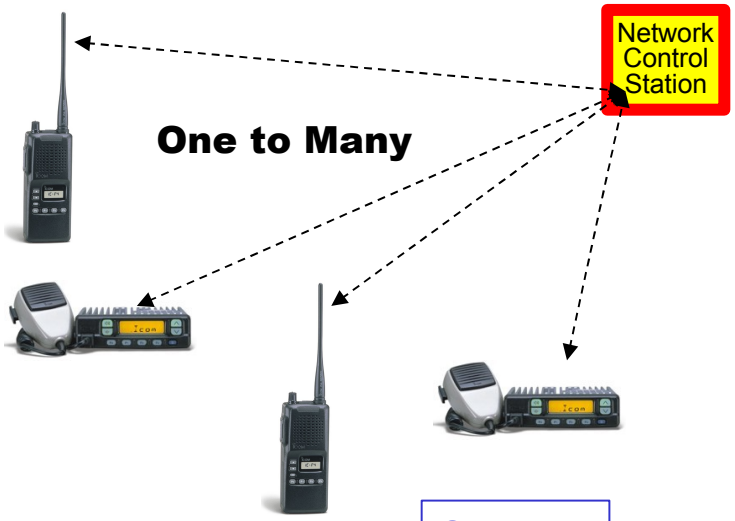
- Point to Point (Direct)
- Repeaters (Extended coverage area)
- Portable Repeaters
- Cross band repeaters

Frequency Bands

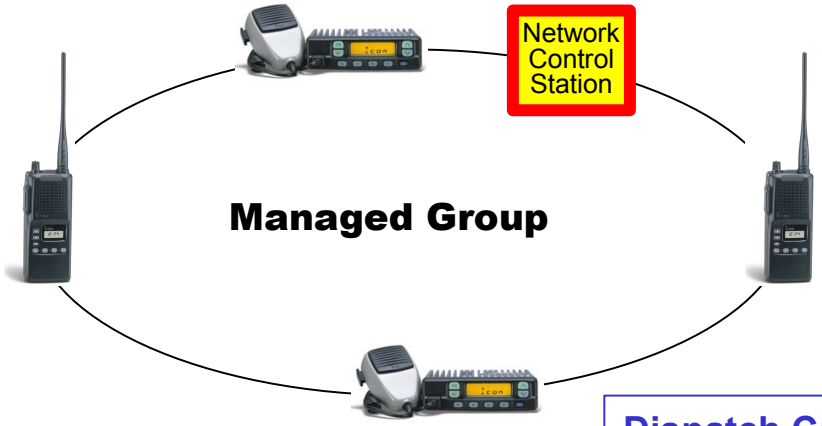
- 1.8-30 MHz
- 50 MHz
- 144 MHz
- 220 MHz
- 440 MHz
- 900 MHz
- 1.2 GHz

