

Trunked Mobile Radio Training



Department of Internal Services
Public Safety and Field Communications



To Be Covered

- TMR2 Video Overview
- Radio features and button functions
- TMR2 sounds
- Interoperability – Mutual Aid & Simplex
- Batteries
- Fleetmap review
- Site trunking



Video Overview



Please click on the image to play the video.

Key Elements of TMR2

- Fully digital network – superior audio and signal quality
- 95 tower sites across Nova Scotia = wide coverage
- Proper placement of the mic is essential
- Interoperability – shared zone of interoperable talkgroups in all TMR2 radios
- Simplex



So how does TMR 2 work?

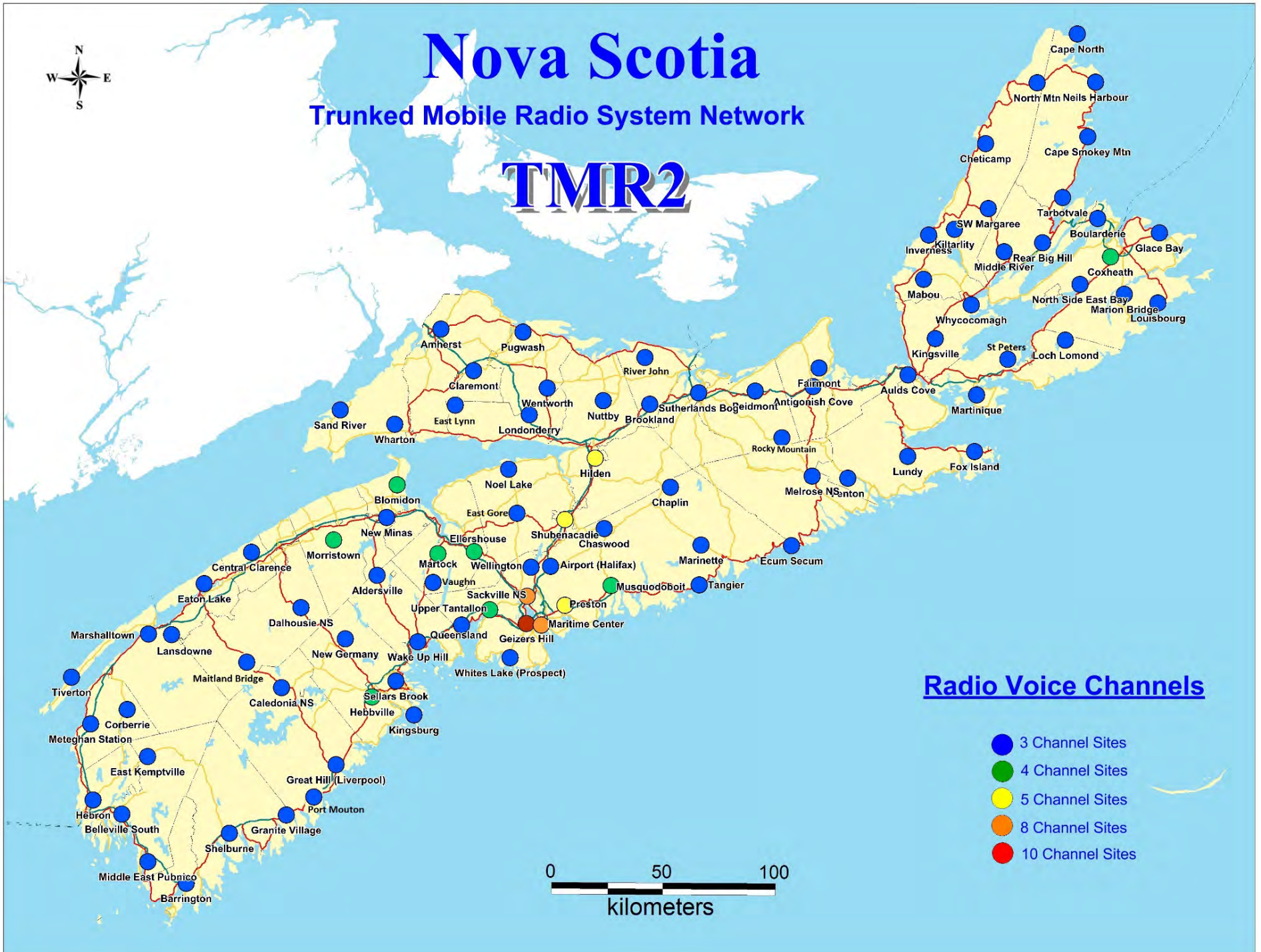




Nova Scotia

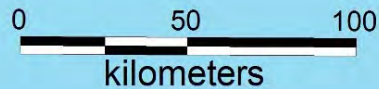
Trunked Mobile Radio System Network

TMR2

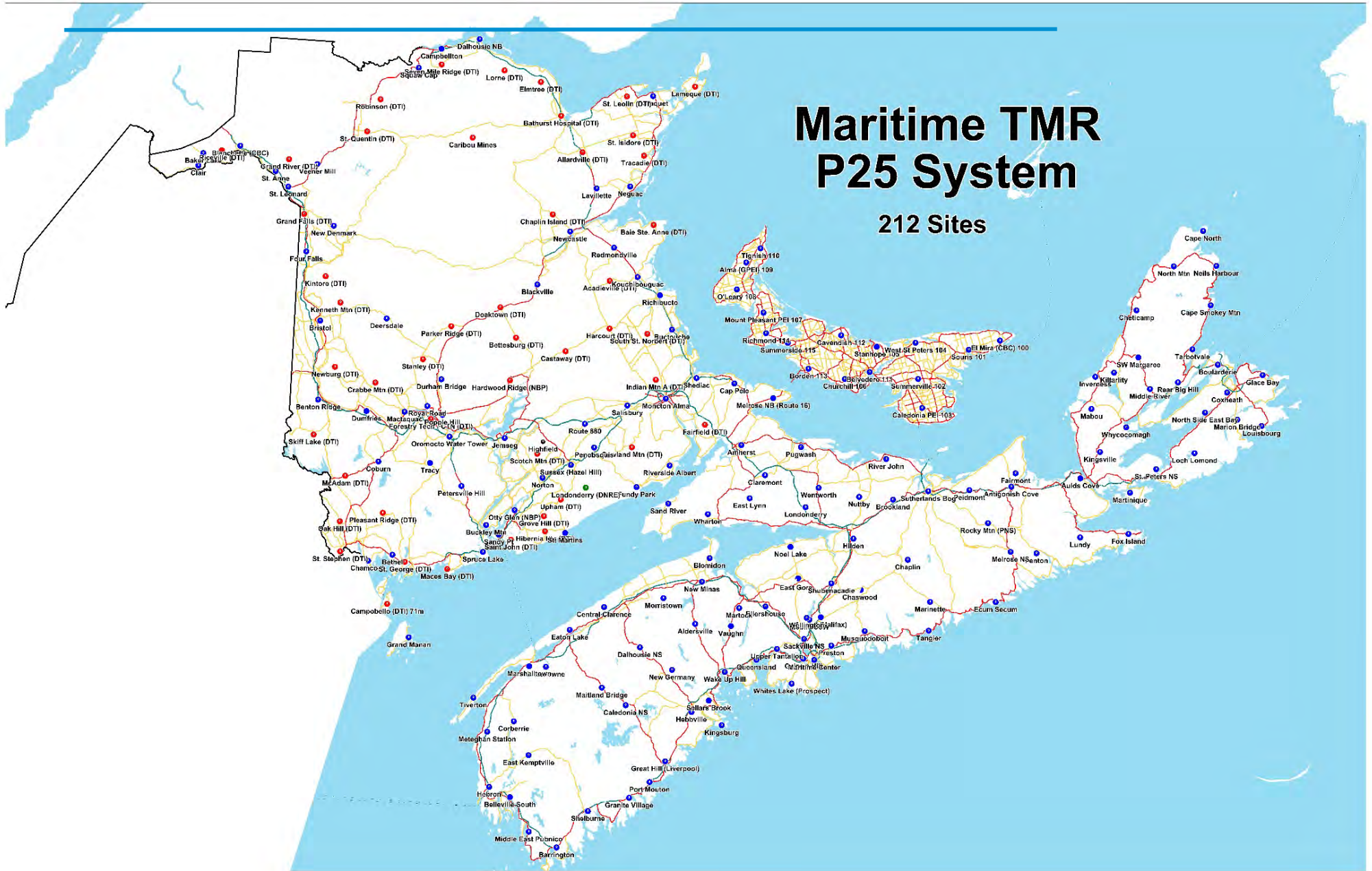


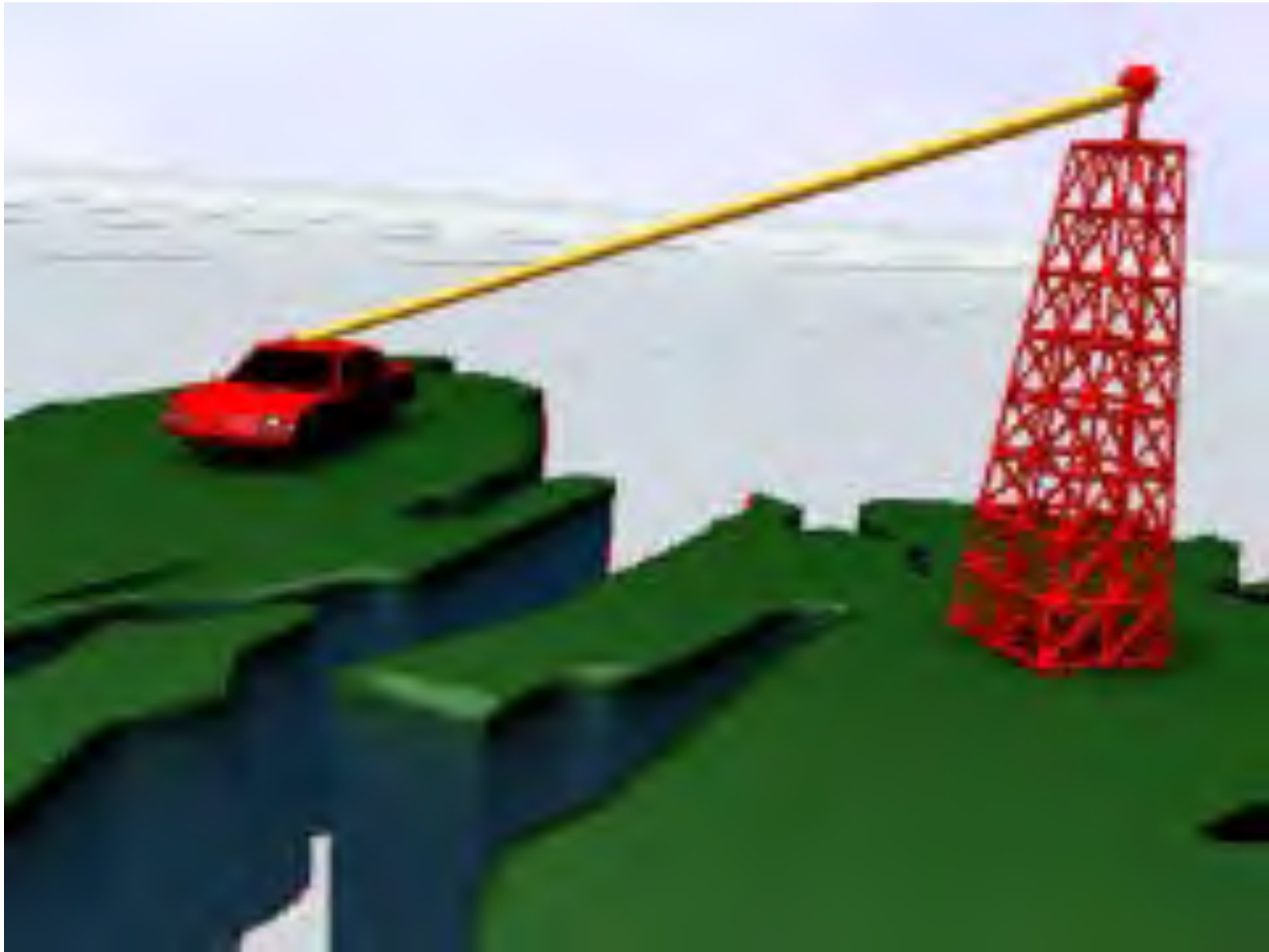
Radio Voice Channels

- 3 Channel Sites
- 4 Channel Sites
- 5 Channel Sites
- 8 Channel Sites
- 10 Channel Sites



Maritime Public Safety Radio Network







Volunteer Fire Service Radio Features

XTL 1500 Mobile/XTS 2500 Model 3 Portable
XTS 1500 Portable

General Features - Mobile



Zone/Talkgroup/Channel Select



- 1 To change zone press the zone up (ZNUP) or zone down (ZNDN) keys.
- 2 To change talkgroup/channel, scroll using the talkgroup select knob.

