

Canadian Association for Public Alerting and Notification

# Strategic Plan

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With financial support from:



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## Foreword

This Strategic Plan is the product of public and private stakeholders, with local to national scopes of interest, from many parts of Canada. Team members include emergency management and communications officials from local, provincial, federal, aboriginal and campus governments, broadcast, internet and telecommunications companies, and academia.

The project was managed by Doug Allport, Allport Group Inc., and lead by Ernest MacGillivray, Director of the New Brunswick Emergency Measures Organization.

The project received financial support from GeoConnections ([www.GeoConnections.org](http://www.GeoConnections.org)), a national program initiative led by Natural Resources Canada. Philip Dawe was the GeoConnections liaison to the project.

The project was undertaken during the period November 2007 to February 2008.

## Introduction

People are coming to expect easy access to the information they want, when they want it, and from any location, using the communications tools at their service. This new paradigm is a combined outcome of the “Communications Age” and “Information Age”.

With breaking news, sports scores and stock price changes, celebrity watches, library book arrivals, etc., now available and distributed automatically as they occur, it is only reasonable for people to expect the same for public alerts and notices.

To meet the growing demand for public alerting/notification, the current trend is for governments, utilities, schools, etc., to offer people the opportunity to subscribe to single purpose alerting/notification systems. This trend is without a positive outcome. It is impractical to expect every individual to identify and subscribe to each individual alert/notice system, based on knowledge of which system originates specific messages. It is, however, practical for people to subscribe to all alerts that may pertain to their location.

A key industry challenge has been to make the alerts/notices of many issuers available from a single source. Many broadcasters, telecommunications companies, news agencies, internet service providers, and government agencies have demonstrated their interest in fulfilling this role, with little to no cost to the alert/notice originators, or recipients. Why? In their race to build and maintain market share, and increase advertising exposures, they’ve discovered there is value in meeting the demand for content of interest, when it occurs, where it occurs, and how people want it.

Before this can happen with public/alerts notices, there is a significant industry challenge to overcome. The current cost to acquire public alerts/notices is far too expensive. Just as we identified it is impractical for each Canadian to interface with each of the thousands of alert/notice originators, no company can afford to either. Some voluntary efforts have occurred, but none have been able to harness complete public alert/notice content elements.

Looking at many successful industries, we find industry managed leagues (sports), markets (stocks), and clearing houses (news) collecting, authenticating, validating, and packaging industry news and information to the satisfaction of broadcasters, news agencies, government agencies, etc. We also find standards for sharing information, and direct stakeholders having a say in the affairs of their industry.

With this as the background, a diverse team of private and public stakeholders, with local to national scopes of interest, came together to examine the challenge. We defined the desired

outcome for all direct industry stakeholders, and analyzed the current situation. Significant gaps were identified.

We also recognized that voluntary efforts could only progress to a limited degree, while a defined project, co-ordinated centrally, with input, review and oversight from industry stakeholders, could better achieve the desired results.

The group concluded that:

1. Thousands of originating agencies of public alerts/notices must embrace the use of the Common Alerting Protocol (CAP) Canadian Profile (CAPCP). This would facilitate the automated authentication, validation and distribution of public alerts/notices, by location, event type, urgency, severity, certainty, issuer, etc.
2. An industry clearing house is required to collect, authenticate, validate and format official public alerts/notices, and make them available to public safety officials, broadcasters, telecommunications companies, news agencies, internet service providers, etc.
3. The leadership model used by many successful industries should be embraced; a non profit industry association, governed by an elected Board of Directors, representative of the direct stakeholders in the industry.
4. A compelling value proposition must be delivered to win the support of thousands of originators for this new model.
5. The combination of industry association and clearing house presents a compelling value proposition, and marketing position, to win the direct support of most industry stakeholders.

Our plan includes the creation of the Canadian Association for Public Alerting and Notification. This new association will serve an industry leadership role, provide industry oversight, and oversee an industry clearing house. Membership will offer direct services, cost savings, and a direct say in how this industry moves forward.

Where does GeoConnections fit in? Like the public and private stakeholders involved with this challenge, GeoConnections appreciates that public alerts/notices are more relevant to people, and the needs of situational awareness, when treated as geo-referenced information. We've concluded that people are interested in alerts/notices as they pertain to locales of interest to them.

## The Project Team

The public alerting originators participating in this project are:

- Provincial
  - Ernie MacGillivray, New Brunswick Emergency Measures Organization
  - April Diver, Alberta Emergency Management Agency
  - Colin Lloyd, Alberta Emergency Management Agency
  - Chris Pittens, Emergency Management Ontario
  - Bonnie Buckingham-Landry, Communications New Brunswick
  - Jason Humphrey, New Brunswick Department of Education
- Municipal
  - Alain Normand, City of Brampton, Ontario Emergency Managers Association
  - Cal Gardner, City of Sarnia Police Services
  - Brian Kayes, City of Brandon
  - Paul Grenier, City of Welland, Ontario Small Urban Municipalities
  - Yvonne Huntington, City of Saint John
- Aboriginal
  - Jim Maness, Aamjiwnaang First Nation
- Federal
  - Norm Paulsen, Environment Canada
- AMBER Alerts
  - Todd Chadwick, Miramichi Police Force
- University Campus
  - Philip Stack, University of Alberta

Public alerting distributors:

- Paul Temple, Pelmorex, The Weather Network
- David Parry, Telus Geomatics
- George Butters, InfoRadioCanada.com, JustFred.ca, Smartypants.com
- Other originators that distribute content (i.e. AB EPWS, Environment Canada Weather Radio, City of Sarnia).

Academic Advisors:

- David Townsend, University of New Brunswick, Faculty of Law
- Gordon Gow, University of Alberta, Department of Communications and Technology
- Dr. Darka Mioc, University of New Brunswick, Department of Geomatics
- Dr. Ali Ghorbani, University of New Brunswick, Faculty of Computer Science

GeoConnections liaison:

Philip Dawe, Program Advisor, Public Safety

Project Manager:

Doug Allport, Allport Group Inc.

Project Executive:

Ernest MacGillivray, Director, New Brunswick Emergency Measures Organization

## GeoConnections

This project received financial support from GeoConnections ([www.GeoConnections.org](http://www.GeoConnections.org)), a national program initiative led by Natural Resources Canada.

*“GeoConnections and its program participants are working to enhance the Canadian Geospatial Data Infrastructure, an online resource that enables decision-makers to access, combine and apply geographic information to gain new insights into social, environmental and economic issues.”*

*“GeoConnections helps decision-makers use online location-based (geospatial) information, such as maps and satellite images, to tackle some of Canada's most pressing challenges.”*

*“GeoConnections aims to improve “Canadians' quality of life by enhancing decision making, by helping make location-based data and technologies accessible and useful to decision-makers in public health, public safety and security, the environment and sustainable development, and Aboriginal matters. GeoConnections is contributing in numerous ways to a better quality of life for Canadians.”*

## Methodology

The strategic planning methodology used is known as Draw, See, Think, Plan.