OPERATIONAL MODELS

Individuals or specific locations



Shelters



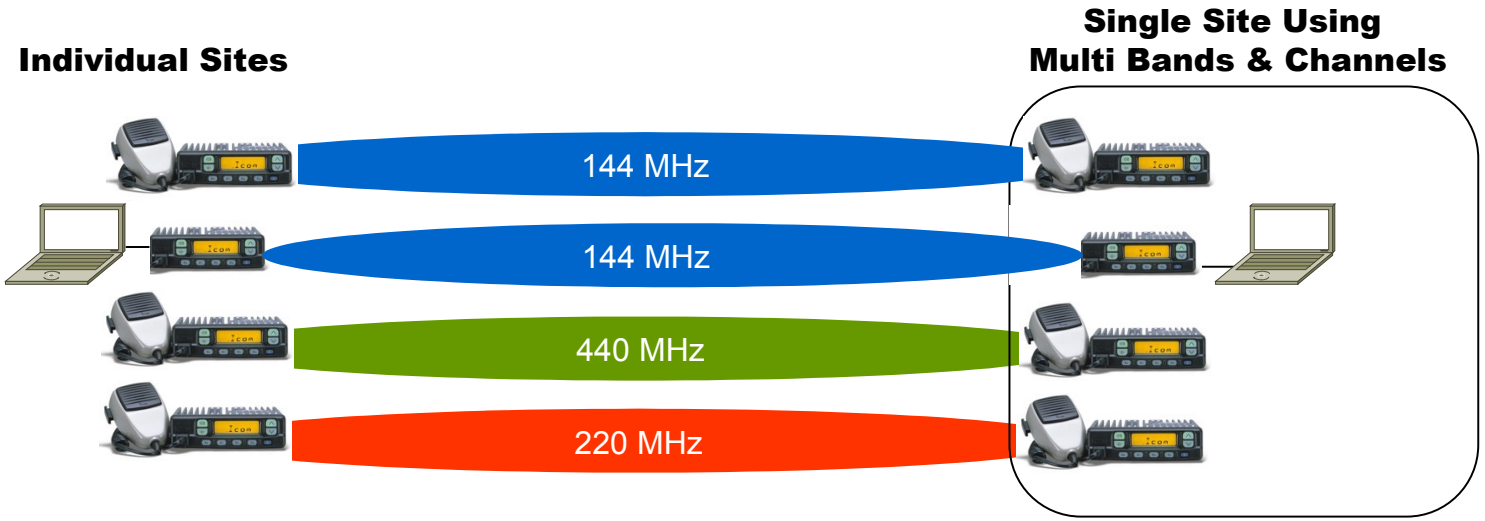
Dispatch Centres or Hospitals

BANDS & MODES

Multiple Bands = More Collocated Radios

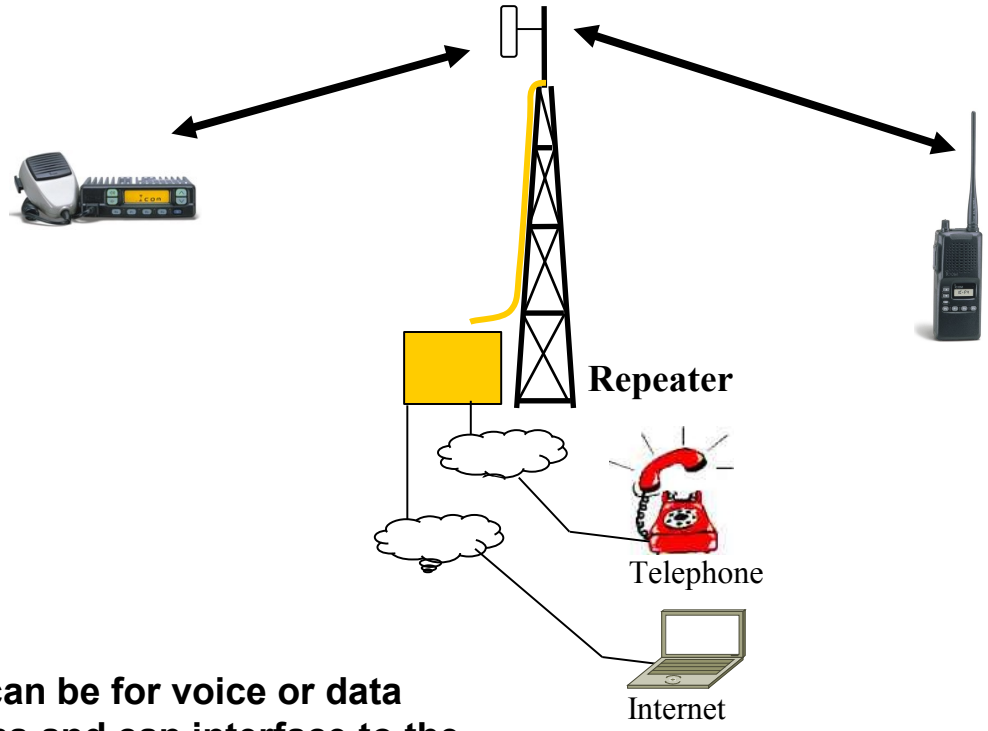
There are limits on how many radios can operate on the same band in the same location at the same time. Solutions that can be used in permanent sites, are not easily transportable.

The frequency difference between channels and physical distance between antennas helps limit interference, but these options are not always available. Using different bands eliminates interference, making emergency deployment much easier.



