



County of Essex



General Guidelines/Overview,
Standard Operating Procedures,
& Protocols

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PART I- General Overview

Executive Summary

There are many facets in the process of developing and maintaining a public alerting system. Public alerting systems start with the monitoring, data gathering and information analysis, which then progress to making an informed decision to issue a warning and then evolve into a process for public safety officials to effectively provide understandable warning information to the public so actions can be taken to provide the best means for safety.

The alert/warning system stages used in Canada are:

STAGE # 1: Focuses on detection of a hazard by the collection and analysis of data from a multitude of sources, which may include remote sensory. This data/analysis is then shared with the appropriate emergency measures organizations and other stakeholders. In exceptional short fuse events an alert may be triggered at this stage.

STAGE # 2: The data and analysis is shared with the appropriate federal, provincial local emergency measures practitioners, officials and government agencies responsible for delivering the alert/warning to the general population. This is the most common trigger stage.

STAGE # 3: This is what can be referred to as the last mile, and involves the actual conveyance of the alert and warning messages to the public

Need For Public Alerting/Warning Systems

Canadians are vulnerable to natural and man-made disasters. The Canadian Disaster Database contains more than 700-recorded disasters, which have directly affected Canadians, at home and abroad, over the past century. Some scientists predict that future disaster events will occur with more frequency and intensity.

The citizens of Canada are painfully aware of the devastating loss of life that can result from a sudden unexpected disaster event when there has been no warning. The 2004 South Asian Earthquake/Tsunami caused in excess of 150,000 deaths during the Christmas holidays. While the extensive property damage might not have been avoidable, a timely warning system would have allowed the majority of the population to move inland to safety.

The majority of emergency events occur at the local level and impact upon localized populations. Public alerting is primarily the responsibility of public officials authorized to give public direction in emergencies under municipal by-laws and provincial or federal legislative authority.

Public alerting/warning system(s) provide public safety authorities with the means to warn the population of immediate dangers. The implementation of a public alerting system is driven by ethical principals, the marketplace, government regulations, liability laws, and are dependent upon the collaboration and willingness of all stakeholders to share a common vision. Public alerting/warning systems are a life saving investment, which have a positive cost/benefit ratio.

Public Consultation and Public Education

Introduction

A successful public education and warning system goes beyond the dissemination of a warning message from a sender to a recipient. It conveys a warning message and solicits appropriate public response. This response can be developed or influenced when citizens gain the basic understanding of terminology, desired actions to be safer and the importance of taking warnings seriously and following safety instructions.

Public consultation is a process that gathers public opinions for a decision to implement a future public alerting and warning system at the community level.

Public Consultation

Public consultation is a process that gathers public opinions for a decision to implement a future public alerting and warning system at the community level.

Public Education

Public education is focused information provided to a target audience to educate and create awareness about protective actions to reduce the risk of loss of life and property damage and to protect the environment, in the event of an emergency. Most government organizations have existing emergency preparedness educational programs. Public alerting education should be integrated into these programs.

Emergency Warnings

An emergency warning means that an actual disaster or major emergency has occurred or is about to occur. It is time-sensitive and critical that people within the effected area understand the importance of the warning and take appropriate protective actions. Understanding how to respond to a public warning is a learning process that includes acceptance that risks exist in the community.

Public Consultation for a Community-based Warning System

A dedicated community alerting and warning system adds alerting capability that is necessary to fill the additional need. This is especially true for communities located in high-risk areas. An alerting and warning system such as REVERSE 911® will have a better chance for success if it is consulted with the community where the system will be implemented. Public consultation is a cornerstone to a successful implementation of this type of alerting and warning system.

Public consultation should take place prior to the implementation of the system. A well-organized public consultation and input process builds goodwill, gains public support, enhances public trust and increases authoritative credibility. Public consultation should begin with community leaders who know the community well and understand any local nuances or concerns.

Public expectation needs to be appropriately managed. The public needs to understand the capability as well as the limitation of the system. Open and honest communication is the key to reducing unrealistic public expectations. There will be an increased sense of trust when there is collaboration between all major players including public authorities, industries, broadcasters or media and the public. To leave any of the players out will reduce credibility.

