CANADIAN INTEROPERABILITY TECHNOLOGY INTEREST GROUP
GROUPE D'INTÉRÊT CANADIEN EN TECHNOLOGIE DE L'INTEROPÉRABILITÉ

Highlights Report

Survey to Explore Current Perceptions of Municipal and Regional Public Safety Stakeholders Regarding the Proposed 700 Mhz Broadband Public Safety Network

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1 Introduction and Background

At the request of Industry Canada (IC), the Canadian Interoperability Technology Interest Group Inc. (CITIG) has prepared this highlights report that explores current perceptions of municipal and regional public safety stakeholders regarding the proposed 700 MHz broadband public safety network.

From March 8 to 25, 2013, CITIG conducted an on-line survey designed to collect basic information from municipal and regional public sector agencies regarding awareness and views about the current state of public safety wireless data usage as an aid in planning for a transition to a new public safety wireless broadband network. The survey was geared toward anyone at the municipal or regional level whose agency may one day need access to a public safety wireless broadband network (i.e., responders, public safety agencies, emergency management users, etc.). The four sections of the survey included:

- About your agency
- Current Usage
- Future Use
- Stakeholder Engagement, Additional Comments and Feedback

Information about the web-based survey was disseminated via:

- A CITIG e-News to over 1,350 CITIG Associates;
- Outreach by the Canadian Federation of Municipalities (FCM);
- Social Media outreach; and
- Raising awareness during CITIG meetings and events during March 2013.

In total, 72 respondents completed the survey. Of those, 68 responses were deemed valid or complete enough to include in the results.

Building on the results of the survey and an analysis of previously completed research efforts by a wide range of stakeholders, this Report is designed to provide IC with a starting point to build strategies that the working group coordinated by Public Safety Canada could use to engage municipal public safety stakeholders with respect to the decision process regarding a governance structure and technical requirements for the eventual deployment of a nationwide public safety broadband network. This will ensure that decisions are based on the input from the widest range of public safety stakeholders. This study, by the nature of the short time frame provided, is not exhaustive and simply designed to be a snapshot.

2 Public Safety Broadband Survey for Municipal and Regional Stakeholders

2.1 Agency Demographics

The majority of responses were from first responder or municipal agencies, with regional or municipal participants representing almost 75 percent of respondents. The remaining 25 percent were from federal, provincial or territorial organizations serving regional or municipal interests. Of note, there were no responses from tribal or non-governmental organizations. The majority of respondents were from Ontario and British Columbia. All provinces or territories were represented with the exception of Newfoundland and Nunavut.

There was almost an even split between respondents who described their level of familiarization of technologies available to provide mobile wireless data services as basic, intermediate or advanced. The majority (almost 54 percent) said they were part of their organization's Leadership Team or Senior Manager/Administrator.

Aggregate responses by question follow.

Q1: Please indicate the category that best describes your agency (select one)

Agency Type	***Percent of Respondents***
Emergency Management	15.0%
Emergency Medical Services	10.0%
Fire / Rescue	26.7%
Law Enforcement	33.3%
Military / Coast Guard	0.0%
Multi-Discipline	3.3%
Non-Governmental Organization	0.0%
Other First Responder Agency	3.3%
Public Works / DOT / Other Government Department	1.7%
Secondary User (Utilities, Hospital, General Government, etc.)	0.0%
Other	6.7%

Responses for "other" included:

- SAR
- Healthcare
- Consultant
- Communications Centre

Q2: Please indicate the affiliation of your agency (select one)

Agency Affiliation	***Percent of Respondents***
Federal	3.5%
Provincial/Territorial	22.8%
Regional	14.0%
Municipal	59.6%
Tribal	0.0%
NGO	0.0%
Other (please specify):	0.0%

Q3: Which municipality or region does your organization or division serve?