RADIO REPEATERS

Repeaters link users within an area who cannot otherwise communicate directly, radio to radio. The coverage area could be City wide, within a local community or between a few buildings.



Repeaters can be for voice or data communications and can interface to the telephone network and the Internet.

REPEATER STRATEGY

RELIABILITY

Repeaters must be dependable

- Withstand continuous use for days in an emergency
- Generator backup, with battery backup in case of generator failure
- Quality parts and workmanship
- Regular testing and maintenance

DIVERSITY

Some repeaters may not be functional in an emergency, so sufficient capacity is required to maintain effective coverage with some infrastructure loss.

- More than one site that can cover an area
- Sites independent of other radio systems

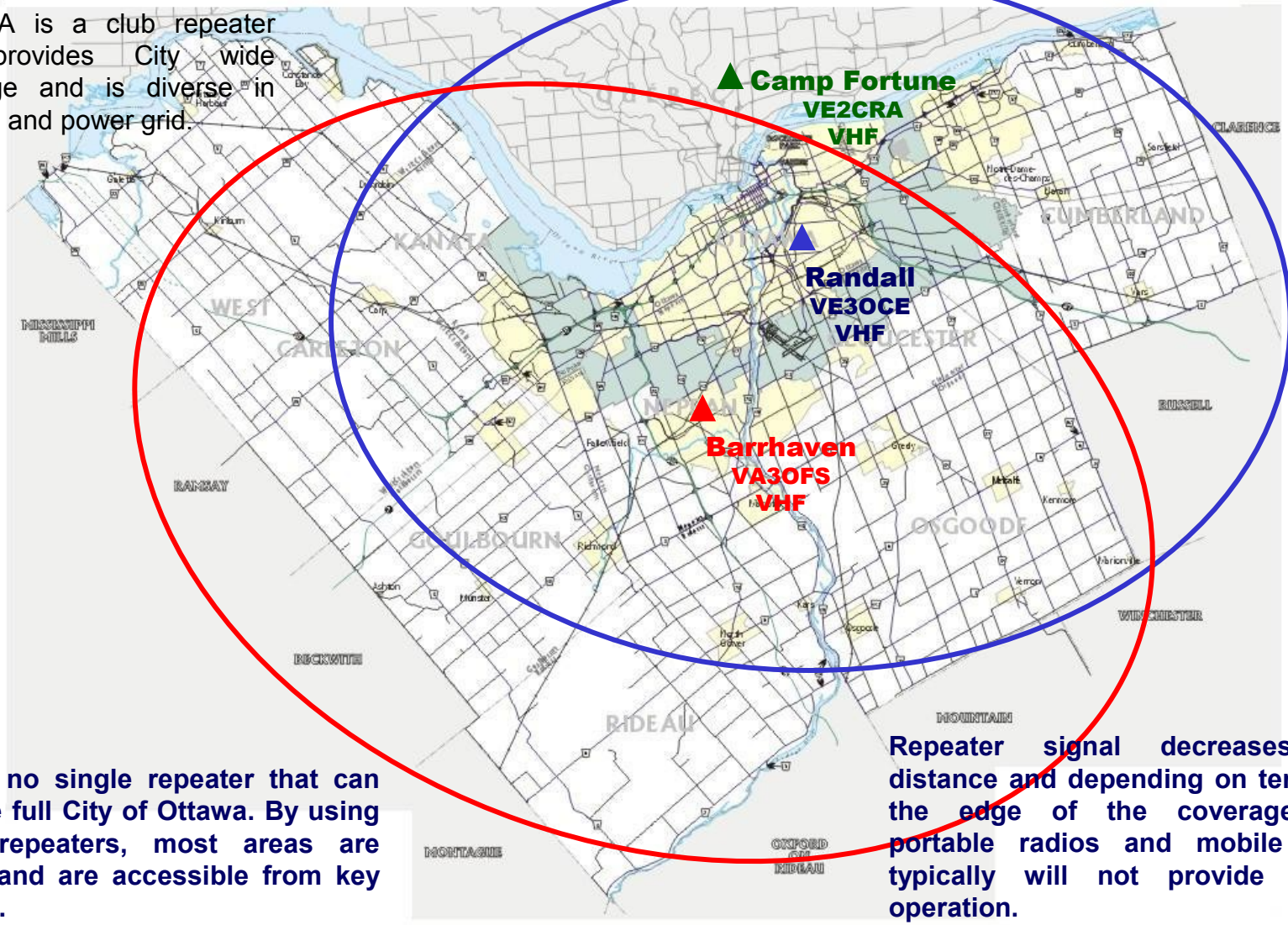
CHANNEL CAPACITY

User requirements and message volumes will vary, so more than one repeater and coverage area is required to effectively meet user needs.