A zone is a grouping of talkgroups/channels.

General Features - XTS 2500 Portable

On/off/volume

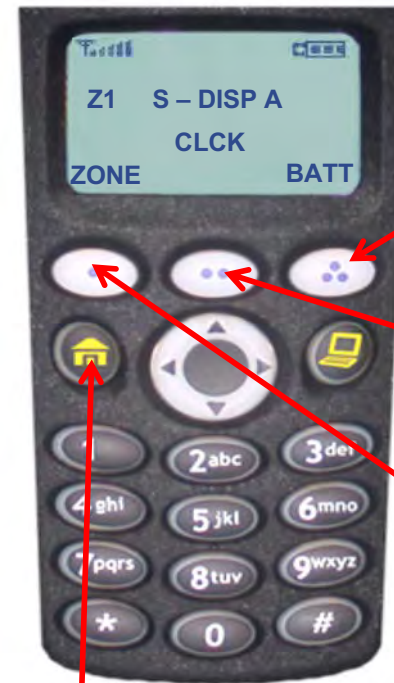
Talkgroup/Channel
select



Received Signal Strength
Indicator (RSSI)

Backlight

PTT



Battery Info

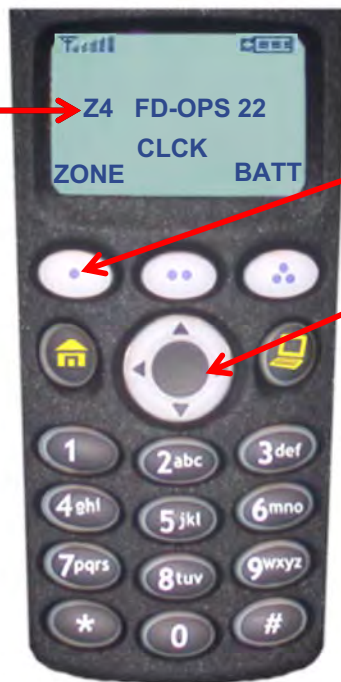
Clock

Zone Select

Home

Zone Select

Labeled as Zone (Z4) followed by Talkgroup/Channel Name



To select a Zone:

Select the softkey under the Zone display.

Use the key pad to scroll through the zones.

The new zone will appear on the display.

Talkgroup/Channel Select



To select a channel/mode:

Turn the Talkgroup/Channel Select knob to the desired position.

The new name will appear on the display.

RSSI / Site View/Search

You can view the tower number of the current site or force your radio to change to a new one.

To view the current site:


Press the Site Search button.

The display momentarily shows the tower number of the current site and its corresponding received signal strength indicator (RSSI).

OR

To change the current site:

Press and hold down the Site Search button.

You momentarily see SCANNING SITE displayed and hear a tone. When the radio finds a site, it returns to the home display. 



Site Search Button



RSSI / Site View/Search



1. Press the soft key below the icon RSSI momentarily. The current site number and RSSI (receive signal strength indicator) are displayed momentarily.
2. To initiate a site search, press RSSI key and hold until radio shows "scanning site." This causes the radio to search for an alternate TMR Tower site if one is available.
3. If necessary, press the RSSI key. The radio will now display the new site (or if no alternate site is available, radio will remain on current site).

Proper Use of Mic






- Proper positioning of the mic when speaking is paramount.
- DO NOT “long arm” the mic as shown below.