As a first step (Draw), we identified the desired end state (“Goal Setting”), for each of four key stakeholder groups:

1. Consumers of Public Alerts/Notices – Public
2. Consumers of Public Alerts/Notices – Emergency Managers
3. Distributors and Service Providers (Broadcasters, telecommunications companies, internet service providers, government agencies, etc.)
4. Suppliers (Originators) of Public Alerts/Notices

In the second step (See), we described “The Current State” of public alerting in Canada. We used the SLEPT strategic analysis approach (SLEPT - Social, Legal, Economic, Political and Technical).

In the third step, “Identifying the Gaps” (Think) we identified the gaps and ways to close the gaps to achieve the desired state..

As a final step (Plan), we developed a plan for achieving the desired end state.

Observations and conclusions were presented following each of these steps, culminating with this report of the strategic planning process and results. A detailed business plan will follow.

## Goal Setting (Draw)

In identifying the desired end state, we examined perspectives in the context of four key stakeholder groups:

1. Consumers of Public Alerts/Notices – General Public
2. Consumers of Public Alerts/Notices – Emergency Managers
3. Distributors and Service Providers of Public Alerts/Notices – Broadcasters, telecommunications companies, internet service providers, public institutions (e.g. Environment Canada Weather Radio, Public Safety Canada Safe Canada website, Alberta Emergency Public Warning System)
4. Suppliers (originators) of Public Alerts/Notices – Governments, their departments, utilities, schools, private managers of roads and mass transportation services, etc.

### 1. Consumers of Public Alerts/Notices – General Public

We recognize there are many segments of the population, each having somewhat different needs, wants and views. Rather than attempt to define a desired end state for each segment, we compiled a list we believe to be desired by all segments, including business owners and managers.

The desired end state for all Canadians includes:

1. The opportunity to be rapidly alerted to very urgent/severe official alerts, using the communications method(s) readily available, in the official language of choice, for events occurring in the individual's current location.
2. The opportunity to be rapidly alerted to very urgent/severe official alerts for events occurring at any location of interest. Other locations of interest may include home, workplace, child's school, travel routes, destinations, recreation property, home of elderly parents or family members, etc.
3. The opportunity to be alerted to a personalized list of alerts/notices, for any location of interest. Personal lists may include less urgent/severe watches and advisories; school closures, lock-downs and bus cancellations; transit, power and other service interruptions, among others. Personalization of the list lets individuals determine how much information they wish to receive.

4. The opportunity to use a single service provider to maintain a personalized list of alerts/notices. This simplifies the current practise where people must identify many individual sources of alerts/notifications and, if available, subscribe to each individual service separately through various methods.
5. The opportunity to quickly and easily change the personalized list of alerts/notifications, perhaps in response to a specific event. For example, an individual may have chosen to be alerted/notified of only the very most urgent/severe events, but may wish to expand their list quickly to be kept better informed of all matters relating to a specific event.
6. The opportunity to quickly and easily satisfy our need to verify an alert is official, by seeing or hearing it on alternative channels, perhaps using another communications method.
7. The opportunity to access all related official alerts/notices for a specific event and/or location, quickly and easily. For example, this would help improve public situational awareness, thereby providing a means for obtaining guidance offered by authorities, identifying where necessary resources may be available, and determining where volunteer services are being offered or provided.

## 2. Consumers of Public Alerts/Notices – Emergency Management Officials

Emergency management officials were identified as consumers of public alerts/notices because they use the alerts/notices of others to support situational awareness.

The needs of emergency management officials are quite similar to those of the general public (listed above), but they also require the following:

1. The opportunity to be interrupted for a specific list of public alerts/notifications, for all locations. For example, an official may have an interest in monitoring all transportation-related events across Canada, following an intelligence report suggesting that bridges are a target of terrorists.
2. When possible and practical, receive advance electronic notice of public alerts/notifications of interest to them. For example, the Ontario Provincial Police might issue a “private” or “restricted” alert to advise municipal transportation and emergency services agencies of their intent to issue a public notice on closure of a provincial highway. As well, an agency might issue an advance notice to let the media and others know to expect an official alert/notification at a given time (i.e. The next official flood update will be at 11 a.m.).
3. Similar to the previous point, rapid and easy electronic access to event-related information provided by others, which is not being made public at that time. For example, the status of a chemical spill that might impact the mitigation efforts of others, including the planning of what will be communicated to the public.
4. The opportunity to personalize how alerts/notifications are brought to their attention and presented. For example, if all official alerts/notifications are available in the CAPCP protocol, specialized applications can be purchased, created and/or customized to meet specific needs.

### 3. Distributors of Public Alerts/Notices

Distributors of public alerts/notifications include a diverse group of private and public stakeholders, which attempt to aggregate and distribute information received from more than one originator. The audiences may be general public, consumers and/or other distributors. This includes public and private news agencies, broadcasters, telecommunications companies, internet service providers and government agencies (e.g. Environment Canada Weather Radio, Public Safety Canada Safe Canada, Alberta Emergency Public Warning System).

The desired end state for distributors includes:

1. All official alerts/notices issued in Canada available to them in the Common Alerting Protocol (CAP) Canadian Profile (CAPCP).
2. A complete electronic feed(s) of all Canadian official alerts/notifications available in CAPCP. It was concluded that it is impractical for each individual to interface with each originator directly, and the same is true for distributors.
3. Each alert/notification is available in formats that can be used with their distribution channel(s). For example, English and French 134 character message for use with SMS and pagers, and up to 1,000 characters for use with television screens, automated voice applications, etc.
4. The rapid cancellation of any expired alert/notification. For example, with an Amber Alert, program interruptions and the servicing of such interruptions have associated costs that need to be minimized to the extent possible.
5. Automated assurance that each alert/notification is authentic, and the originator is authorized to issue the alert/notification. Automation is required to eliminate delay in distribution.
6. Affordable options to support the automated interruption of broadcast channels. For example, this could include voice interruption tools for radio and television, text crawler interface for television and road signs, etc. Direct access to alerts/notifications that use the CAPCP protocol and are transmitted in XML format will allow them to create their own specialized and customized applications.
7. A complete list of originators, contact information, and their authority and responsibilities related to public alerting/notification. For example, which organization(s) is authorized to issue alerts/notifications regarding a specific health concern?

8. The opportunity to rapidly and efficiently alert/notify originators of issues pertaining to their service offerings. For example, “communications channel overloaded”, “transmitter out of service”, “servers down”, etc.
9. To be held harmless for activities that match their service agreement, regulatory requirements and/or accepted industry practices.
10. Clearly defined industry accepted practices, and a direct say in what they are and how they are defined.
11. A clear path forward for the industry, with key industry roles defined and filled. This they need to justify investments.
12. A list of events, and the level of urgency, severity and certainty for each event, which the Canadian Radio-Television and Telecommunications Commission (CRTC) expects broadcasters to support, and for which E911 data may be used.
13. Industry consensus, or a CRTC decision, on whether a broadcaster should be expected to automate the interruption of their broadcasts for very urgent/severe alerts during a period when the broadcaster has reporters available to convey the alert directly (e.g. during the news hour or regular news broadcast times).

## 4. Originators of Public Alerts/Notices

Originators of official public alerts/notifications include numerous departments within each government. (e.g. communications, public safety, health, transportation, education, natural resources, etc.)