- Multiple repeaters on different bands
- Channels should meet user through put volume and speed. Some groups may need a dedicated repeater so messages never wait.

CITY WIDE REPEATERS

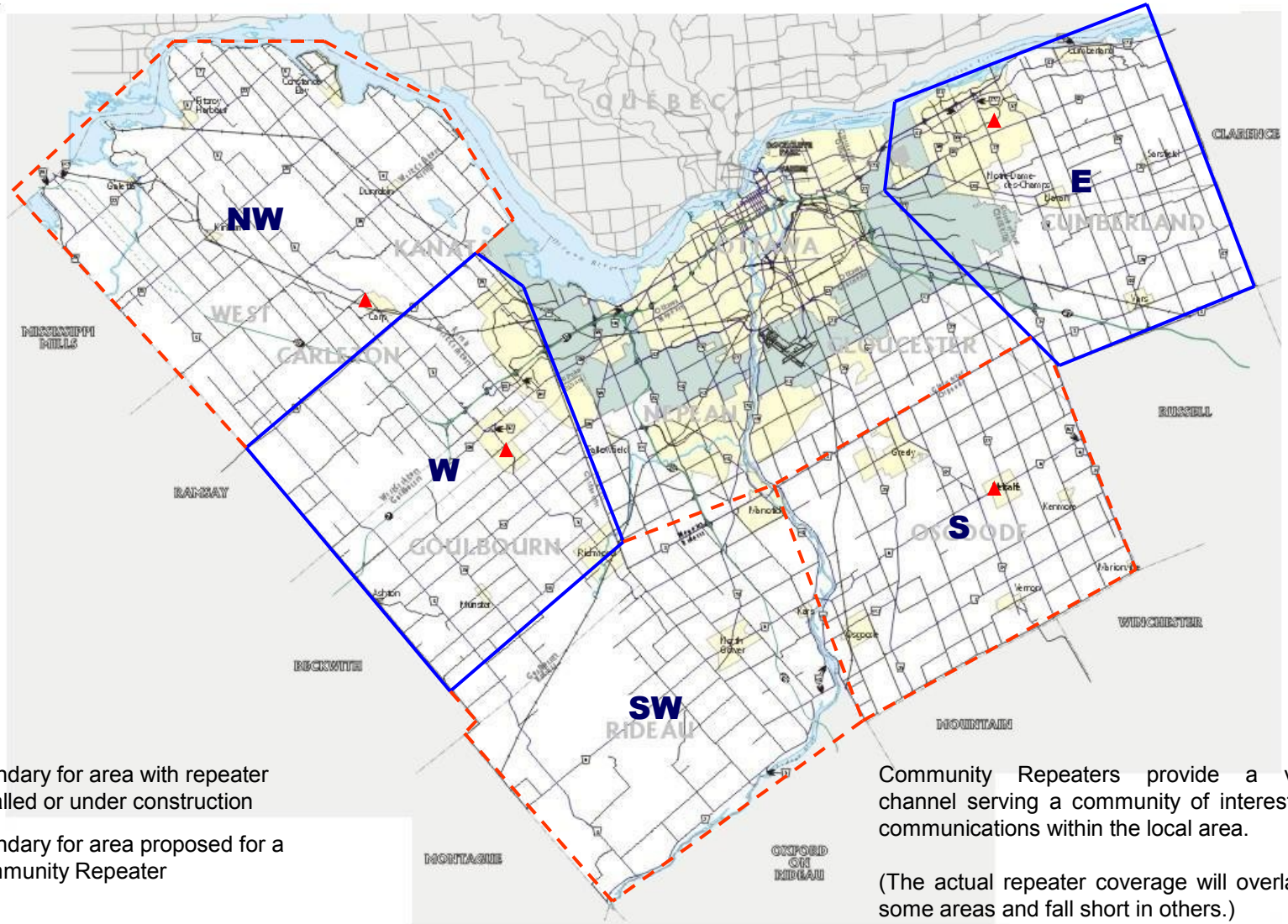
VE2CRA is a club repeater that provides City wide coverage and is diverse in location and power grid.