List of Municipalities/Organizations Represented		
Brookfield, Colchester Co. NS	Burnaby	City of Hamilton
City of Kawartha Lakes	City of Saint John	City of Surrey
County of Lambton	Dawson City, Yukon	Delta (2)
Edmundston NB	Espanola and Area	Gatineau, Quebec
Greater Vancouver	Halton Region	Hastings County
Kelowna and Central Okanagan Regional District	Lackawanna and Wyoming Counties in PA	Lanark County
Leduc County, Alberta	London	New Brunswick
Niagara	Northumberland, Ontario	Northwest Territories
Nova Scotia (2)	Oak Bay	Ontario (3)
Ottawa	Peel Region	Perth East
Prov of BC Policing	Province of Nova Scotia	PS Canada
RCMP E Division	Saint John (2)	Saskatchewan
Sechelt B.C.	Southwestern British Columbia	Sunshine Coast Regional District
Surrey	The Corporation of Delta	Toronto (2)
Vancouver (3)	Wellington and the member municipalities	West Vancouver
Whistler (2)	Whitehorse, YT	Winnipeg
York Region	Yukon (3)	

Q4: Please identify your familiarity/knowledge level with the technologies available to provide mobile wireless data services (e.g., private radio systems, cellular data such as 3G/4G/LTE). Please limit this to your knowledge or familiarity with the provision of wireless data services and do not include familiarity with the operation of end user devices or applications.

Familiarity/knowledge level	***Percent of Respondents***
No knowledge	0.0%
Basic	38.7%
Intermediate	32.3%
Advanced	29.0%

Q5: How would you best describe your role within your organization?

Role within the participants' organization	***Percent of Respondents***
Leadership Team	21.0%
Senior Manager/Administrator	33.9%
Supervisor/Command	11.3%
Mid-Level Manager	19.4%
Non-supervisory Operations/Field Units	8.1%
Non-supervisory Logistics/Support Units	6.5%

2.2 Overview of Current Use

The overwhelming majority of respondents (almost 94 percent) indicated that their organization currently uses wireless data services in the field. The four applications used by more than 50 percent of respondents included Voice: Push-to-Talk, E-mail, Mapping or Geospatial Data and AVL or Telemetry Services. Participants ranked automated vehicle location, database queries, records management systems access and computer aided dispatch as the most important Wireless Applications for their organization with many saying they were mission critical. The level of demand for wireless services was often highest for command and field units. The majority of respondents use wireless data applications in expected locations (i.e., outdoor, inside vehicles and in buildings). However, about a third of respondents use wireless data applications in marine environments, in the air and underground.

Two questions dealt with the respondents' perception of having sufficient spectrum for voice and data interoperability needs (the delineation between voice and data was explained). The majority of respondents indicated they did not know if their agency had enough for data (almost 45 percent) while most (almost 52 percent) felt their agency had enough for voice. Almost 40 percent felt there was insufficient spectrum for their data interoperability needs.

Aggregate responses by question follow.

Q6: Does your agency currently use any type of wireless data services in the field (do not include wireless data services for your office/station/headquarters involving Wi-Fi)?

Use of wireless data services	*Percent of Respondents*
Yes	93.3%
No	6.7%
Don't know	0.0%

Q7: If yes, what application(s) do you currently use on the existing wireless network? Check all that apply.

Application	*Number of Respondents*	*Percent of Respondents*
Voice: Full Duplex	21	37.5%
Voice: Push-to-Talk	31	55.4%
Incident Reporting	25	44.6%
Database Lookups: Driver license, fingerprint retrieval, etc.	22	39.3%
Email	30	53.6%
Web browsing	27	48.2%
Low Resolution Video (Web quality)	11	19.6%
High Resolution Video (TV quality)	4	7.1%
Mapping or Geospatial Data	31	55.4%
GIS-based Dispatch Data	23	41.1%
AVL or Telemetry Services (vehicles, personnel, offenders)	28	50.0%
Biometrics: Patient or Personnel	0	0.0%
SCADA for Facilities	6	10.7%
Software & Operating System Updates	12	21.4%
Other (please specify)	6	10.7%

Responses for "other" included:

- 12-lead ECG transmission

- CAD, RMS
- Electronic patient care records, daily shift reports
- E-ticking, Web application
- Intranet, mobile report entry, e-tickets, mag-stripe and barcode readers, etc.
- Mobile Data Browser, CPIC, CAD, Intranet

Q8: Please rate the Degree of Importance/Need for your agency of the following Wireless Applications using the following guidelines: No Need/Not applicable (0), Low Need (1), Moderate Need (2), High Need (3) and Mission Critical Need (4)