Other originators include utilities, schools, and private managers of private highways and mass transportation services.

For the purpose of this document, we have not differentiated between the party issuing, and the originator, when one party is issuing on behalf of another. For example, a Public Safety Access Point (PSAP) operating on a 24/7 basis might provide opportunities for originators in the field to call the PSAP and have it issue an alert/notice on their behalf. Similarly, a local government might provide mutual aid to another, issuing an alert/notification on their behalf.

The desired end state for originators includes:

1. Issue a public alert/notification once, using CAPCP, for distribution to all. This compares with having to issue an alert to each stakeholder individually, perhaps customized to meet specific individual system requirements. For example, individual radio stations may be contacted by telephone, fax, e-mail, web interface, etc., or a combination of the aforementioned.
2. Alerts/notifications are distributed immediately, without delay, using exact terms and words.
3. Translation of standard alert/notification elements into other languages, and formatting to the requirements of standard distribution methods (e.g. SMS, RDS, RSS, etc.).
4. Issue a public alert/notification from any location, using readily available communications tools.
5. Redundancy in how alerts/notifications are issued. This can include mutual aid arrangements.
6. Update and/or cancel alerts/notifications rapidly with all distributors. For example, to reduce the service costs and public response costs involved with asking people to call in Amber Alert tips, it is very important to cancel an Amber Alert as soon as possible.

7. Confirmation that an alert/notification was delivered to specific stakeholders on a “must receive” list. It is noted that parties on this list might be alerted using either “push” or “pull” methods.
8. Confirmation that an alert/notification sent to all parties is available to all distributors who want to distribute it. For example, confirmation might come from a distributor directly, or by verifying that it had passed through at least one of the many potential distribution channels.
9. Alerts are posted immediately to the originator’s website(s). At present, many originators do not have the resources, nor in some cases the authority, to do this from within their department.
10. System checks and balances to ensure that issuers may issue only alerts/notification for which they have authority. For example, a supervisor would like system restrictions to ensure personnel do not err, and a communications department may want to ensure a department issues only alerts/notifications for matters related to their department.
11. Alerts/notifications delivered/accessible by the public through as many channels as possible. This will increase the number of persons reached, and reduce the number of people who might otherwise contact the issuing agency, 911, and others for alert confirmation and/or additional information.
12. Choices in methods for issuing alert/notifications. For example, applications may be integrated with other applications presently in use. A PSAP may wish to add a feature to an existing tool, from an approved supplier, rather than deal with the challenge of introducing a new application and supplier.
13. As little cost as possible to originators, as most have limited budgets and little to spend.
14. A direct voice in industry decision-making for all sub-groups (e.g. municipal government, aboriginal government, utilities, schools, etc.)
15. Eliminate the growing expectation of most originators to own/lease, maintain/operate subscription-type alerting/notification services, and to manage personal information. We recognize that high-risk jurisdictions may need to continue this practice.
16. Eliminate the need to issue public alerts/notifications using costly press releases.
17. Common public education initiatives, which can reduce duplication of services and potential for mixed messages.
18. Education and training on CAPCP, how to issue public alerts/notifications, the tools available, etc.

19. Near-term solutions to meet the immediate demand to improve their alert/notification service levels.

## The Current State (See)

This section describes the current state of public alerting/notification in Canada, using the SLEPT strategic analysis approach (Social, Legal, Economic, Political and Technical).

### Social

1. Most people expect they will be alerted to very urgent/severe events impacting their location. Many naively assume they will be alerted by local emergency officials knocking on their doors, or through a national emergency broadcast system which does not exist in Canada.
2. Public expectations regarding the availability and delivery of public alert/notifications are rising rapidly. This is a predictable outcome of the “Information Age” and “Communications Age”. As people become accustomed to having breaking news, sports score changes, stock price changes, celebrity watches, etc., available and delivered to them when they want, where they want, and how they want, they also expect the same for public alerts/notifications. Similarly, as they grow accustomed to finding any information of interest to them using one of a number of search engines, or having it delivered to them using RSS feeds, daily e-mail, etc., they expect the same service for public alerts/notifications.



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3. People are adopting subscription-based alert/notification services for weather, drinking water, food, smog, floods, utilities, Amber Alerts, school lock-downs, road closures, severe weather, campus alerts, etc.



4. It is more practical for people to have alerts/notifications and related information available to them for a specified location, than it is to subscribe to the various services of each government, department and/or agency serving a location of interest (e.g. federal, provincial, regional and local health departments, provincial, regional and local transportation departments, etc.) This was demonstrated clearly by Google Maps during the 2006 San Diego fires (See – Technical). It is also demonstrated by The Weather Network, which offers a highway information website that provides information from a variety of sources (i.e. data from issuers in three provinces for travellers between Halifax, N.S., and Charlottetown, P.E).



<http://www.theweathernetwork.com/index.php?product=hwycond&pagecontent=maritimes>

5. Information is being delivered and presented by private companies with little or no fee to those interested in accessing/receiving it. People purchase such services, where such services offer additional convenience and a higher level of service than might otherwise be available. This is discussed further in the section Economic Considerations.
6. People demand value for paid services and influence the development of them.
7. Delivery of content in text, HTML, XML, etc. has resulted in specialized applications that translate content to other formats, languages, text-to-voice, etc., to meet many special needs.
8. Once alerted to a very urgent/severe event, many people seek to confirm the alert from another source, or through another channel. This is done using the communications capabilities available to them. If at home, they may turn to radio or television, or visit government and/or news websites. If mobile, people may call an information number, contact a friend or family member, etc. If people cannot easily find an answer, some will call 911 or other government numbers to confirm the alert, which is not an outcome desired by emergency management officials.
9. 9. Once alerted to a very urgent/severe event, many people seek additional information and direction, and this requirement exists for some time after an alert is issued. People turn to the communications capabilities available to them. Google advises that many use their services, and the company is challenged to distinguish an official alert/notification from that which is not.

10. When people perceive there to be a very urgent/severe event, and information is not readily available, they will seek to identify if they are at risk. For example, people may observe highly visible smoke plumes or hear local blasting, and call 911 to verify if they are at personal risk.
11. Many people, if not assured their loved ones have been alerted and are safe, will call, e-mail, text message, and/or drive to the locale to assure their safety. The volume surge can affect and/or impede communications networks and roadways.
12. Public alerting is not a “top of mind” subject for many Canadians. A reason for this is that Canada does not have the equivalent of a “Tornado Alley” or coastal areas hit regularly by hurricanes or tsunamis.
13. Social networking is a factor in public alerting/notification. People knock on doors, call, e-mail, use text messages, post to FaceBook, YouTube and other social networking websites when they receive an alert/notification.
14. Canada is an increasingly mobile society with family and friends spread across the country. People have interests in knowing what is going on in places other than our own locale.
15. People hold issuers of alerts/notifications accountable for their statements.