There is no single repeater that can cover the full City of Ottawa. By using several repeaters, most areas are covered and are accessible from key locations.

Repeater signal decreases over distance and depending on terrain. At the edge of the coverage area, portable radios and mobile radios typically will not provide reliable operation.

COMMUNITY REPEATERS



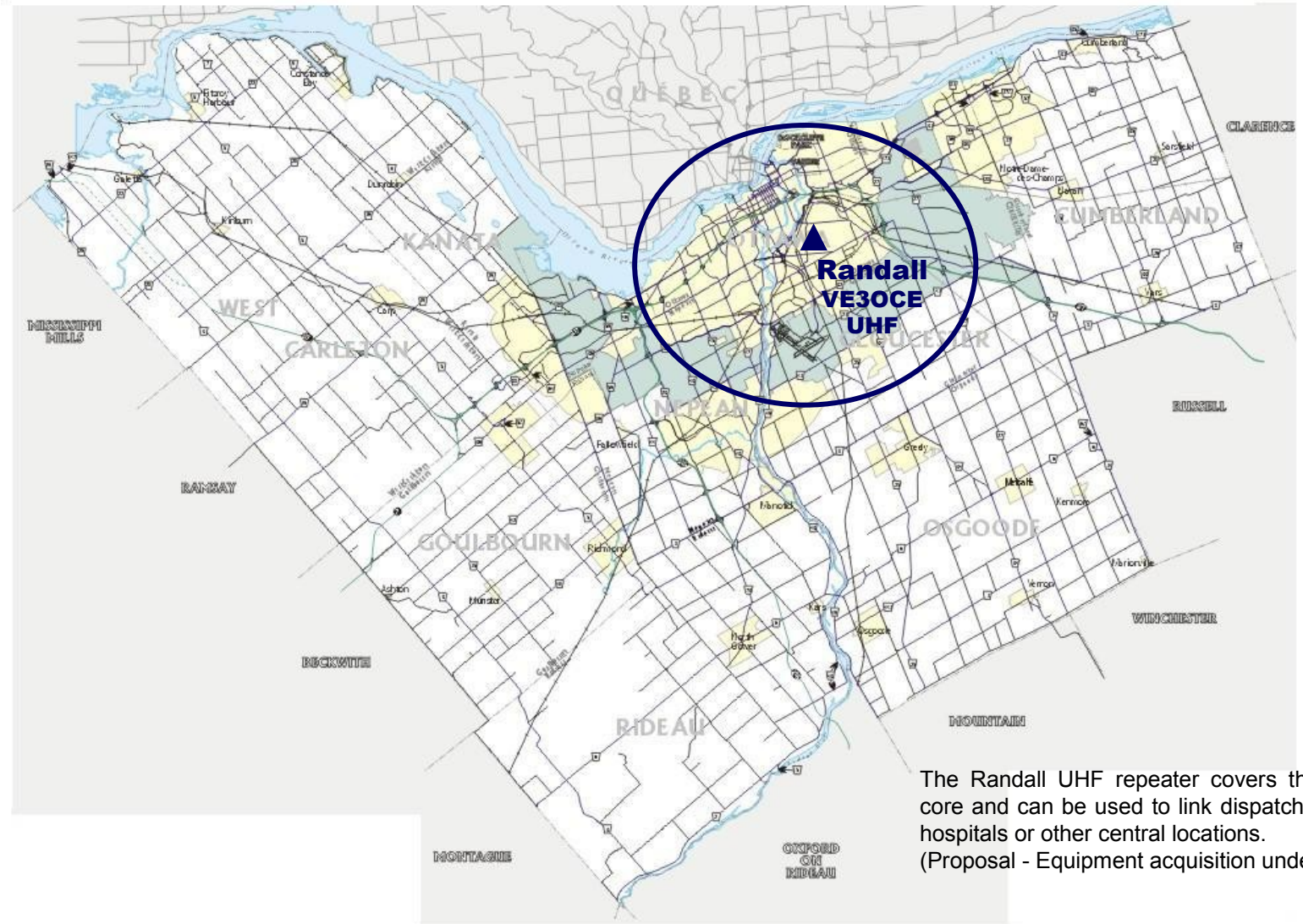
Boundary for area with repeater installed or under construction

