

**RESEARCH ON VARIOUS PUBLIC SAFETY ISSUES,
EMERGING TRENDS OF INTEREST TO THE CHIEFS
OF POLICE, CHALLENGES FACING EMERGENCY
SERVICE PROVIDERS, RADIO COMMUNICATIONS
AND INTEROPERABILITY**

PRESENTATION TO THE CACP ANNUAL CONFERENCE
AUGUST 23, 2011



Presented by...

**Members of the Tri-Services Special Purpose Committee on
700 MHz Broadband for Mission Critical Public Safety Data
(struck Dec. 2010)**

**Superintendent Bill Moore
Halifax Regional Police Service**

**District Chief Mike Sullivan
Ottawa Fire Service**

**Superintendent Pascal Rodier
British Columbia Ambulance Service**



Working together to improve public safety interoperability...

INTRODUCTION

Research, Trends and Challenges



- Of course, a look at the 700 MHz Issue with an update
- But first, a bit of history
- Key issues that need to be on your radar
- Lessons learned and way forward
- What YOU can do!



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Interoperability Defined

“Communications interoperability refers to the ability of public safety agencies to talk across disciplines and jurisdictions via radio (replace with voice) communications systems, exchanging voice and/or data with one another on demand, in real time, when needed, and as authorized.”

SAFECOM

<http://www.safecomprogram.gov/SAFECOM/>



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Interoperability at the Forefront

HISTORY

Well documented challenges and failures in the U.S.



September 11



Oklahoma City Bombing



Hurricane Katrina



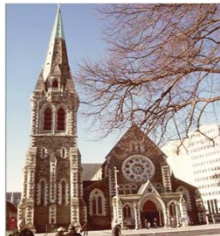
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Internationally

HISTORY



Japan



Christchurch, NZ



Haiti



**Black Saturday
Australia**



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In Canada...

- BC wildfires/Vancouver Stanley Cup Riots
- Prairie/Quebec floods
- Eastern Canada Ice Storm/Blackout
- Concordia/Dawson College Shootings
- Swissair 111 crash near Peggy's Cove

Across the country, during emergencies, disasters and day to day events, the agencies and jurisdictions that should be able to talk to each other often can't



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HISTORY

Why no Interoperability?

- Incompatible or aging communications equipment
- Limited or fragmented funding
- Jurisdictional or chain-of-command conflicts
- Availability of radio spectrum, etc.
- But the single biggest cause: **a lack of coordination among public safety agencies**



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WHY NO INTEROPERABILITY?

The Interoperability Challenge

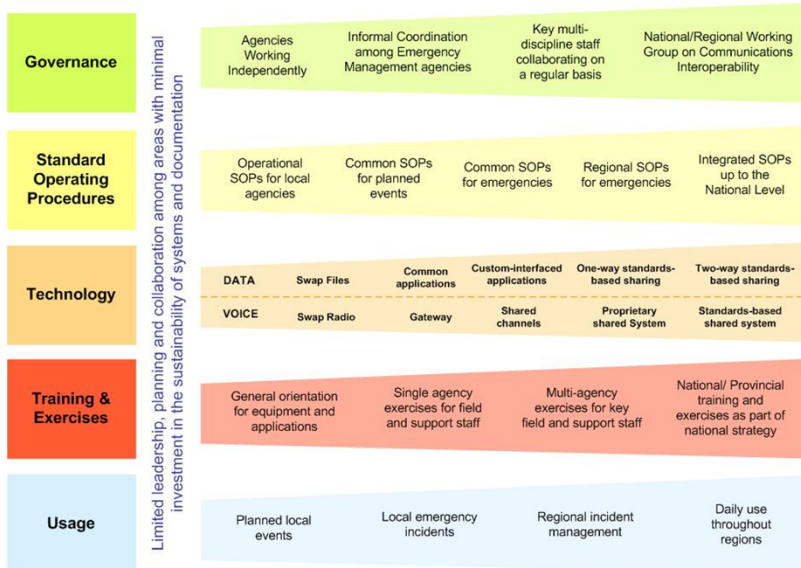
- In 2001, CACP Informatics Committee begins working on interoperability – started with data via LEIP/PIP
- L’Abbé Report on Interoperability in 2003
- CACP White Paper soon after identified “voice” interoperability as priority
- Need identified for a cooperative forum to help fulfill interoperability goals
- Ties established with US / International – much foundational work from U.S., primarily from DHS “Safecom”
- Focus on all five lanes of the Interoperability Continuum