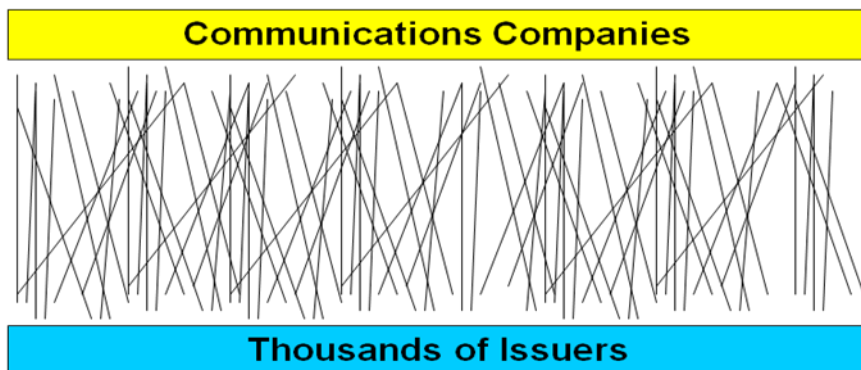
## Legal (Regulatory, Security, Risk)

1. On June 27, 2007, the Canadian Radio-Television Commission (CRTC) amended the Broadcasting Distribution Regulations, thereby removing the requirement that prior consent be obtained from an operator of a programming service, or of a network operator, in order that an alert message alter or delete a programming service. This is the case so long as the message warns of an imminent or unfolding danger to life. The issuance of other types of alert messages continues to require the agreement of the operator of a programming or network service. This amendment applies to public alerts to be distributed by traditional broadcasters and broadcasting distribution undertakings (BDUs).
2. On Feb. 28, 2007, the CRTC issued Broadcasting Public Notice CRTC 2007-20 which clarified that traditional radio and television broadcasters, and BDUs, would be expected to voluntarily support the distribution of public alerts that warn of an imminent danger to human life. CRTC guidance included that alerting:
  - a. be built and operated through the joint efforts, and recognize the respective roles and concerns of emergency management officials, broadcasters and BDUs;
  - b. be capable of responding to local, regional and national emergencies;
  - c. deliver alerts to those who watch or listen to Canadian broadcasting services, including people with visual and/or hearing impairments, wherever they may reside;
  - d. make use of radio and television broadcast facilities, as well as cable, satellite and wireline/wireless distribution undertakings, effectively and economically;
  - e. have the ability to target alerts to specific geographic areas, and
  - f. recognize requirements for Canada's two official languages.
3. On Feb. 28, 2007, the CRTC issued Telecom Decision CRTC 2007-13 that authorizes certain public authorities use of E911 databases for the purpose of telephony-based public alerting. The resulting emergency services will become known as 'enhanced community notification services.' A volunteer working group is working through the many issues.

4. The Canadian Association of Broadcasters (CAB) and Canadian Wireless Telecommunications Association (CWTA) seek indemnification of their members who distribute public alerts on behalf of government.
5. As public alerting is not a “federal” issue, as defined by the Canadian Constitution, legislation to indemnify industry participants would be required at both federal and provincial levels.
6. Increasingly, public alerts are being delivered using subscription services. One advantage of a subscription model is that consumers must agree to accept service agreement terms that include limits to the legal liability of the distributor of the alert message. In contrast, “push” approaches usually require regulatory and legislative amendments to reduce legal liability exposures.
7. In Canada, public safety practice suggests that responsibility for a person’s safety begins with the individual. This puts onus on an individual to be alert and receive alerts.
8. There are privacy issues related to handling personal information. This makes many officials reluctant to own/operate alerting systems that would require the collection of personal information. For example, the CRTC has set out strict criteria for the handling of E911 data.

## Economic

1. In general, the public expects public alerting to be delivered without direct fee. Many, however, are prepared to pay for added convenience and customization. People are paying to receive public alerts and notices.
2. Access to, and delivery of information of interest, is now being offered free of charge in exchange for increased advertising exposure, to build brand loyalty and/or to support other service offerings. For example, types of free information being delivered include breaking news, sports scores, stock price changes, etc.
3. Public alerts/notifications are often left out of the “free of charge” services. The key issue remains economic. No single company can afford to interface with the nearly 6,000 geopolitical areas, most of which issue alerts/notifications from more than one department/agency and in a variety of formats. For example, in a single geopolitical area, alerts/notifications may be issued by a communications, public safety, police, fire, health and/or transportation department, among others, and in a variety of formats (i.e. e-mail, fax, telephone call, website posting, etc).



4. Some industries have overcome the content collection challenge with industry-funded clearing houses performing the task, including leagues, associations and stock markets. The public alerting community, however, is without any party fulfilling this role. Costs associated with an error in public alerting/notification can be more significant than with other bits of information. Therefore, broadcasters are demanding an industry aggregator authenticate and validate each alert, and ensure that all messages formatted to meet industry-defined standards and best practises.
5. While Pelmorex has CRTC authority and intended to distribute alerts to other broadcasters, the CRTC decision to make participation by cable operators voluntary, and fees open for negotiation, left Pelmorex without a positive business case to offer their proposed, all television channel alerting service

6. Federal government initiatives and regulatory decisions over the past decade have had a negative impact on industry development. For example, just when it appeared a solution would be implemented to aggregate all alerts, it was announced that as much as \$100 million might be spent on a national program, with the federal government possibly playing the central aggregator/distribution role. The suggestion of investment resulted in originators of public alerts putting an end to their own investments, hoping their needs would be met with federal money. This, in turn, led to cuts in private innovation and investment. As parties positioned themselves for money, and perhaps regulated roles, goodwill between stakeholders was lost.
7. At present, the Government of Canada proposes it may one day collect only the very most urgent/severe alerts, and only those originating from federal, provincial and territorial emergency management agencies. This limited role is not expected to provide sufficient content to support the advanced service offerings of private communications companies, as discussed throughout this document.
8. There are concerns about the affordability of E-911 data; notably two key issues. First, telecommunications companies seek almost immediate returns on investments, and can be expected to try to recover any direct cost associated with regulated service as soon as possible. The second issue is that large numbers of communities are not predicted to invest in dial out-based services. The current trend is to adopt less costly self-subscription service offerings, such as e-mail, text and short message services (SMS). The expectation is that early adopters would have to bear fully the investment costs to make E-911 data available to comply with CRTC requirements.
9. Television, radio and other entertainment and information services are presently fully automated more hours than they are not. Therefore, the distribution of alerts/notifications through these mediums must support automation.
10. There is an economic issue of who should pay the costs to disseminate alerts/notifications of others over local systems.
11. The Canadian Association of Broadcasters (CAB) is looking to government to make funds available to deliver services that would meet the CRTC “voluntary” expectations in relation to public alerting/notification.
12. Governments are inherently risk adverse and tend to be late adopters of new innovative services. This is a challenge for innovation, which depends upon sufficient pioneers and early adopters. At present, much industry innovation is focused on “pull” applications, which deal with the general public and private stakeholders as customers. For example, capabilities for alerting/notifying people associated with school campuses is an area receiving considerable investment at this time.

13. For the most part, development of a public alerting/notification industry has depended upon volunteers performing the work. Many successful industries, such as wireless telecommunications, depend on the paid services of professional association staff to advance industry initiatives and objectives, under the direction of an elected volunteer board.
  
14. Some governments, organizations and businesses pay to have their alerts/notices distributed as press releases.

## Political

There are cross-jurisdictional and intergovernmental considerations.