Public Education

Public Education is the responsibility of provinces, territories, and lead municipalities. Most government organizations have existing emergency preparedness education programs.

A package of integrated education materials will work more effectively and efficiently. Emergency Management Coordinators have the responsibility to explore opportunities to work with educational institutions and include public education for public alerting as an element of emergency preparedness education.

Public communication channels to reach the general public include radio and TV, Internet and email, printed materials delivered to homes and offices, community events and student education through our school system. Education programs should be developed fitting these communication modes and in context with the make-up of the community, local language, cultural practices and beliefs. The creation of these programs will require cooperation and collaboration from all levels of government, industry, the media, school boards and community leaders.

Every medium of public education should be used. There should be audio, video and printed public education materials prepared for radio and television broadcasting, newspapers and other print mediums, internet, etc. These materials should be updated and used on a regular basis. Canada's youth should have the opportunity to gain the knowledge about emergency alerting and warning in a school environment. It has been well proven that when students learn specific appropriate safety practices at an early age they are more likely to adopt them as part of their lifestyle.

Public alerting education should be integrated with the annual Emergency Preparedness Week (the first full week in May). Live tests during the week will help raise public awareness of emergency alerting and give the public opportunities to ask questions, clarify appropriate actions, and practice life-saving actions with their families.

Main Elements of an Effective Warning System

Protocols

Applying standard message protocols and message format

Using standardized protocols and an agreed upon message content will enable alert and warning originators to rapidly formulate accurate and consistent messages, increase public comprehension and confidence, help eliminate or reduce conflicting or confusing information to the public in crisis situations, and enable interoperability between systems. Pre-scripted and standardized message format and content help provide consistency and ease of use of the system. Along with sufficient user training, it helps to increase the confidence to activate the system. (*For more detailed information, see [Annex C- Reverse 911® Message Contents](#)*)

Minimize time delay

In many disaster scenarios, a few minutes of advance warning can save lives. To minimize time delays, the technical design of the system should be seamless to allow rapid dissemination of the alerting and warning messages to the public. Also, the administrative process needs to ensure that the authorized officials who first become aware of an event have the power to activate the system without being limited to a principle and a deputy user, or according to the jurisdictional emergency plan.

Arrangements and processes that allow authorized public safety officials direct and uninterrupted access to warning systems should be established well in advance with the cooperation from both public authorities and facilities operators/owners.

Addressable systems

To the extent possible, alerts and warnings should only reach the population at risk. Ideally systems should allow public authorities to geographically select only the areas affected by the event and disseminate the alerting message to the population located only within those effected area(s) for the purpose of situation and traffic control.

Regular Testing

All public-alerting systems must be tested on a regular basis. The national annual Emergency Preparedness Week (EPW) is a good time for public testing of alerting and warning systems. These tests, when coordinated with other activities during EPW, can be an effective public education event.

System security and training

Public alerting and warning systems should have sufficient security measures in place to guard against unauthorized use. This includes pre-authorizing users, authenticating authorized users, anti hacking and virus programs, physical facility security checks should be performed and recorded. A training program for public safety officials authorized to use public alerting systems is a necessary part of system security. The same is true for those who operate the delivery facilities. All users should have a good understanding of the seriousness of system misuse and fully comply with the security procedures.

Consequence of Network abuse and misuse

Authorized users of the network must respect the authorities given to them and take full responsibility for misconduct. Network abuses and misuses include activations of the network for personal political agenda, abusive languages and deliberately issuing ill-prepared messages or hoaxes. Penalties applicable to network abuses and misuses, depending on the nature and the seriousness of the abuse and misuse, will include revoking the individual's user authority, financial fines, reprimand, retraining and/or additional disciplinary action.

Ability to reach vulnerable populations

Visually and hearing challenged people live in communities across Canada. They may require special techniques to be alerted of imminent danger. When designing an emergency public alerting and warning system, technical considerations to reach these people should be taken into account in the system.