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HISTORY

Canadian Communications Interoperability Continuum



CITIG Created

- With close ties to CACP Informatics, CPRC leads the creation on CITIG in 2007 : Practitioner Driven – Government Led!
- A true partnership between CPRC and the first responder associations



- PS Canada, Industry Canada, etc. and Americans (DHS, NIJ, IACP LEIM, NPSTC, etc.) very supportive
- Linked to SOREM and CCEMO through CPRC Advisory Board and PS Canada



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CITIG AND INTEROPERABILITY

National Activities / Accomplishments

- CISC & Action Plans – Approved by F/P/T Ministers January 26th, 2011(PS Canada / SOREM)
- PSIC Draft (PS/CPRC/CITIG/IC/CRC/CATA) with Lab Requirements Workshop planned
- SOREM –Interoperability Working Group (IWG) – Now starting work on CISC Action Plans
- Two Cross Border Workshops (Niagara Falls, NY in May 2009, Windsor in Sept. 2010)
- CITIG (CACP/CAFC/EMSCC)
 - 15 projects supported with CPRC Funding
 - 4 National Workshops (Ottawa, Toronto, Halifax , Victoria - #5 Dec in Ottawa)
 - 13 Regional Workshops from coast to coast and Yukon
- New Brunswick/Nova Scotia/Ontario Interoperability Plan (done or ongoing)
- Interoperability Strategic Planning taking place from coast to coast
- Multiple Partnerships in US (DHS/NPSTC/EC/ERC/SWIC/NIJ)
- Improved Frequency coordination between Canada/US
- Greater awareness that interoperability must be addressed collaboratively by all public safety and security agencies!



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CITIG

A MUST READ...

Communications Interoperability
Strategy for Canada

January 2011

<http://www.publicsafety.gc.ca/prg/em/cisc-eng.aspx>

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CITIG OUTCOMES

CITIG in Numbers (as of August 19, 2011)

- Facilitated over **\$600,000** in CPRC funding for communications interoperability projects (about \$1M in in-kind contributions by partners)
- Facilitated **\$502,909** in responder in kind contribution for CCIP/CISC and related projects (represents leveraging of 241% of CPRC investment)
- **44,029** page views of www.citig.ca since March 2010
- **22,831** recipients of CITIG eNews Messages
- **2380** in person participants at the series of forums and workshops held across Canada
- **800** members registered on www.citig.ca
- Works in partnership with **3** chiefs associations and many other stakeholders

1 goal: Improve public safety interoperability in Canada!

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Recognition

- First organization to become an international member NPSTC
- National award for public safety from the Canadian Wireless Telecommunications Association
- International IACP Award for “superior achievement and innovation in the field of communication and information technology.”
- 2009 CACP Emergency Management National Award of Excellence
- 2010 CACP Presidents Award of Recognition



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CITIG

Major Radio Infrastructure Projects in Canada

- Province of Quebec - \$300 million
- Province of Alberta - \$200 million
- MRCI - \$200 million
- Province of Ontario - \$500 million
- City of Toronto - \$100 Million +
- 100's of other P-T-M projects - \$1 Billion

(All figures are estimates)

Study commenced to provide concrete figures as to number, scope and costs of all public safety radio infrastructure projects in Canada



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CURRENT STATE

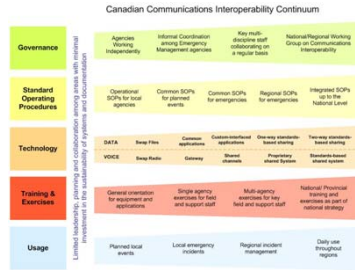
Current Studies

#1 Closing Sept. 15



Land Mobile Radio Survey

#2 Launched in the Fall



Where are you on the continuum?