1. Canada has 5,418 local (including aboriginal nations), 288 regional, 10 provincial, 3 territorial and one federal geopolitical area identified by Statistics Canada.
2. Some provinces have an interest in issuing all very urgent/severe alerts in their province, and some do not.
3. Despite being one of Canada's top three national public safety priorities, public alerting/notification was not an election issue for any party in the most recent federal elections.
4. Public alerting has not been deemed a priority, nor mentioned publicly by the Government of Canada, until recently.
5. Public alerting continues to be raised as a local political issue. For example, in the Region of Durham, Ont., the number and location of alerting sirens remains a political issue.
6. Although public alerting/notification continues to be identified as a local issue, it has significant challenges of a national nature, involving large national broadcasters, telecommunications companies, regulators, associations, etc.
  - i. Note that local government leadership was required to advance the national regulatory challenge to access the E-911 database for public alerting purposes.
  - ii. Note that the United States has had considerably more success because of state regulators and state broadcast associations. This provides state and regional governments the opportunity to deal with major stakeholders closer to the challenges.
7. National leadership for co-ordinated Canadian public alerting/notification efforts remains a challenge. For example, the E-911 initiative could not be led by Industry Canada because of its association with the CRTC.

8. Association with public alerting/notification offers political opportunities. For example, nearly every provincial/state government has taken the opportunity to be associated with the announcement of local participation in the Amber Alert system.
  - i. While it made sense to build an all-hazard alert/notification system and use it for Amber Alerts, we have Amber Alert systems that are well-suited for all-hazards alerting, but not used in this manner.
  - ii. In the United States, some jurisdictions are now promoting “Silver Alerts”, aimed at finding senior citizens who are missing.
9. Political risks associated with failure of a public alert system to alert “all people” often outweighs opportunities to alert “most people.” Decisions against purchasing an alerting system have been based on the observation that no single system would be able to reach all people. Politicians were wary of procuring a system that may present such a political risk.
10. Governments do not want the political risks of other governments. This has influenced decisions regarding the use and operation of local alerting systems for events in another province or geopolitical area. Cost-sharing agreements between governments can be difficult to define and arrange.
11. Within governments, it is often a communications department that determines spokespersons, messages, timing for release and means of message dissemination. In many governments, this includes all public safety communications. Governments look for significant checks, balances and authorization protocols to satisfy their needs. This would also mean limiting system use to specific elements (i.e. event type(s), location(s), rating of severity and urgency, and use of pre-defined scripts).
12. Within many governments, some limitations and/or risk may exist because the information technology (IT) department controls a list of authorized applications. Proven applications have been prevented from being implemented widely because an IT department was not willing to fully examine a new application and/or supplier.
13. Many public safety officials do not have the authority/capability to modify their public website, precluding them from timely posting of alerts/notifications.
14. Mutual aid arrangements are being negotiated for public alerting. For example, Sarnia, Ont., issues alerts during off-hours for Lambton County, Ont. There has even been some discussion about direct cross-border capabilities to alert people using U.S. broadcast stations.

15. Canada can benefit from political experiences in the United States:
  - i. Competing bills were introduced to United States lawmakers. One bill proposed moving control of public alerting spending to the National Weather Service, while a second bill proposed strengthening FEMA's control over public alerting spending.
  - ii. A federal department withheld funding to the Partnership for Public Warning (PPW), after a PPW report identified significant federal oversight issues with the U.S. Emergency Alert System (EAS).
16. Canada is without a recognized process to modify or prevent modification of CAPCP. In fact, the issue of who owns CAPCP remains unclear. This is of concern because some federal officials indicated their interest to shorten the CAPCP event list to include only those items required by the federal Canalert initiative, rather than utilize the comprehensive CAPCP event list that was created through industry consultation.
17. Industry Canada and Public Safety Canada have made their focus the collection of only the most urgent/severe alerts from federal, provincial and territorial sources. Others argue that alerts should include more levels of urgency/severity, and must come from all official sources, including municipal governments.
18. In the past few years, there has been reduced confidence in the ability of the federal government to lead national public alerting efforts, and/or to deliver and oversee a national public alerting system.
19. Some industry stakeholders are hesitant to become involved in public alerting/notification because it seems a politically awkward situation. Until efforts, such as this one, are identified and/or defined by federal officials as complementary to their goals and objectives, a number of key stakeholders can be expected to remain at a distance.

## Technical

1. The opportunity to reach a significant portion of the population by “pushing” an alert through a limited number of ubiquitous communications channels has passed. We no longer are served by only a few local analog radio and television channels. Instead, hundreds of channels are available to us, broadcast over many mediums, using a variety of technologies. Telecommunications options have also diversified, with wired, wireless, internet and satellite telecommunications services available, using different technologies available from competing suppliers. At the same time, use of internet technologies has expanded and some convergence of communications capabilities has occurred through this medium.
2. While it seems daunting, the increasingly diverse collection of communications methods, systems, products and service providers has resulted in more people being able to receive alerts at any given moment. It also presents more opportunities for people to access the information that often accompanies an alert, such as mitigation and recovery guidance, and resource availability.
3. Most alerting systems have been identified as using either “push” or “pull” technologies. So many variations have now been introduced that new terminology is needed. For this purpose, we provide the following descriptions:
  - a. Traditional “Push” :
    - i. AB EPWS, US EAS, sirens, telephone dial-out using 911 data
    - ii. Indiscriminate to originator – no personalized lists
    - iii. Indiscriminate to recipient – no opt in required
  - b. Static “Push” List (Sometimes referred to as “Pull”)
    - i. Opt-in e-mail, short message service (SMS), telephone dial-out, fax, pager
    - ii. Discriminate to originator or distributor - maintain list(s)
    - iii. Discriminate to recipient – choose to participate, set up profile, accept service terms
  - c. Dynamic “Push” List
    - i. Opt-in US wireless approach (under development)
    - ii. Indiscriminate to originator, automated discrimination to distributor - Dynamic lists, built in real time, based on the current location of potential recipients (clients)
    - iii. Discriminate to recipient – choose to participate, set up profile, accept service terms