Language Considerations

Canada's official languages, English and French, are the standard languages of the network. Dedicated local systems may need additional built-in capacity to communicate in local prominent language(s). A regulatory framework with built-in flexibility for communicating the warning message in local language(s) should be in place. Translation of the language(s) should be kept to a minimum delay.

Ethical Values

Value of life

Investing time, effort and money to protect and save lives is ethically and morally justified. The investment is also economically rooted, justified by the value of a person's work and contribution to society. Warning development conveyance and reception should not place the lives of those who warn or those who are warned at additional risk.

Obligation of choice

Individuals, businesses, communities, organizations and governmental agencies that create, generate or hold information that can reduce risk have a fundamental duty to warn of impending danger.

Freedom of choice

People have the right to make decisions that affect their lives and property and they should have access to information required to make sound decisions.

Respect of privacy

Warning systems need to respect individual privacy both in the use of personal information and in how people are notified.

Rights of the disadvantaged

Warnings must reach all people at risk, no matter what their economic status.

Role of Municipal Governments

The general practice of the Canadian emergency management system is bottom up.

Canadian citizens are responsible to report and to try to contain small household incidents. When the household incident escalates and needs the community's help, then the community or the municipal authority gets involved.

Local government handles the majority of emergency/disaster events. But disasters do not respect geographic or political boundaries. They often involve many localities and jurisdictions. When disasters overwhelm both local and mutual aid resources, the regional/provincial and federal governments assistance is required.

The majority of provincial/territorial legislation requires that each municipal and/or regional government establish an emergency response and recovery capability.

Legislative example

The Province of Ontario, through Bill 148, recently established the [Emergency Management and Civil Protection Act](#). The Emergency Management and Civil Protection Act legislates all municipalities in Ontario to have a Community Emergency Management Coordinator (EMC), an emergency management plan; a community emergency management committee, and annual training for all aspects.

Community-based emergency programs ideally base the development of their emergency plans upon Hazard Identification and Risk Analysis (HIRA). The need for an alert and warning capability that goes beyond the normal door-to-door in-person alerting process is often driven by hazardous industry regulations. Many municipal governments face challenges to finance full capacity public alerting systems for their communities.

Authority

Local officials have the authority to activate their emergency plan and to declare a state of local emergency and authorize alerts/warnings for their respective politically geographic areas.

Role of the Private Sector

Ethical principals of the marketplace, government regulations, and liability laws drive public safety considerations for business and industry.

In the case of an industrial accident, most companies are responsible for their employees and communities within the immediate geographic areas of their property. However, depending on the scope of the threat and risk, companies are also responsible for notifying the local or provincial emergency measures organization and working collaboratively with emergency personnel to provide safety information to the public or to ensure prompt evacuation when warranted.

It is incumbent on private sector industries to have emergency plans in place that include a communication plan to provide life-saving information to near-by residences and businesses and that these plans and risks are shared with the public so they understand that there are actions they may need to take should an emergency incident occur.

The private sector is responsible for a myriad of site-specific alert and warning systems. Many of these systems are site-specific telephone-based and/or siren alerting systems. These systems specifically service the geographic area around infrastructure, such as a dam, or an industrial site that manufactures or distributes hazardous material. Industry alerting systems range from sirens, to auto-dial telephone systems, to radio activated devices. They are primarily funded by industry and designed to provide a short fuse warning.

Authority

Industry officials appointed from within their organization have the authority to activate the systems in the event of a sudden unexpected spill or discharge. Emergency plans and activations are immediately coordinated with the local emergency management officials.

Broadcast Industry

Without broadcasters there would be no emergency public warning system. Currently the Broadcast Act and Regulations only require broadcasters to interrupt a program for an emergency alert/warning message when an order in council has been signed.

Historically, radio and televisions broadcasters have played an outstanding and important role in providing emergency information to the public during the course of emergency events.

The First Canadian Public Alerting Workshop and Forum sponsored by Industry Canada in November 2002 for public safety officials recognized the need and value to have enhanced public alerting and warning systems and identified that Industry Canada should provide federal leadership for a national public alerting framework.