Wireless Application	*No Need/Not applicable*	*Low Need*	*Moderate*	*High*	*Mission Critical*
Text messaging, paging, one way notifications	16.1%	22.6%	22.6%	14.5%	24.2%
Automated Vehicle Location	19.4%	11.3%	9.7%	17.7%	41.9%
Database queries (NCIC, criminal history, hot files)	38.7%	3.2%	8.1%	16.1%	33.9%
Records Management Systems Access (local queries, electronic ticketing (TRACS), fire inspections, etc.)	25.8%	3.2%	11.3%	27.4%	32.3%
Computer Aided Dispatch	19.4%	6.5%	8.1%	12.9%	53.2%
Field base reporting	24.2%	8.1%	25.8%	24.2%	17.7%
Small File Transfers (under 1MB)	22.6%	14.5%	27.4%	24.2%	11.3%
Large File Transfers (over 1MB)	35.5%	16.1%	30.6%	12.9%	4.8%
Geospatial applications	25.8%	14.5%	17.7%	22.6%	19.4%
Internet browser access	25.8%	19.4%	17.7%	22.6%	14.5%
Intranet access / Restricted Access (VPNs)	27.4%	6.5%	19.4%	25.8%	21.0%
Tactical "chat" rooms	37.1%	19.4%	21.0%	14.5%	8.1%
Transmission of low quality video	41.9%	14.5%	21.0%	17.7%	4.8%
Transmission of high quality video	46.8%	9.7%	17.7%	21.0%	4.8%
Telemetry (continuous process status monitoring, EKGs, ankle bracelets, etc.)	48.4%	22.6%	8.1%	8.1%	11.3%
Other	91.9%	0.0%	1.6%	1.6%	1.6%

Responses for “other” included:

- Inventory control – RFID (ranked Moderate Need)
- LMR Radio Backhaul (VoIP) (ranked Mission Critical Need)
- Mobile hotspot (ranked High Need)

Q9: Within your agency, rate the level of demand for wireless services by role using the following guidelines: No Need/Not applicable (0), Low Need (1), Moderate Need (2), High Need (3) and Mission Critical Need (4): Little or No Demand (1)

Role	*No Need/Not applicable*	*Low Need*	*Moderate*	*High*	*Mission Critical*
Administrators and administrative staff	15.5%	19.0%	24.1%	24.1%	17.2%
Supervisors/Command	3.4%	5.2%	15.5%	22.4%	53.4%
Non-supervisory Operations/Field Units	8.6%	15.5%	10.3%	24.1%	41.4%
Non-supervisory Logistics/Support Units	5.2%	19.0%	27.6%	29.3%	19.0%
Other	91.4%	0.0%	0.0%	1.7%	3.4%

Responses for "other" included:

- Support to external agencies and volunteers, ESS etc. (ranked Mission Critical Need)
- Technical Support staff (ranked High Need)
- Left blank (ranked Mission Critical Need)

Q10: Where do users in your agency need to use wireless data applications? Check all that apply.

Coverage Requirement	*Percent of Respondents*
Outdoor	87.1%
Inside vehicle	90.3%
Inside small buildings	71.0%
Inside large office buildings	72.6%
Inside brick or concrete buildings	74.2%
Marine environments	38.7%
In the air	22.6%
Underground	35.5%

Q11: Does your organization currently have sufficient spectrum for its DATA interoperability needs?

Perception of sufficient spectrum for DATA interoperability needs	*Percent of Respondents*
Yes	13.8%
No	39.7%
Don't know	44.8%
Not Applicable	1.7%

Q12: Does your organization currently have sufficient spectrum for its VOICE interoperability needs?

Perception of sufficient spectrum for VOICE interoperability needs	*Percent of Respondents*
Yes	51.7%
No	15.5%
Don't know	31.0%
Not Applicable	1.7%

2.3 Future Use

This section addressed planned or potential implementation of LTE technology in a Public Safety mobile wireless broadband system. The goal was to capture desired future use. When asked if their organization has sufficient spectrum for foreseeable (i.e., next five years) broadband interoperability needs, the majority of respondents did not know (almost 40 percent), and almost 33 percent felt there was insufficient spectrum for their broadband interoperability needs.