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CURRENT STATE

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INTRODUCTION

Canadian Representatives Joins the P25 Interest Group

 	<p>Partnership: EMSCC for providing the delegate and P25 Group for providing the opportunity Start-End: December 2009 to present Funding: \$8k in T&L Contracts In-Kind Contribution: \$3k</p>
<p>Objectives: To investigate specific technologies and emerging trends of interest to first responders, CPRC funded a CITIG representatives (selected by EMSCC) to join the Project 25 Interest Group (P25IG), a U.S.-based entity that comprises public safety professionals and equipment manufacturers interested in the further development of, and education on, the P25 standards.</p>	<p>Outputs and Outcomes: A detailed trip reports shared with key CITIG stakeholders providing very valuable information Impact: Information sharing on an emerging technology to the benefit of all Canadian responders, and specific recommendations to CITIG members regarding the way forward on P25.</p>



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IMPORTANT ISSUES AND CURRENT TRENDS

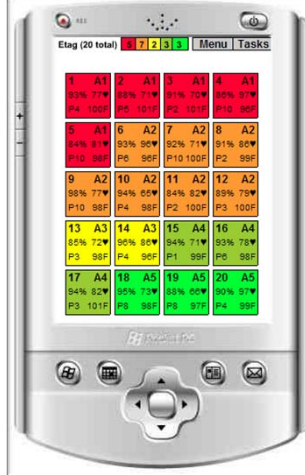
Indoor Location Tracking



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IMPORTANT ISSUES AND CURRENT TRENDS

Portable Telemetry



<http://wam.umd.edu/~mvandani/pda/lowfi3.html>



Welcome to the Advanced Health and Disaster Aid Network



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IMPORTANT ISSUES AND CURRENT TRENDS

Identifying international best practice in police use of BWV



Development of Body Worn Video

- 2004 IACP In-car Camera Report
- 2005 Early use of BWV
- 2006-7 Trial of BWV - Devon & Cornwall Constabulary
- 2007 UK Home Office Report & £6million funding for BWV
- 2008- Police forces across UK, Canada & USA trial/implement use of BWV
- 2010 Vic PD Canada - Report



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IMPORTANT ISSUES AND CURRENT TRENDS

Networked Vehicles

Riding the Comet

A Report, Survey and Analysis of trends in the emerging ICT-Auto sector



<http://www.networkedvehicle.org/>



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IMPORTANT ISSUES AND CURRENT TRENDS

Wireless Sensors

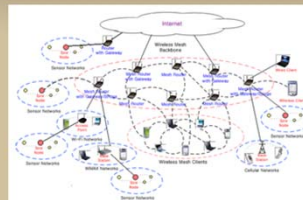


HOME OVERVIEW R&D WISENSE EXCHANGE CONTACT US NEWS & EVENTS

Welcome to WiSense

Wireless Heterogeneous Sensor Networks in the e-Society (WiSense) is a five-year research and development project established in 2008 with a grant from the Ontario Ministry for Research and Innovation to the University of Ottawa under the research excellence funding program. Collaborating on this project with the University of Ottawa (Lead Institution) are three Ontario universities (Queen's, McMaster and Waterloo) as well as leading private sector industry partners. The mission of WiSense is to define and study design challenges, scalability and compatibility issues for the development of wireless heterogeneous sensor networks to serve in a wide range of e-Society applications.

NEXT ▶



1. Welcome to WiSense 2. Academic Partners 3. Industrial Partners 4. Governance

<http://wisense.ca/#>



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IMPORTANT ISSUES AND CURRENT TRENDS

The Future...

Next Generation Communications Interoperability Workshop
 Affinia Hotel | Chicago, IL | July 26-27, 2011



What will Interoperable Communications look like in 2021, 2031, and beyond?

Leveraged Social Media (LinkedIn & Twitter) as well as email to seek respondents to a SurveyMonkey

 **SurveyMonkey**


<http://www.orau.gov/nginterop2011/default.htm>

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IMPORTANT ISSUES AND CURRENT TRENDS

The Hot Issues YOU will be faced with...

	Response Percent
Advanced visualization techniques, including 3D Pixels (Volumetric Picture Elements)	82.4%
Machine to machine / Sensor to Sensor interoperability	82.4%
Neural Networks, machine learning, expert systems (advanced computing) in decision support tools	64.7%
Location Base Services	76.5%
Just in time access (allowing users access to information typically not cleared for during times of emergency – links to data security)	52.9%
Enhanced Social Media for Emergency Management (tied to above themes)	76.5%
Cloud computing	58.8%

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IMPORTANT ISSUES AND CURRENT TRENDS