The Canadian Warning and Public Alerting System (CWPAS) is intended to enhance existing public alerting capabilities. Communities who have existing or will have future public alerting systems will develop a process that will make the operation of multiple alerting systems works smoothly within their communities. This process will require considerations in area of accessing the systems, consistency in message content, complimentary

technology, and coordination with stakeholders, and other relevant areas applicable to community emergency management.

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Summation

History has demonstrated that the wide disparity in population density, climate and geography, coupled with the fact Canada is surrounded by oceans, represents a considerable challenge in the development of a national warning strategy applicable to all regions.

Public safety officials from federal, provincial, territorial, municipal and other governments are responsible for public safety and emergency management. While current, in use public systems at the local level and provincial levels have operated satisfactorily, there are serious limitations. Systems are ad hoc, hazard specific, not generally interoperable for multiple jurisdictions events and insufficient to ensure effective alerts for all hazards nation-wide.

There is a need for a well-coordinated and effective Canada-wide public alerting system that will provide public safety authorities with tools to disseminate emergency warnings to communities at risk.

A nation wide strategy should include standards, guidelines and protocols for public alerting, as well as harmonization of communications and public information and a public education program. The strategy should also support the sharing of knowledge and information in regard to public alerting, and encourage ongoing research of new technological solutions and best practices learning from others in the field, both within Canada and internationally.

All levels of government and the private sector need to recognize that public warning systems are a national priority, provide funding for research and development, and encourage the development of supporting legislation.

PART II- Community Notification and Reverse 911®

Scope

Telephone automatic call-out technology known as CNS (Community Notification System), is becoming an important part of public safety emergency plans. In conjunction with broadcast and other public alerting solutions, telephone automatic call-out technology can be a powerful emergency public alerting solution in Essex County, as this county often requires an effective means for notifying its citizens of boil water advisories, alerts from the Fermi II Nuclear Plant in case of an incident and everything from flood advisories to hazardous spills.

The CNS product, Reverse 911®, produced by Sigma Communications is a Microsoft Windows based program that uses a patented combination of database and GIS (computer mapping) technologies. It can quickly target a precise geographic area and saturate it with thousands of emergency calls per hour. Authorized users can also create a list of individuals with common characteristics (such as a Neighborhood Crime Watch group or emergency personnel) and contact them rapidly whenever necessary.

The establishment and activation of Reverse 911® integrated CNS is for the sole purpose of emergency public alerting. Only authorized users who comply with the Essex County Reverse 911® operation security clearance and privacy requirements can activate the Essex County Reverse 911® integrated CNS.

System Operation

Reverse 911® is a computer controlled telephone automatic call-out system capable of sending voice and data messages to people in a timely manner.

It is pass-code protected. Firewalls and encryptions are also in place to secure the system.

Authorized Users have the ability to access the REVERSE 911® system with a computer via the Internet. When integrated with GIS, the system allows the User to geographically define an area of risk, record a live, or select a pre-recorded message and issue the alert message to people within the defined area. When REVERSE 911® is activated, the system will trigger the ringing of the telephones as determined in a specific geographical area. When a phone receiver is picked up the message delivered by Reverse 911® is able to prompt the called party to press a key on the phone keypad to confirm the receipt of the message.

REVERSE 911® has the ability to generate post activation reports. The reports can be programmed to configure the required information such as the number of telephone numbers dialed, the number of successful contacts, the number of unsuccessful contacts and the addresses of those who pressed a key on the telephone number pad to request assistance. Post activation records are only to be kept for legal, audit and system review purposes (confidentiality of the records must be protected). Disposition of the records must follow the applicable privacy laws.

System Operation Continued

It is expected that the Essex County REVERSE 911® Integrated CNS will operate seamlessly with many technically built-in functions to prevent misuse of the databases. When the system is activated it asks the user to define a geographic area where the alert is to be issued. It will then automatically retrieve the corresponding phone number information from the REVERSE 911® system database. The system then dials the phone numbers matching the addresses of the area that is to be alerted.

It is also expected that users of the Essex County REVERSE 911® Integrated CNS will not be allowed to have direct access to any 9-1-1 databases, nor will they be able to manipulate or cross-reference the data to access names and/or billing information. The REVERSE 911® system does not require individual names of the public in order to function.