Boundary for area proposed for a Community Repeater

Community Repeaters provide a voice channel serving a community of interest, for communications within the local area.

(The actual repeater coverage will overlap in some areas and fall short in others.)

SPECIALITY REPEATERS



The Randall UHF repeater covers the Urban core and can be used to link dispatch centres, hospitals or other central locations.
(Proposal - Equipment acquisition underway)

OUR PLAN

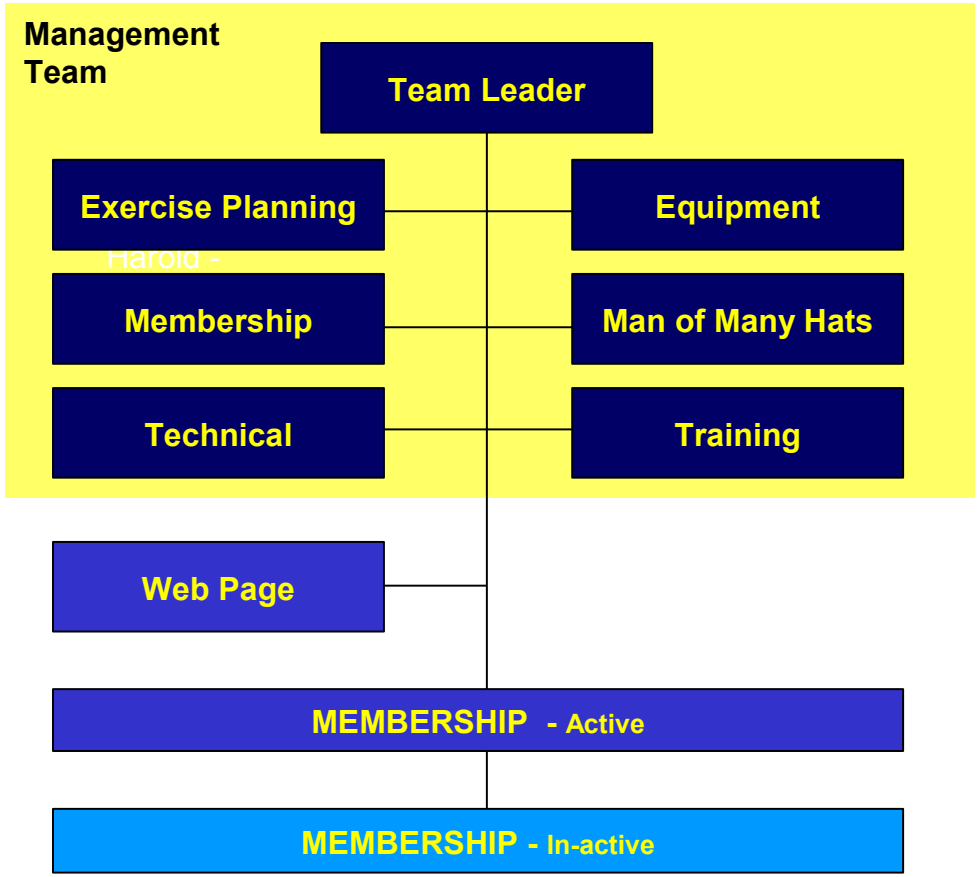
Strategies

ORGANIZATION

EMRG deploys to support partner agencies who are responding to an emergency.

EMRG has it's own emergency organizational structure to effectively deploy, and support partner agencies in an emergency.