Over 48 percent of respondents plan to use public safety spectrum in the 700 MHz band for broadband, while an equal number were not sure yet, with over 55 percent saying their organization has not yet determined the applicability for the 700 MHz broadband spectrum. Representatives from Halton Region, Oak Bay and Saint John indicated that their organization has completed all foreseeable capital expenditures necessary to use the 700 MHz broadband spectrum.

Representatives from the following areas indicated they are implementing plans to use the 700 MHz broadband spectrum, including undertaking expenditures for this purpose:

- Vancouver
- Nova Scotia
- York Region
- City of Hamilton
- Toronto
- Province of Nova Scotia

Representatives from the following areas indicated they are developing plans to determine how these additional 700 MHz broadband frequencies would best be used.

- Brookfield, Colchester Co. NS
- Delta
- Gatineau, Quebec
- Kelowna and Central Okanagan Regional District
- Leduc County, Alberta
- Niagara
- Ottawa
- Peel Region
- Saint John and surrounding areas
- Southwestern British Columbia
- Sunshine Coast Regional District
- The Corporation of Delta
- Vancouver
- Yukon

Aggregate responses by question follow.

Q13: Does your organization have sufficient broadband spectrum for your foreseeable (i.e., next five years) interoperability needs?

Perception of sufficient spectrum for future interoperability needs	*Percent of Respondents*
Yes	25.9%
No	32.8%
Don't Know	39.7%
Not Applicable	1.7%

Q14: Does your organization plan to use broadband spectrum that is (or may be) cleared for public safety use?

Plan to use public safety spectrum	*Percent of Respondents*
Yes	48.3%
No	1.7%
Don't Know	48.3%
Not Applicable	1.7%

Q15: Which best describes your organization's potential use of 700 MHz broadband spectrum?

Readiness to use public safety broadband spectrum	*Percent of Respondents*
My organization has not yet determined the applicability for the 700 MHz broadband spectrum.	55.2%
My organization does not have a need or desire to use the 700 MHz broadband spectrum.	0.0%
My organization is developing plans to determine how these additional 700 MHz frequencies would best be used.	27.6%
My organization is implementing plans to use the 700 MHz broadband spectrum, including undertaking expenditures for this purpose.	12.1%
My organization has completed all foreseeable capital expenditures necessary to use the 700 MHz broadband spectrum.	5.2%

2.4 Stakeholder Engagement, Additional Comments and Feedback

Decisions regarding the governance and implementation of the proposed Canadian Public Safety Broadband Network are being guided by a Project Management Team (PMT) facilitated by Public Safety Canada that includes stakeholders and end-users from the federal, provincial, territorial, municipal and professional sectors. The vision is to establish a fully operational network delivering nationwide, interoperable, end-to-end mobile broadband data communications services to the Canadian public safety community.

More than 76 percent of respondents were aware of the work of the Project Management Team on the proposed Canadian Public Safety Broadband Network. A slim majority (38 percent) of respondents believes their agency's needs and requirements are known and understood by the Project Management Team. Almost 33 percent say no and another 29 percent don't know.

Almost 62 percent of respondents indicated they were interested in providing direct feedback to the Project Management Team or federal government on the type of features you would want to see in the Canadian Public Safety Broadband Network. The list of those submitted an e-mail address has been provided to the PMT for follow up.

When asked if they would you be willing to participate in a more detailed telephone interview with respect to the decision process regarding a governance structure and technical requirements for the eventual deployment of a nationwide public safety broadband network, 45 percent said yes. The list of those who submitted contact information has been provided to the PMT for follow up.

When asked about communications methods to learn more about the proposed Canadian Public Safety Broadband Network, E-mail Newsletters, Internet (i.e., dedicated Web site) and Small group meetings (i.e., regional forums or town halls) were seen as the most effective.

Eleven respondents chose to leave additional comment (see aggregate results), and 38 people indicated they would you like the survey results e-mailed to them once the final report is completed.

Aggregate responses by question follow.

Q16: Prior to this survey, were you aware of the work of the Project Management Team on the proposed Canadian Public Safety Broadband Network?