In Canada the 9-1-1 databases are owned and managed by telecommunication companies who must follow the rules and regulations established by the [CRTC](#).

Rationale for Accessing the 911 Database

Existing public available telephone directories, such as white pages or other commercially available databases, do not include unpublished telephone numbers. These databases are also updated only once per year (the accuracy of the white pages information is estimated to be less than 60%). A CNS would not be effective if it alerts only 60% of the population. Furthermore, in rural areas where there are no addressing systems, the accuracy of commercially available databases can be as low as 0%.

The only known database that contains more than 95% of the population's landline information is the 9-1-1 database. This database is updated on a daily basis. It is well maintained and reflects a timely and accurate picture of true telephone user installations. It is the only comprehensive database that offers the required effectiveness in emergency public alerting.

If, through existing [CRTC](#) regulations governing access to 9-1-1 data, this information is not available to support the Essex County REVERSE 911® system, then there is additional emphasis to acquire and update existing data through individual, public and municipal sources.

Privacy Protection

To address security and privacy concerns in using the REVERSE 911® databases for public alerting, contributors of this document discussed the issues and solutions to create these guidelines. This document is intended to govern the security and privacy protection process for establishment and activation of REVERSE 911® Integrated CNS in Essex County.

Authorized Users must respect the integrity of the database, understand the privacy issues and fully comply with the policies and protocols outlined in this document. Authorized users will only be given access to the CNS upon completion of system training and will access the system with assigned username and password. Database privacy concerns are addressed by controlled access and system monitoring through post activation reports as well as within system operations.

It is expected that the REVERSE 911® Integrated CNS will operate seamlessly with many technically built-in functions to prevent misuse of the databases. The databases will only be accessed when the system is activated. Authorized users will have no direct access to the database, will not be able to manipulate the database or cross reference the data, and will not be able to access names or other personal information.

Privacy Protection Continued

The establishment and activation of any REVERSE 911® Integrated CNS is strictly for the purpose of emergency public alerting under the terms and conditions defined in this document. Public Authorities must fully understand the purpose of the REVERSE 911® Integrated CNS when implementing the system in their communities. Authorized Users must comply and familiarize themselves with the terms of emergency, security, privacy protection procedures and activation protocols.

It is recommended that a Public Authority should complete a risk assessment, analyze resource requirements, develop a local emergency CNS activation procedure based on and in compliance with this document, and conduct a public awareness campaign before implementing a REVERSE 911® Integrated CNS in its community.

General Activation Conditions

Conditions:

To justify an activation of the Reverse 911® Integrated CNS, the following conditions should be present.

- 1) The public must be informed of the name of the Authorized User, nature of the activation (emergency event) and what actions to take.
- 2) A warning is ideally issued in a timely manner giving the public enough time to react and follow the direction given by the Authorized User.
- 2) The CNS should only be activated under emergency conditions where a disaster threatens to cause loss of life and/or serious damage to health and property.
- 4) An authorized user cannot activate the system for warning citizens outside of their respective jurisdiction, unless there is a previously arranged agreement between those jurisdictions.

Hazards Activation Principles

Principles:

Each hazardous situation leading to an emergency warning is unique. Consequently, it is impossible to cover every specific hazardous condition in these guidelines. However, several general principles, when followed, can assist Authorized Users to make a decision in any situation. By following these guidelines you will reduce the possibility of an error in judgment. The Authorized User should ask the following questions prior to activating the system.

- 1) Would this be a legitimate activation of the CNS?
- 2) Is there enough time to warn people before impact?
- 3) Are other means of warning practical in this circumstance?
- 4) What should the people do to protect themselves?

Authorizing Users

Industry Canada, in partnership with other federal departments, will designate federal warning originators. The Emergency Measures Organization (EMO) in each province will be managing the designation of provincial ministry and local government warning originators and authorized users.

At the provincial, territorial and municipal level, personal security checks are done according to individual government standards and requirements. Federal personal security checks are done according to RCMP standards.