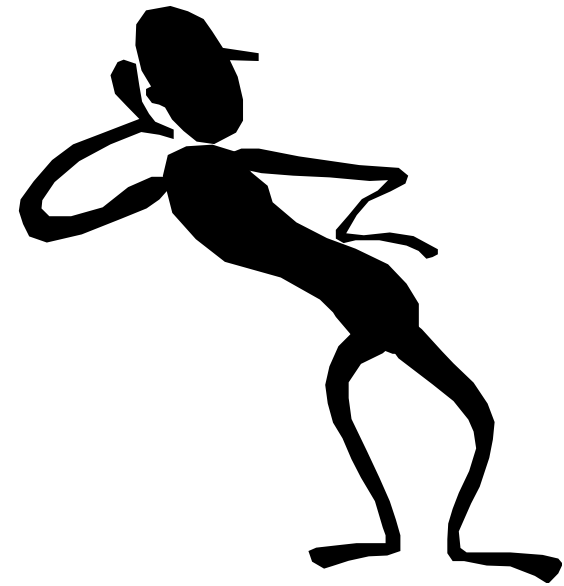


- It is imperative that you transmit 5-8cm (2-3”) from the mic for effective communication.



Sounds You May Hear

- Talk permit 
- Busy 
- Bonk 
- Low Battery 
- Button press 



Time Out Timer

***The time-out timer turns off your radio's transmitter.
The timer is set for 60 seconds.***

1. If the user holds down the PTT button longer than the programmed time of 60 seconds:

You will hear a low-pitched warning tone, the transmission will cut off, and the LED will go out until you release the PTT. 

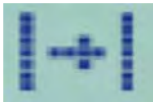
2. Release the PTT button and the LED will re-light and the timer will reset.
3. Press the PTT button to re-transmit. The time-out timer restarts.

Status Symbols



Signal Strength

Received Signal Strength Indicator (RSSI): The received signal strength for the current site (trunking only). The more bars in the symbol, the better the signal strength.



Direct/Simplex

Simplex – On: direct radio to radio communications. Off: you are talking through a repeater.



Battery Status

Battery Status – the number of bars (0-3) shown indicates the charge remaining in the battery, flashes when the battery is low.

TMR System Capacity

- By just monitoring you can tie up repeaters on a trunked radio system.
- **You should only monitor talkgroups that you have a legitimate reason to.**
- You can be caught!
- Enhanced capabilities to monitor usage of TMR2.



Incident Without Use of Mutual Aid Talkgroups



Fire Talkgroup



RCMP Talkgroup



EHS talkgroup



Sheriff Talkgroup



TIR Talkgroup



Diagram shows a 3 repeater tower with 3 agencies communicating separately.

If all 3 repeaters are used, other agencies (Sheriff/TIR) would remain in a busy queue.

Radio Interoperability Tools



8 Mutual Aid Talkgroups

2 Maritime Common Talkgroups

3 Shared Simplex SX ALL Channels

Mutual Aid Talkgroups

- All TMRS radios share 8 Mutual Aid Talkgroups.
- To use a Mutual Aid Talkgroup, you must first get permission.
- This can be done by contacting Shubie Radio.
- Advise Shubie who you want notified of the talkgroup assignment (ie. Police, EHS etc.).
- Doing this early into the incident will ensure efficient and effective multi-agency communications.
- Also, this decreases the chances of getting a busy signal at your incident, as it only uses one repeater at your tower site.

Incident With Use of Mutual Aid Talkgroups



Mutual Aid 1



Mutual Aid 1



Mutual Aid 1



Sheriff talkgroup



TIR Talkgroup



Diagram shows a 3 repeater tower with 3 agencies communicating on a mutual aid talkgroup.

2 repeaters remain available allowing other users to communicate without a busy signal.

Simplex Channels

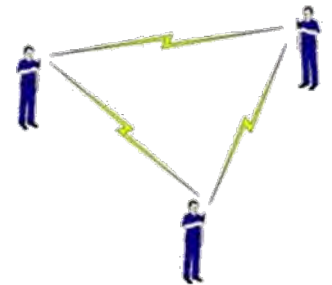
- Direct radio to radio communication.
- Provides another interoperable tool for communications.
- May be best for some communications:
 - *Removes traffic from the TMR2 network.*
 - *Can be used in poor coverage areas.*
 - *Keeps TMR2 available for long range communications.*
- There are no tones when using simplex.
- Simplex is only reliable for roughly 1 to 2 km.
 - *You will not have contact with dispatch.*

Simplex Channel Protocols

- Permission from Dispatch is not required in order to use a Simplex channel, however, good radio protocols should be followed:
 - Listen on the channel prior to communicating to ensure no conversations are currently in progress.
 - If no conversations are heard, transmit a courtesy call to see if anyone is using the channel. If no response is heard, you may proceed with using the channel.