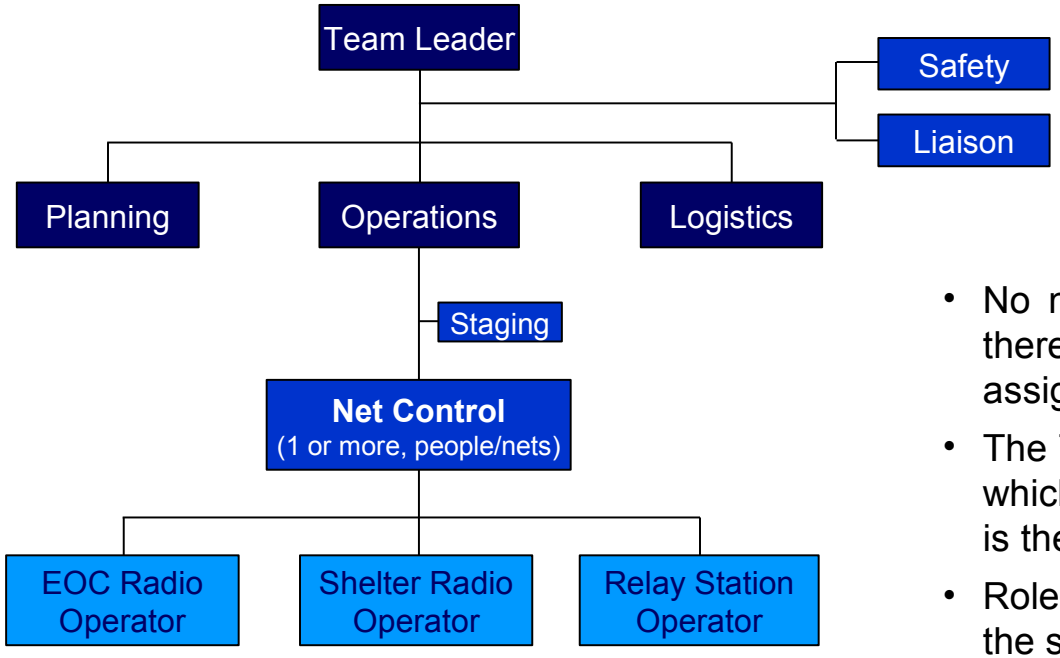
NORMAL STRUCTURE



This model is used on a daily (routine) basis to provide a structure that supports planning, training, practice and preparation for deployment in an emergency.

People are assigned to each role on a permanent basis.