Principles for granting access:

- 1) Access to a CWPAS is limited to public officials who have legislative authority and/or responsibility for emergency planning, or their designate
- 2) Access to a CWPAS will be granted based on geographic areas and completion of training. Municipal, provincial or federal instructors will sign the training certificates and certified users will be assigned unique security user codes and considered authorized. Any breach of security could result in the removal of access authority

Emergency preparedness legislation in every province and territory specifies who may declare a state of emergency and provides for the delegation of authority to activate the provincial/local emergency plans. In some cases the authority remains with elected officials, such as public safety minister or local mayor.

Training Requirements

REVERSE 911® System Administrators must satisfy themselves, the Public Authorities and CNS service providers that the Authorized User:

- a) Understands the security and privacy requirements
- b) Has the technical training to activate the CNS, and;
- c) Is aware of database sensibility and the requirement for protection of the databases.

After completing the following training an Authorized User will be issued a certificate signed by both the REVERSE 911® Administrator and the Public Authority. *(See Annex A, Municipal Administrator and User Confirmation of Training and Confidentiality Liabilities)*

Understanding the Guideline

Procedures set out in this document allow a CNS to be organized, co-coordinated and guarded against misuse, abuse or mishandling. Authorized Users must read and fully understand this document in its entirety.

Technical Training

All Authorized Users shall take the opportunity to fully understand the technical operation of CNS and have the confidence in activating the system.

Reverse 911® Database Sensitivity Training

The REVERSE 911® databases are confidential. Authorized Users must understand the security requirements and procedures to protect the database.

The CNS service provider and the Public Authorities will jointly provide a 9-1-1-database sensitivity training course. Authorized Users must attend this session to fully understand the seriousness and the consequences of system misuse.

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Annex A

Essex County Reverse 911® Emergency Notification System

Municipal Administrator and User Confirmation of Training and Confidentiality Liabilities

I acknowledge having completed, this day, the required training to be authorized, as an *administrator/user* (delete one) for the municipality of _____, to access and apply the County of Essex Emergency Notification System. I further agree to abide by all the rules and regulations promulgated by The Corporation of the County of Essex in the General Overview/Guidelines, Standard Operating Procedures, Practices and Protocols developed for the appropriate use of the system and the security of the databases created to support the system. This certificate confirms any and all liability for use of the Reverse 911® Community Notification System and the information contained within the database.

_____	_____
Name (please print)	Appointment
_____	_____
Signature	Date Signed
_____	_____
Signature of Community Emergency Management Coordinator	Date Signed
_____	_____
Signature of Emergency Management Coordinator	Date Signed

Note: (1) Copy of this document is to be kept at the County of Essex, 360 Fairview Ave W. Essex Ontario, N8M 1Y6. (1) Copy is to be kept at the respective municipality or agency administrative office.

Annex B

Reverse 911® Mapping Tutorial

The Reverse 911® mapping application uses stored shapefiles on the local hosts machine to speed up the display time of mapping. In order to clear any previous files to reload the newly added files, each user must delete the stored files and recreate the map. This recreation **must** be done on a quarterly basis to account for the growth and expansion within Essex County. This document is a tool to assist in the Reverse 911® Map Creation.

Deleting Stored Shapefiles

Reverse 911® stores the shapefiles in the directory called
'xxxxx'

Each Shapefile will have the same filename with 7 different extensions. The seven files will combine to make 1.

Street Centerline Shape File Extentions (example)

StreetCentreline.dbf
StreetCentreline.prj
StreetCentreline.sbn
StreetCentreline.sbx
StreetCentreline.shp
StreetCentreline.shx
StreetCentreline.shp.xml

Simply delete all shapefiles within this directory to clear the map data. When the user logs into the Reverse 911® System the map will display without any layers. This will enable the user to re-create the map.

Building the Map

Many settings can be applied to each layer in the Reverse 911® System. These settings and descriptions are below.

Symbol Settings

Style – Style of symbol fill, (Transparent, Solid or patterned) It is recommended that users only use solid fill.

Colour: The colour of the fill of the symbol. It is recommended that users only use the standard color set, not the custom fill.