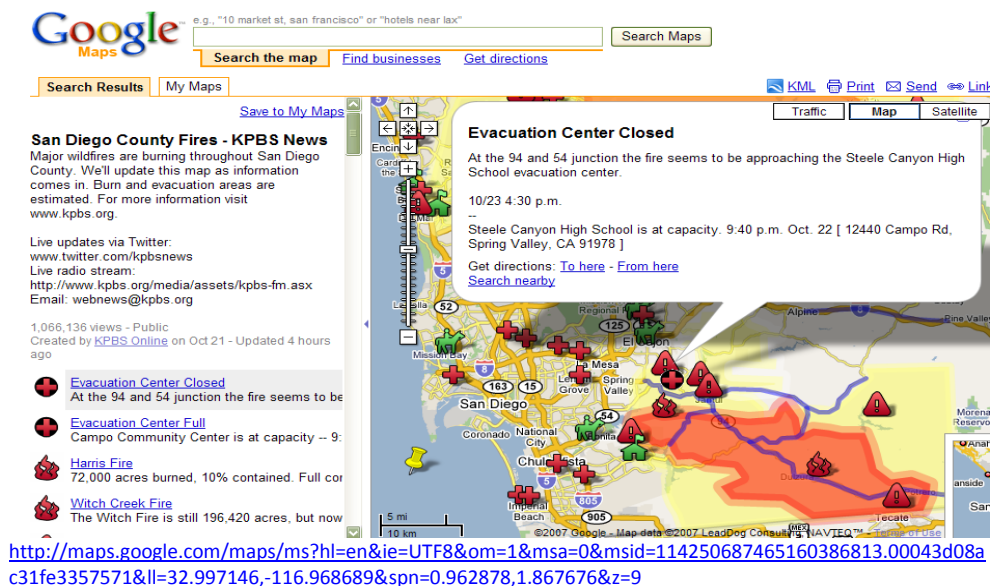
- d. Poll (Most appropriately referred to as “Pull”)
    - i. Opt in desktop alerting (e.g. Weather Eye), RSS feed, Outlook Public Folder Watcher, EMnet, EAS Light
    - ii. Indiscriminate to originator or distributor - no lists
    - iii. Discriminate to recipient – choose to participate, set up profile, accept service terms, use tools to ping service for content matching profile, and then activate
  - e. Selective Monitor
    - i. EMnet, EAS/Broadcast
    - ii. Indiscriminate to originator (originator or distributor) - no lists
    - iii. Discriminate to recipient – create a profile, monitor a broadcast feed, activate on alerts matching profile
  - f. Self-Forwarding
    - i. EMnet forwarding application
    - ii. Indiscriminate to originator – no lists
    - iii. Discriminate to recipient - The recipient is the sender, having programmed their own application to forward to cell phones and e-mail accounts based on metadata. (e.g. forward only severe weather events for specific location code)
4. The introduction of the Common Alerting Protocol (CAP) Canadian Profile (CAPCP) offers an opportunity to automate collection, authentication, validation, distribution, and redistribution of alerts/notifications. Each alert is defined with sufficient metadata to filter and distribute by location, event, issuer, urgency, severity, certainty, and other factors. This is possible anywhere along the distribution path, including the final destination.
  5. CAPCP offers Canada an opportunity to develop best practises and overcome the challenges presented during the CAP implementation in the United States. Some experts expect the United States will eventually develop a U.S. profile similar to CAPCP. Many issues discovered during the U.S. experience were addressed during CAPCP development. These include capacity for handling languages, more than one event per alert, common event references and location identification.
  6. Browser-based applications presently have an implementation advantage with government IT departments. Most IT departments have shown reluctance to allow new applications or open firewall ports for such applications to operate on government networks.

7. Security to prevent unauthorized use is a major issue with public alerting/notification.
8. There is considerable debate about how to best define geographic areas, since there is more than one standard for defining an area with geographic points and shape files.
9. Statistics Canada maintains a list of nearly 6,000 geopolitical areas, each of which has a Standard Geographical Classification (SGC) code. The codes are tiered so that local codes identify the regional area and province in which they are located. These codes are well-suited to filtering.
10. CAPCP requires an SGC code and an event code from a Canadian event list. CAP requires that each alert include a defined rating value for urgency, severity and certainty. With these codes and values, an alert is easily filtered by any combination of location, event type, urgency, severity and certainty. For example, Comlabs Emergency Management Network (EMnet) and Emergency Alert System (EAS) application allows a broadcaster to interrupt broadcasts for only the most urgent and severe weather alerts for a region, and ignore all other alerts/notices available to them.
11. Alerts from the United States will not be CAPCP compliant. Systems developers serving Canadian clients should develop to the CAP standard, thereby making it possible to receive any CAP alert.
12. Any combination of location, event type, urgency, severity and certainty can be associated with a specific originator. This becomes the criteria for which alerting capabilities can be authorized. For example, EMnet limits an originator to issuing only alerts matching their profile. In some states, only a few people may issue an Amber Alert.
13. Tables of text associated with each location code, event type, urgency, severity and certainty rating, are easily maintained for automated message compilation in a variety of format lengths and languages. For example, EMnet composes English, French and Spanish short messages based on the standard values for event and location.
14. Some technologies are better suited for alerting, while others may be better suited for information dissemination. Some technologies may be suited for both alerting and information. The logical conclusion is that a combination of technologies is required to alert and satisfy the information demands of the public.
15. The current list of technologies available for public alerting purposes is so diverse it is no longer possible to categorize them easily in a simple list. They include:
  - i. Radio
    1. Wired and wireless
    2. Analog (airwaves); digital, IP (terrestrial towers and satellite), etc.
    3. Cable, telephone, internet networks

4. Private channels, Environment Canada Weather Radio
5. Program interrupt, FM sub-carriers (i.e. RDS, GSSnet)
- ii. Television
  1. Airwaves (analog and digital)
  2. Cable, satellite service, telecommunications
  3. Internet, using various formats
  4. Sub-channels
- iii. Telecom
  1. PSTN
    - a. Voice
    - b. Device (text)
  2. VOIP
    - a. XDSL
    - b. Cable
    - c. Satellite
  3. Wireless
    - a. Analog
    - b. Digital
      - i. CDMA
      - ii. GSM
      - iii. Multiple frequencies
    - c. Satellite
    - d. Mike/iDen
    - e. Voice / Text
- iv. Internet Technologies
  1. E-mail
  2. SMS: Short Message Service
  3. RSS: Really Simple Syndication
  4. Atom
  5. GeoRSS
  6. Screen pops
  7. Search engines
  8. Portals
  9. Podcasts
- v. Desktop Tools
  1. Screen pops
  2. Automated forwarding of messages received
- vi. Other
  1. Sirens
  2. Home security systems
  3. OnStar<sup>tm</sup> vehicle communications
  4. Proprietary systems

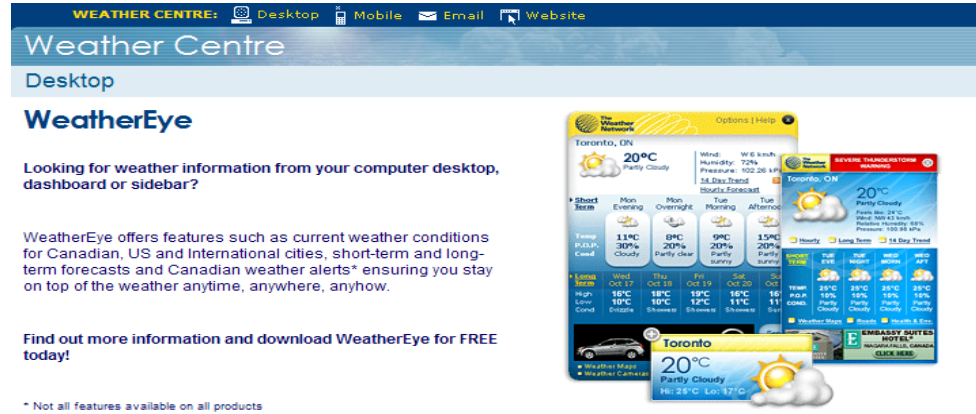
16. Some recent technologies are highlighted for their use in public alerting/notification and data aggregation:

- a. Google Personalized Maps: The free technology was used extensively during the 2007 San Diego fires. One local radio station posted all alerts/notices to a map, which displayed icons for different types of alerts/notices, and depicted the wildfire border areas. Clicking on an icon provided additional information, such as the capacity of a shelter, the latest update on a fire, transit interruptions, livestock shelter locations, etc. Anyone with internet access can create their own personalized maps, and make public or private maps. Google was challenged to meet the server demands during the wildfire event.