DEPLOYMENT STRUCTURE

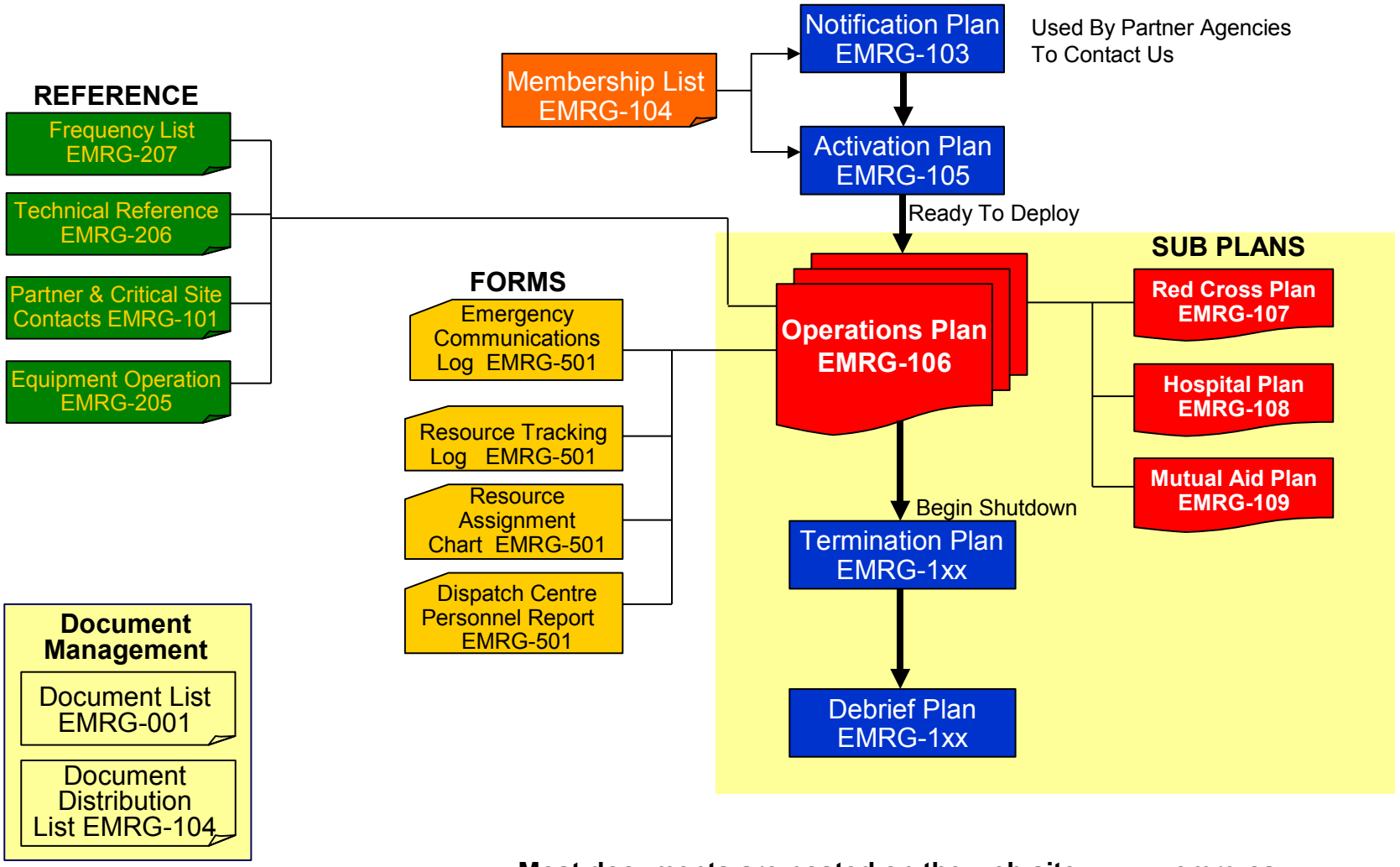


Information & Finance are Partner Agency responsibilities

- No names associated with the roles until there is a deployment, then roles are assigned based on who is available.
- The Team Leader is the person in charge, which may or may not be the person who is the Team Leader on a daily basis.
- Roles can be added or removed based on the size of the incident.

The EMRG Deployment Model is based on IMS, but is not IMS. The Team Leader is not an Incident Commander. EMRG is a communications module that plugs into other organizations IMS structure.

DOCUMENT STRUCTURE



Most documents are posted on the web site: www.emrg.ca

PROJECT PRIORITIES

1. Maintain Existing Infrastructure

- Ensure existing infrastructure is complete, robust, documented and people are properly trained

2. Voice Communications City Wide

- Expand voice communications infrastructure (repeaters) to support communications between any locations, urban or rural, within the City of Ottawa
- Build an inventory of basic radio equipment (radios, power supplies, antennas & coax) to ensure sufficient equipment is available to provide consistent reliable radio communications from deployed locations

3. Data Communications In Urban core

- Establish a basic data communications network, to provide coverage within the urban core.

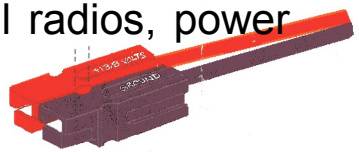
STANDARDIZATION

Standard interfaces make dissimilar equipment universal

Radio standardization usually means buying all the same models of equipment. EMRG has a collection of different makes and models of equipment, each with it's own style of connector. Even the same style of connector will be wired differently across vendors.

EMRG has developed a standard Radio Interface that allows any piece of radio equipment to be wired to the standard connector, allowing plug and play exchange of equipment. This is important for quick replacement of defective equipment in an emergency.

EMRG has also selected a standard DC power connector, so all radios, power supplies and batteries can also be exchanged easily.



All EMRG equipment will eventually be wired with the standard interface, thanks to the project funding from the City of Ottawa Emergency Management Unit!

The EMRG web site provides information related to Amateur radio emergency communications, specifically as it relates to the City of Ottawa.

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