Outline Style – Solid outline or Dashed...etc.

Outline Colour – Colour of the outline of the feature.

Outline Width – Width of the outline of the feature.



Label Settings

Label Field – The field that is being used for the labeling process

Font – The font the labels are displayed in.

Typesize – The Size of the font that is being displayed.

Colour – The Colour of the Label Font



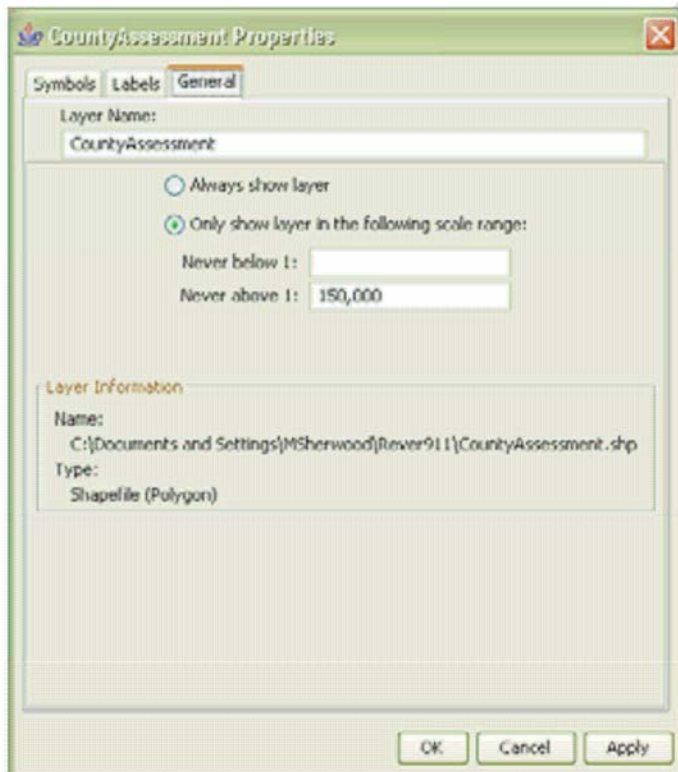
General Settings

Layer Name – The Name of the layer as it will appear in the legend.

Always Show Layer – Will show the layer at all zoom levels

Never Below – Will not show the layer when zoomed **in** past the entered scale

Never Above – Will not show the layer when zoomed **out** past the entered scale



Each of these settings can be applied by adding the respective layer to the map, right clicking on the layer name and selecting properties. For more information on adding a layer to the map, please see page 3-18 in the Reverse 911® User manual.

Layers and Settings

To rebuild the map, the user will need to add data in the following order:

- Municipalities
- Builtup
- Towns
- StreetCentreline
- County Assessment

Each layer will have default display settings that are applied to each layer. If the layer settings for some reason do not display properly, the settings that should be set are as follows.

Layer: **Municipalities**

Colour: Light Grey
Outline: Black - Solid
Label Field: Name
Label Font: Arial Black
Label Colour: Black
Label Size : 12
Always Show Layer: Enabled

Layer: **CountyAssessment**

Colour: White
Outline: Solid - Black
Label Field: Add_Num
Label Font: Arial
Label Colour: Black
Label Size: 10
Only show layer...Never **Above:** 150,000

Layer: **BuiltUp**

Colour: Pink
Outline: Remove Outline
Label Field: None
Always Show Layer: Enabled

Layer: **Towns**

Style: Circle
Colour: Black
Size: 6
Label Field: name
Label Font: Arial
Label Colour: Black
Label Size: 10
Always Show Layer: Enabled

Layer: **StreetCentreline**

Style: Solid Line
Colour: Black
Size: 1
Label Field: St_Name
Label Font: Arial
Label Colour: Black
Label Size: 10
Only show layer....Never **Above:** 150,000

Annex C

Reverse 911® Message Contents

Message Contents

In order to maximize efficiency when creating or selecting messages, a standard format for naming of *Sessions*, and *Messages* has been developed. This annex also serves to minimize the amount of hang-ups from residents who may mistake a Reverse 911® emergency notification message as a telemarketing call; therefore, the message introduction and content should clearly state the reason for the call, what the emergency is, and what actions should be taken at that time.