Awareness of the Project Management Team	***Percent of Respondents***
Yes	76.4%
No	23.6%

Q17: Do you think that your agency's needs and requirements are known and understood by the Project Management Team, who is charged with building out the nation-wide Canadian Public Safety Broadband Network?

Perception that needs and requirements are known and understood	***Percent of Respondents***
Yes	38.2%
No	32.7%
Don't know	29.1%

Q18: Are you interested in providing direct feedback to the Project Management Team or federal government on the type of features you would want to see in the Canadian Public Safety Broadband Network?

Interested in providing direct feedback	*Percent of Respondents*
Yes	61.8%
No	38.2%

Q19: Would you be willing to participate in a more detailed telephone interview with respect to the decision process regarding a governance structure and technical requirements for the eventual deployment of a nationwide public safety broadband network?

Interested in providing direct feedback	*Percent of Respondents*
Yes	45.5%
No	54.5%

Q20: To learn more about the proposed Canadian Public Safety Broadband Network, please rate the effectiveness of the following communications methods for your particular agency (1 indicating LEAST effective to 5 indicating MOST effective):

Mode	*Not Applicable*	*1*	*2*	*3*	*4*	*5*
Displays/exhibits at key conferences/workshops	11.3%	24.5%	20.8%	17.0%	17.0%	9.4%
E-mail Newsletters	3.8%	9.4%	26.4%	22.6%	17.0%	20.8%
Internet (i.e., dedicated Web site)	7.5%	1.9%	18.9%	26.4%	22.6%	22.6%
Large group meetings (i.e., workshop or conference)	9.4%	11.3%	18.9%	24.5%	24.5%	11.3%
Memos/Letters	15.1%	20.8%	41.5%	18.9%	1.9%	1.9%
Publications - paper or electronic	15.1%	13.2%	30.2%	24.5%	11.3%	5.7%
Small group meetings (i.e., regional forums or town halls)	9.4%	11.3%	9.4%	22.6%	26.4%	20.8%
Social media	28.3%	28.3%	22.6%	11.3%	3.8%	5.7%
Vodcasts/podcasts	26.4%	20.8%	26.4%	13.2%	7.5%	5.7%
Webinars	13.2%	11.3%	20.8%	22.6%	22.6%	9.4%
Other	96.2%	0.0%	0.0%	0.0%	0.0%	0.0%

Q21: Please provide any additional thoughts that you have regarding the goal(s), objectives, and requirements for a public safety wireless data solution.

- We've recognized the advantages and capabilities of the broadband network. The biggest barrier is simply that of the capital costs of communications gear as compared to current analog or digital VHF and UHF units.
- We recently implemented an upgraded data system from 400 MHz to 700 MHz which went live in May 2012. We have 5 pairs amongst 9 towers.
- The build out of national system on a 3P" type system would have to fully consider public safety grade standards
- Public Safety agencies in Canada must lobby Industry Canada to assign the spectrum in the Bands 758-763 MHz and 788-793 MHz (D Block) to Public Safety. The public safety LTE network

is possibly the most important requirement for the future of public safety communications to come along in the last 100 years.

- Let's have the end users drive the technology to meet their needs not the manufacturers telling us what is required.
- It needs to remain under the control of real tier 1 public safety agencies.
- IC licensing costs of smaller communities consumes much of the operations budget for interagency departments all using similar equipment to attain economy of scale. When a Regional District or for that matter a city has multiple radius but infrequent use of all of them costs are unreasonable. Financing of systems not items" need to be found. Your survey should have press "Finish" to complete the survey not "NEXT" as stated on the last line of the survey form."
- I have provided feedback on the Emergency Management organization only. I do not include comments specific to Police and Fire Departments who use the spectrum in different ways as you are aware. We have very capable communications that is very robust in the city the problem with communications is not the technology it is with silos.
- Are these going to be Private/Public funded partnerships? If they are to be funded by the Province/Municipality, will there be funding provided at the Federal level to assist with the project?
- A key priority needs to be to engage one or more 4G commercial wireless infrastructure owners/operators in discussions/negotiations regarding the attributes of regional and national partnerships for the development and delivery of a national public safety broadband wireless network and associated services.