Shared Simplex Channels

- The Nova Scotia channels SX ALL 1, 2 and 3 correspond with three nationwide interoperability simplex channels.
- These channels allow responders from across Canada to communicate with one another when communicating in other jurisdictions within Canada.
- Because these channels are used by responders across Canada, special protocols are required for accessing these channels.



Shared Simplex Channels

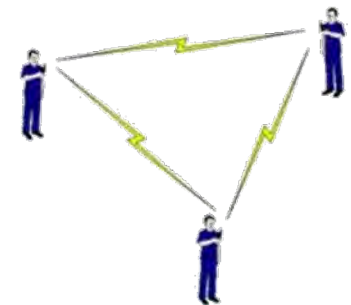
SX ALL 1 (I-CALL) – Hailing Channel

- Where an incident is operating on a Simplex channel, SX ALL 1 will be used to establish communications.
- Can be used to contact other users in the Region for the purpose of requesting incident related information and assistance.
- If communications will be of an extended nature, the calling party will be asked to move to one of the I-TAC (SX ALL 2 & 3) channels for continuing incident operations or other interoperability communication needs.

Shared Simplex Channels

SX ALL 2 & 3 (I-TAC 1 & 2)

- Primarily used for coordinating activity between different agencies in a mutual aid situation or for emergency activities of a single agency.
- Incidents requiring multi-agency participation will be coordinated over these channels by the agency controlling the incident.



Use of Simplex Frequencies Removes Busies



SX ALL 2



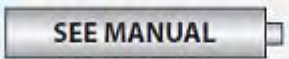













SX ALL 2



SX ALL 2

Battery Charge Indicator Description

UNCHARGEABLE		+		FLASHING RED
WAITING TO CHARGE		+		FLASHING ORANGE
RAPID CHARGING		+		STEADY RED
CHARGED (90% CAPACITY)		+		FLASHING GREEN
FULLY CHARGED		+		STEADY GREEN
SERVICE LIFE		+		FLASHING RED/GREEN
RECONDITIONING		+		STEADY ORANGE

Important - When battery is showing steady orange, this indicates that the battery is reconditioning and may not be available for use for several hours.