- b. U.S. Wireless Initiative: The United States government is funding an initiative which aims to make alerts available to all persons who wish to be alerted. The individual's current location, identified by their handset or service provider, will be matched against alerts in a database. If they align, the person is alerted.

- c. Weather Network Weather Eye: This free application creates an icon in the system tray of a computer (bottom right) which displays the current temperature of locations selected through subscription. Clicking on the icon reveals current forecast, and an advertisement. If there is an alert, the temperature icon becomes a flashing red hazard icon.



[http://www.theweathernetwork.com/weather\\_centre/wcdesktop](http://www.theweathernetwork.com/weather_centre/wcdesktop)

- d. Really Simple Syndication (RSS): The term RSS has more than one definition, and often includes similar methods, such as Atom. Simply defined, RSS offers people the opportunity to automate the process of polling a list server, and displaying the list headlines and a short message on their computer desktop. Clicking on the headlines links the person with the original content. CBC offers dozens of RSS feeds, including news for specific cities. RSS readers can be found in common e-mail software and web browsers. The readers are available from numerous suppliers, both as free software and for a fee. There is no cost to subscribe to RSS feeds.

CBC | Ottawa News  
December-31-07, 2:48:49 PM



**Ottawa Hospital to begin screening overnight patients for superbugs**

December-31-07, 2:28:21 PM →

The Ottawa Hospital will begin testing overnight patients for two virulent strains of bacteria beginning in January, making it the second hospital in Canada to introduce universal testing for these superbugs.

**Fireworks for Ottawa's new year, 150th anniversary finale**

December-31-07, 1:36:54 PM →

As Canada's capital prepares to ring in the new year, Dec. 31 also marks the celebration of its 150th anniversary.

<http://rss.cbc.ca/lineup/canada-ottawa.xml>

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All	200
● New	200
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▼ Date	
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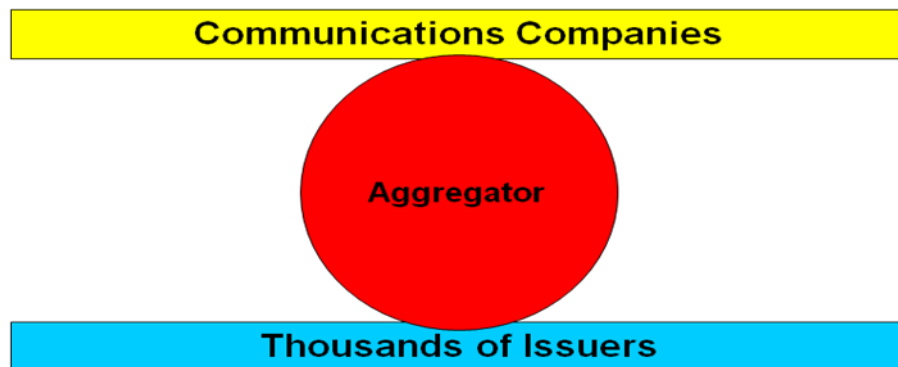
- e. Outlook Public Folder Watcher: Similar to RSS, this add-in for Microsoft Outlook regularly monitors a source for e-mails sent to all who have access to a public distribution e-mail server. The application downloads a message to the Outlook Inbox, and can post it for on-screen notification. The issuer need not know the individual subscribers, but is aware that people may be subscribing to receive information available in the public e-mail system. For example, a folder could be established for specific locations, associations, teams, etc.

## Identifying the Gaps (Think)

It is clear there is a large gap between the current state and the desired end state of public alerting and notification in Canada. The good news is that a sufficient number of key stakeholders are interested and willing to work toward closing the gap. It is also good news that the actions required are both obvious and achievable.

It is clear that if public alerts were already aggregated, authenticated and validated today, and made available in a common electronic format, the gap would be significantly narrower than it is today. With that in mind, the following conclusions can be drawn:

1. A national clearing house is required to collect, authenticate and validate the public alerts of thousands of originators, to meet the needs of public safety officials, broadcasters, telecommunications companies, internet service providers, etc.



2. All Canadian stakeholders must adopt the Common Alerting Protocol (CAP) Canadian Profile (CAPCP) as the communications protocol for the public alert/notification industry.

To ensure the CAPCP asset serves the needs of all industry stakeholders, in the short term and longer term, it is recommended that:

3. CAPCP be managed with the oversight of all industry stakeholders. A formal change process must be established to ensure ongoing value to all direct stakeholders.

4. The interests of Canada's public alerting industry must be represented to the Organization for the Advancement of Structured Information Standards (OASIS), the standards body overseeing CAP.

To address the ongoing national debate about what types of alerts and information are collected, it is recommended that:

5. All official public alerts and notifications are collected, from all official originators, including local governments, utilities, schools, private operators of highways, bridges and mass transportation, among others. This includes alerts for all levels of urgency and severity, for all communications related to public safety and public service disruptions.
6. The routing of "private" and/or "restricted" CAP messages be identified outside the scope of these efforts.

There are a few reasons for these last two conclusions, including the objective to ensure that all official public alerts/notices are readily available to all who need rapid access to them.

There is also an appreciation and understanding of private sector needs. We recognize the significant benefits to all industry stakeholders, especially the Canadian public, if the business cases are strengthened for supporting public alerting. Collecting all alerts/notices provides the content to justify investment in advanced location-based public alerting, notification and information services.

Further, it makes little sense to draw a line through what might be collected when it is easy to filter content by urgency, severity, certainty, location, event, issuer, etc. In establishing a system, it may be decided that initially only very urgent/severe alerts from a limited list of events should be distributed in a particular manner. In this case, it would be easy to identify and work with only these alerts. If expanding the list was desired, and the alerts/notices were already being collected, a simple adjustment of the filtering mechanisms would add more content to the service offerings. This could be done without changing business practises of the initial issuing content originators.

With respect to No. 6, the requirements of peer-to-peer private communications are much different than messages issued to all as public proclamations. While we recognize the importance, we have determined that this group is not the one to address the related challenges.

In examining whether a national content clearing house (aggregator) should also distribute alerts/notifications, it was recommended that:

7. A national clearing house need not distribute alerts/notices. It could simply make them available to all who wish to distribute to others, including service providers, the public, and emergency managers. This approach allows specific segments to identify the

method(s) best suited to their specific needs, including the option of each obtaining all of the alerts/notices themselves.

8. The national clearing house may be requested to filter and/or format alerts/notices for specific channels. For example, RSS feeds could be offered with filtering options, such as only the most urgent/severe alerts in the French language.

As for how to collect alerts/notices, it is recommended that:

9. The national clearing house collect alerts/notifications both directly and indirectly. For example, if the Alberta Emergency Public Warning System is already collecting alerts in Alberta, and the messages can satisfy national requirements, then the two systems can be complementary. Our goal is to issue once, and not once into each system.