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700 MHz Broadband



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700 MHz Broadband

- Currently 10 MHz assigned to Public Safety (PSST) in the U.S., with second 10 MHz (known as the “D” Block) being sought
- Similar blocks MAY become available in Canada in August 2011 – Industry Canada Consultation
- What does this mean for public safety in Canada?
- Governments & Associations researched issue & submitted position papers
- US President and various Congressional leaders support D Block to Public Safety: \$10.7 Billion



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IMPORTANT ISSUES AND CURRENT TRENDS

Associations Took Action in December 2010

- Struck Tri-Services Committee to:
 - Formulate a broad-based public safety response to the Industry Canada public consultations on the use of the 700 MHz band (closed February 28, 2011)
 - Monitor and advise on the issue, inform stakeholders and identify responder spectrum needs and potential opportunities
 - Engage with industry, public safety providers and different levels of government to put forward a position that makes sense for Canadian public safety and Canadians in general
 - Deliver the written response for the consultation



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700 MHz BROADBAND

Why do we care?

- The allocation of 700MHz broadband spectrum **represents a once in a lifetime opportunity**
- If done correctly will enable **mission critical data communications for public safety** for years to come
- Having this ability directly impacts **community and responder safety, innovation and the health of Canada's digital economy**
- We need the right tools to **protect and save lives of Canadians and first responders**
- 700 MHz is the **"sweet spot"**



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700 MHz BROADBAND

On Behalf of Associations and Responders...

- Ensure that the spectrum needs of responders and public safety in general are considered and accounted for
- Enough spectrum to fulfil vision of a robust system of interoperable networks that will benefit urban, suburban and rural responder agencies in Canada
- Alignment with U.S. with a view to a trans-continental vision
- Work with industry to help better define needs and future vision
- Advocate and work with others on a whole-of-government approach



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700 MHz

Present State of Broadband in Canada

- Different technology in use
- Different systems in use
- Not seamless countrywide
- No Canada-U.S. harmonization
- Thirst for bandwidth increasing exponentially
- Industry Canada Consultation opened consultations on 700 MHz spectrum on November 30, 2010 (closed February 28, 2011) — provided opportunity to state public safety needs
- Rebuttal period closed April 6

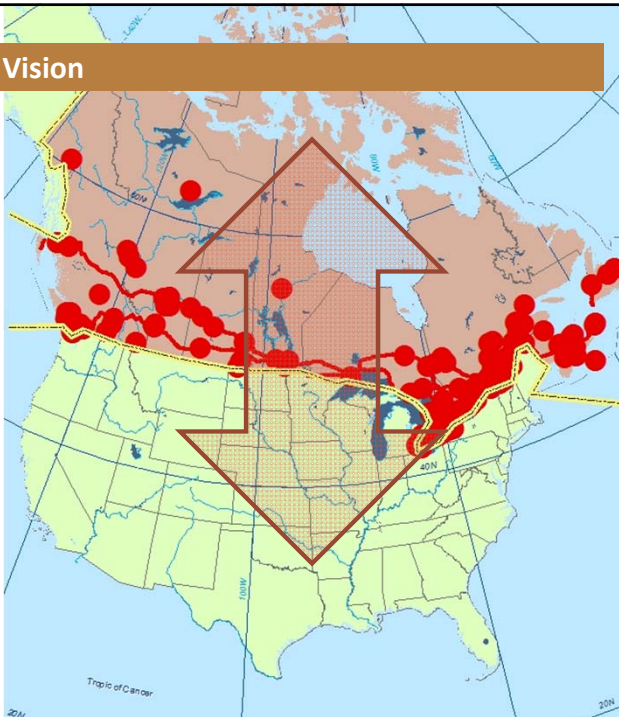
700 MHz BROADBAND



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Potential Growth Vision

- Border and a few major cities
- Major centres
- Regional solutions
- Major arteries
- Continentally Aligned



THE FUTURE...



Consultation Responses

RESPONSES

- **88** total responses to Industry Canada
 - **55** from Companies and Organizations (the Tri-Services, Telcos, CATA, Industry, etc.)
 - **4** from Federal Government (ICSAR, Public Safety Canada, RCMP and Scott Simms, MP)
 - **23** from Provincial and Municipal Governments (notables include CCEMO, SOREM, many provinces)
 - **6** from Private Individuals
- Overall, the Tri-Services and public safety stakeholders were pleased to see that the majority of responses to the consultation acknowledged the need to designate a portion of 700 MHz spectrum to be dedicated for public safety use
- PS stakeholders “sang from same song sheet”



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Of the 88 Submissions...