Fire Fleet Map

Volunteer Fire South

Volunteer Fire West

Volunteer Fire North

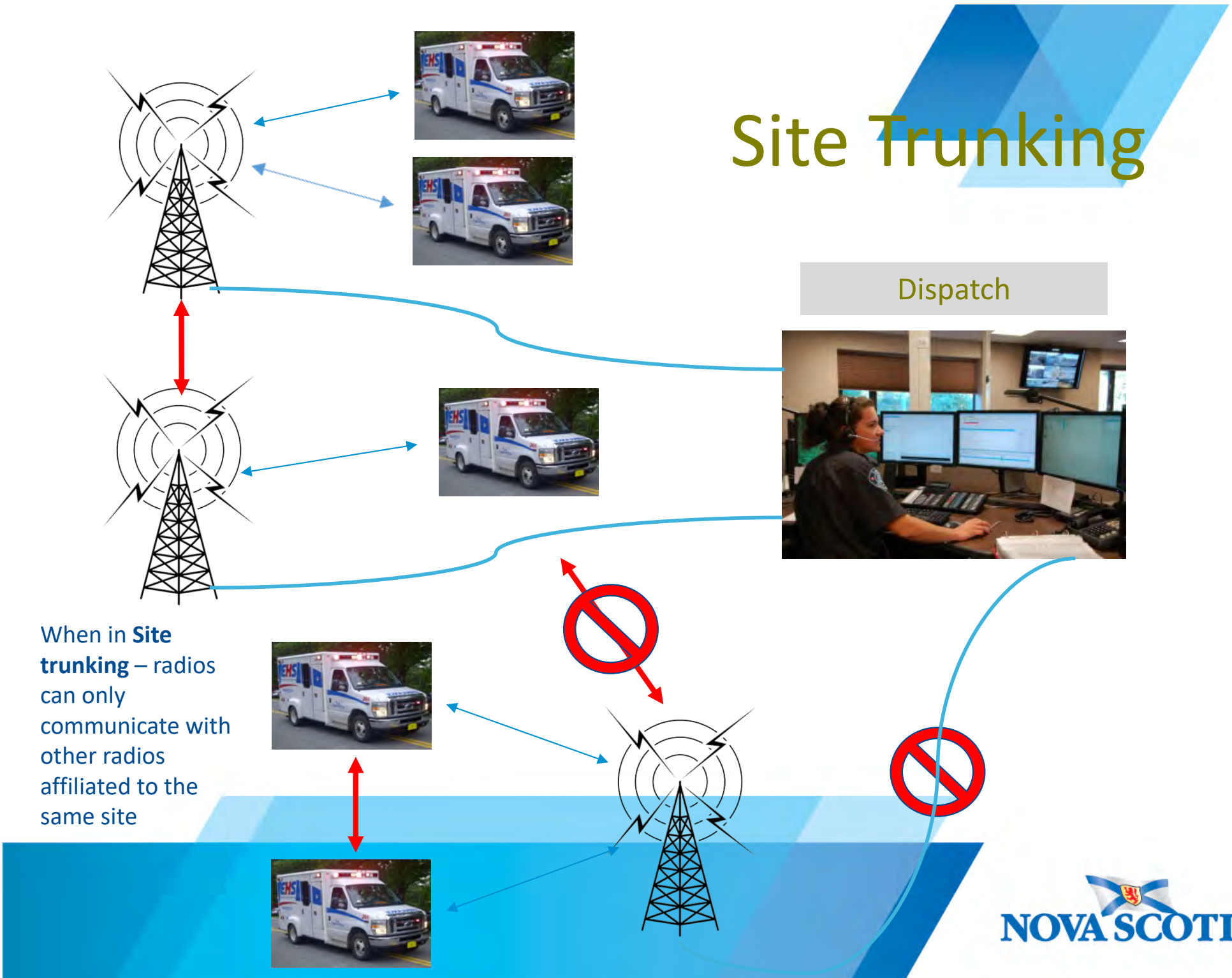
Volunteer Fire East

Site Trunking

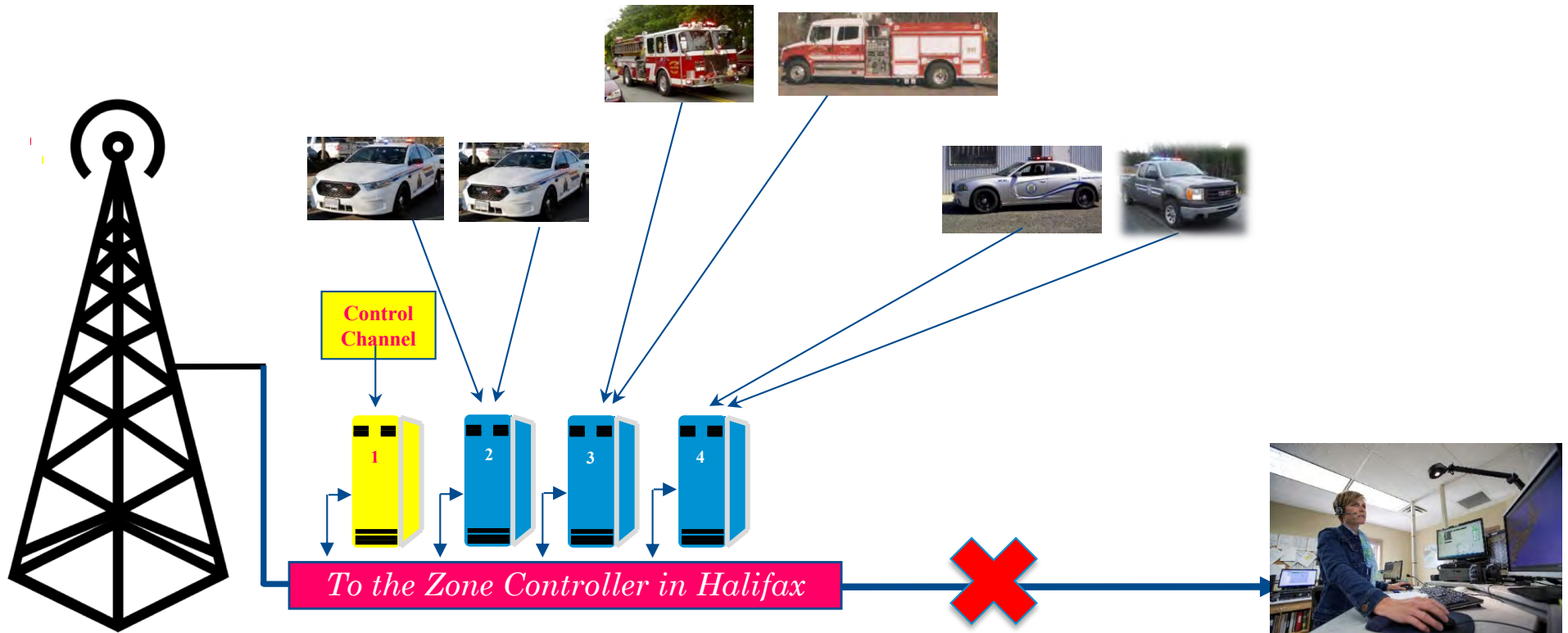
Dispatch



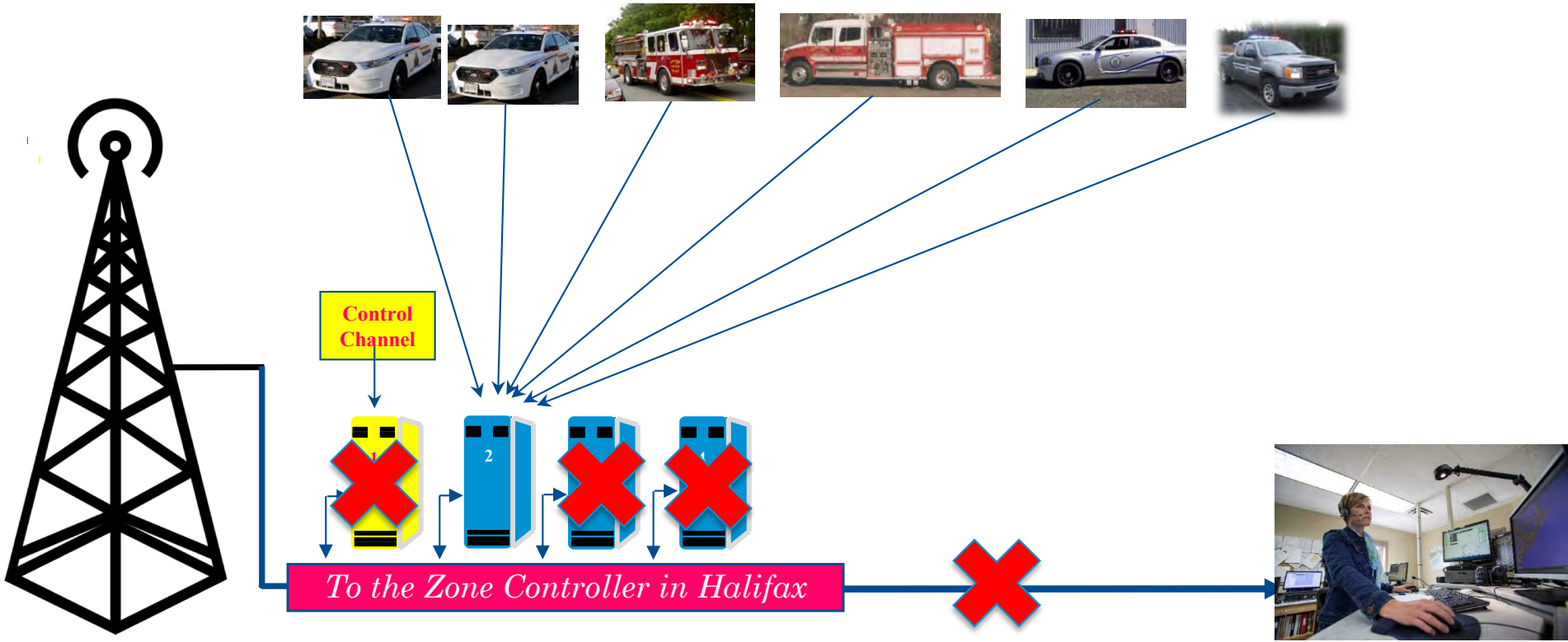
When in **Site trunking** – radios can only communicate with other radios affiliated to the same site



When in **Site trunking** – radios can only communicate with other radios affiliated to the same site



Site Trunking



Failsoft



<http://novascotia.ca/is/branch/psfc>

Shubie Radio 1-877-293-6977