Leadership was determined to be a critical factor for success. Several options and best practises were discussed. As a result, it is recommended that:

10. A national industry association be established, representative of all key stakeholders, and managed by an elected Board of Directors.
11. The industry association should manage CAPCP.
12. The industry association should identify industry accepted practices.
13. The industry association should oversee issuer rights.

Other conclusions reached by the project team:

14. Public and private stakeholders can all benefit from social studies related to public alerting in Canada.
15. The activities of a national association and clearing house (aggregator) must respect and accommodate federal, provincial, regional, municipal and Aboriginal laws and bylaws.
16. In order to succeed, the Business Plan must offer a compelling value proposition to all direct stakeholders. We must win the support of thousands of originators.

## The Way Forward (Plan)

The project team identified important steps to move forward with public alerting and notification in Canada. The first step is to prepare a formal Business Plan that will incorporate the following:

1. Officially establish and register the Canadian Association for Public Alerting and Notification (CAPAN), as a not for profit corporation, with all the protections it can afford its Directors.
2. Establish an interim Board of Directors, representative of the membership.
3. Establish an Executive Group within the Board of Directors, to oversee the daily operations of the organization.
4. Identify an election process, and establish dates for the election of a Board of Directors and Executive.
5. Form specialized committees to support and provide direction relating to specific areas of interest (e.g. technical, standard message formats, membership, legal affairs, etc.).
6. Carry out the daily affairs of the organization with a paid staff and/or contractors.

CAPAN Membership will be open to direct stakeholders, including:

7. Federal, provincial/territorial, regional, local and First Nations governments, and the departments within them.
8. National public service organizations, such as Canadian Blood Services and Red Cross.
9. Utilities, school boards, post-secondary educational institutions, private operators of public roads and mass transportation services recognized by provinces.
10. Broadcasters, broadcast distribution units, telecommunications companies, internet service providers, internet services, etc. .
11. Others, with the approval of the Board of Directors.

CAPAN will provide:

12. Industry leadership
13. Industry oversight
14. Industry clearing house services
15. Services which are identified as essential to the mission

In so doing CAPAN will:

16. Ensure every member has easy access to all alerts/notices collected.
17. Provide originators with message creation and issuing tools, and allow for the use of other tools and networks.
18. Provide originators with automated services to automatically update their own websites upon issuing an alert (i.e. RSS service, specific to their own alerts).
19. Aim for a minimal, marketable membership fee for all stakeholders.

To keep CAPAN operating costs minimal:

20. Operations will be defined with a narrow scope, as much as practical, for at least the first year(s). The focus should be on meeting the core needs of the industry.
21. CAPAN will not issue alerts on behalf of members. Mutual aid arrangements, however, will be accommodated and encouraged, to satisfy redundancy needs of its members.
22. Membership service procedures will be automated to the greatest extent possible. For example, requests can be made using electronic forms. Confirmation of receipt can be done by e-mail automation.
23. Borrow, share, lease facilities where possible and practical, and not until necessary.

24. Hold annual meetings in conjunction with other events, and encourage meeting sponsorship arrangements.
25. Define basic membership services, and implement service charges for additional requests (e.g. Number of membership profile updates allowed per year, per member).

To minimize risk, real or perceived conflicts of interest, and competitive situations between members and CAPAN:

26. Limit the services offered by CAPAN to those services identified by the Board as essential to fulfill the role of clearing house, and to win sufficient member support to continue operations.
27. Will not provide services directly to the public.
28. Will not promote, nor allow for the promotion of direct service providers (i.e. telecom, security, hosting services, etc.).
29. Will not provide accreditation opportunities. CAPAN may be supportive of others that provide such services.

With respect to CAPCP, CAPAN will:

30. Strike a committee tasked with defining CAPCP change practices, hearing proposals for change to CAPCP, providing for industry debate of change proposals, and presenting results to the Board of Directors for decision.
31. Identify a CAPAN representative to OASIS, who will report to the CAPAN committee overseeing CAPCP.

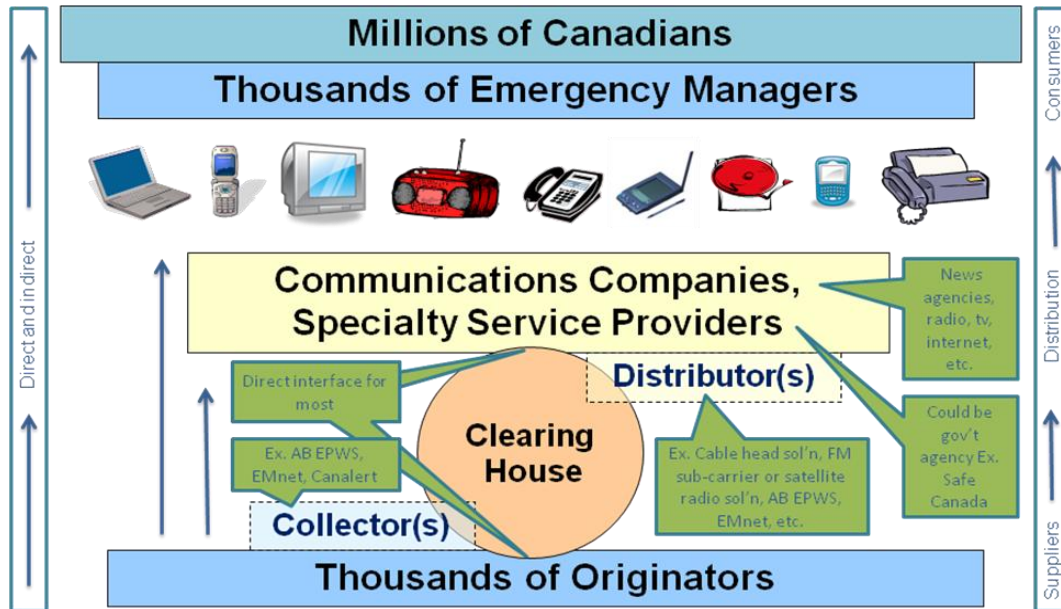
Financial considerations for CAPAN include:

32. Develop a self-sustaining Business Plan that does not require grant funding for daily operations.
33. Seek additional funding from GeoConnections and other federal agencies/programs to support the association start-up.

34. Allow CAPAN to accept public grant funds in support of special projects the association could undertake on behalf of others, with the approval of the Board of Directors.

## Distribution Model (Diagram)

We envision the industry distribution model to look as follows:



## CAPAN Summary

### Vision

Every Canadian will have the opportunity to be alerted to very urgent/severe alerts for their current location, and other locations of interest. Every Canadian will have quick and easy access to all alerts/notices for any Canadian location, or event, of interest to them.

### Goal

Public alerts and notices delivered/available through all communications mediums, including e-mail, text messaging (SMS), headline feeds (RSS), GeoRSS, web portals, desktop alerting applications, 511 information lines, automated telephone calls, indoor alerting devices, radio data systems (RDS), specialty television and radio channels, television crawlers, broadcast interrupt, sirens, public address systems, roadside signs, etc.

### Mission

CAPAN provides its members with the leadership, oversight, and central distribution functions required to achieve public alerting and notification industry defined goals.