RESPONSES

- **44** advocated harmonize with the U.S.
 - **26** called for 20 MHz of spectrum to be dedicated to public safety
 - **7** called for only 10 MHz of spectrum to be dedicated to public safety
 - **6** called for 10 MHz of spectrum to be dedicated to public safety now, plus a possible additional 10 MHz after D Block assigned in the U.S.
 - **3** respondents called for 0 MHz dedicated to public safety
 - The remaining responses made no mention of public safety
- (Of note, one Telecommunications company acknowledged the need to designate a portion of 700 MHz spectrum to be dedicated for public safety use)*



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As of August 2011...

- Public Safety Canada is well on track to deliver proposed business model by December (as indicated in their submission)
- That proposed business model will be in line with what was described in the PS submission (i.e., shared governance with emphasis on ensuring responders have access to needed amount of spectrum)
- First responder representatives will have the opportunity to review and contribute to the proposed model in the near future
- Additional communication will soon follow



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700 MHz BROADBAND

Tri-Service Committee Current Work

- Work closely with Public Safety Canada and others to ensure the spectrum needs of responders are met
- Continue reaching out to all levels of government, public safety agencies and industry
- Work with Public Safety Canada and SOREM (all Provinces and Territories) on next steps
- Inform key stakeholders



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CURRENT WORK

www.action700.ca

- Web site created by the Associations to provide a focal point for communications efforts:

www.action700.ca

(download basic information, including sample support letter, media release, presentations and sign up for e-mail updates)

- Inquiries — send e-mail to:

action700broadband@gmail.com



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CALL TO ACTION!

Why should YOU care?

- The obvious safety and security of your people and the public you serve
- You DO NOT want to compete with others for commercial bandwidth
- You need a predictable and reliable public safety grade network that is interoperable throughout North America
- You need to control the spectrum to drive down costs — you need affordable solutions



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NEXT STEPS

What Police Executives LIKE YOU can do about 700 MHz

- Get informed and put this issue on your organization's radar
- Inform your key decision makers, boards, municipalities, provincial/territorial governments and other governing bodies that spectrum allocations will have a significant impact on public safety in Canada
- This may very well become a political decision — talk to your MP, MPP, MNA, etc.
- Work with tri-services colleagues and others to advocate a strong voice for public safety in advance of spectrum allocations
- Look for and act on mobilization information as it sent by CACP, CAFC, EMSCC, CAPB, FCM and others



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NEXT STEPS

What Police Executives LIKE YOU can do about OTHER TRENDS

COLLABORATION!

- If you are not doing it already, work with your tri-services partners at the strategic level (CITIG, the EM Committee, the EM Chiefs regular meetings, etc. are demonstrating significant results)
- Mobilize your Provincial Associations — the tri-services collaboration model is in place in some, but not all, jurisdictions

AWARENESS!

- Make sure your strategic planning takes into account the many changes on the horizon
- Access resources like CPRC, Public Safety Canada, etc.



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NEXT STEPS

Need Help?

- **CACP Informatics Committee** (General advice and connecting you with others)
- **CPRC** (Research funding and science knowledge and advice), www.css.drdc-rddc.gc.ca/cprc/index-eng.asp
- **CITIG** (Advice, events, tools, templates and a wealth of knowledge around interoperability), www.citig.ca
- Public Safety Canada's **Interoperability Development Office** (IDO) can now be reached by [e-mail](mailto:Interoperability@ps-sp.gc.ca) at Interoperability@ps-sp.gc.ca (Policy, tools, templates)



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RESOURCES

In Closing...

- The Wireless Innovation Forum **Workshop on Enabling Interoperability**, September 15 in Montreal
- **CATA Vendor Outreach Forum**, October 18th and 19th, Pan Pacific Hotel – www.cata.ca for details soon.
- **Fifth National Public Safety Interoperability Workshop**, December 4th to 7th, Ottawa, Ontario – www.cacp.ca to register
- **Informatics International Conference**, February 22-24 in Toronto – registration to open soon at www.cacp.ca

Visit www.citig.ca for more info and to join.



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KEY EVENTS OF NOTE

Discussion

Questions?

www.action700.ca