To minimize error in a highly stressful situation you may compose the warning message in writing and read it into the system. Remember, a message must be understood by the general public the first time around:

Keep it short (maximum 30-60 seconds), *simple and concise*.

Always include the following information in the warning message:

- 1) Specific nature of the impending emergency
- 2) Specific area affected, using familiar landmarks to define the area (DO NOT use map coordinates or any other definitions not generally understood by the public).
- 3) Time lines of the emergency. If appropriate, state the time available for the public to take protective action.
- 4) Protective action the public should take. Be specific, concise and use simple terms, e.g. **GO TO YOUR BASEMENT IMMEDIATELY. TAKE IMMEDIATE SHELTER; LEAVE THE DEFINED AREA** (define the direction of travel the people should take to leave the affected area).

Emergency Messages

If there is a valid emergency situation that calls for the use of the Reverse 911® system, the message should clearly state, “THIS IS AN EMERGENCY MESSAGE OF YOUR REVERSE 911® SYSTEM.” This will most often gain the attention of the resident and compel them to remain on the line for the remainder of the message. The remainder of the message should focus on the state of the emergency, and actions to be taken for public safety.

User Example – Flood:

- 1) Know the areas that could affect the community if a flash flood occurs. In most instances, hazards from flooding result from being downstream from a reservoir or a dam. The municipal emergency operations plan should be structured to deal with the hazard.
- 2) Alert the residents that are located in a flood hazard area and advise them to move to higher ground.
- 3) Residents living in a flood hazard area should be warned in advance of the possibility of a flooding event, giving them enough time to take precautionary actions according to an emergency plan.

Flood Message:

The following is an example of an emergency notification message. This message contains a brief summary of the impending emergency followed by direction on immediate actions as well as location to obtain further and up to date information.

“THIS IS AN EMERGENCY MESSAGE OF THE REVERSE 911® SYSTEM. THE OLD LADY RIVER DAM AT THE HEADWATERS OF THE OLD LADY RIVER HAS BROKEN. ALL RESIENTS LIVING IN THE DESIGNATED FLOOD HAZARD AREA ARE DIRECTED TO EVACUATE

TO HIGHER GROUND AND LISTEN TO YOUR LOCAL MEDIA FOR FURTHER UPDATES. THIS ENDS THE REVERSE 911® EMERGENCY MESSAGE.”

This statement includes directions for residents to act in accordance with the pre-arranged plan. Based on a risk analysis within specific municipality or area, pre-recorded messages can be developed and recorded to reach a defined area. (ie Fermi 2, Honeywell etc.) The public should be educated as to what action they are to take in accordance with the pre-arranged plan.

Testing (see also, *[Annex E, Test Operation Guidelines](#)*)

If you are using the system for testing, clearly state that it is only a test. For example,

“ THIS IS A TEST MESSAGE OF YOUR REVERSE 911® EMERGENCY NOTIFICATION SYSTEM.” IF YOU RECEIVED AND UNDERSTAND THIS MESSAGE PRESS 1, IF THERE IS A PROBLEM WITH THIS MESSAGE PRESS 2. THIS CONCLUDES THE TEST MESSAGE OF YOUR REVERSE 911® SYSTEM.”

Other Examples

If you are using the system to test responses for emergency responders or county control groups, your message may read,
“ THIS IS A TEST MESSAGE OF YOUR REVERSE 911® EMERGENCY NOTIFICATION FOR EMS. IF THERE WAS AN EMERGENCY AND YOU WOULD BE ABLE TO RESPOND PRESS 1, IF YOU WOULD NOT BE AVAILABLE TO RESPOND, PRESS 2. THIS ENDS THE TEST MESSAGE OF THE REVERSE 911® SYSTEM.”

Notes

- The Reverse 911® system has the ability to record responses as seen in the previous two example messages. This option (located on the *Sessions* page, named *Response Required*) is not a requirement, however, it can be useful in some different ways. It can allow for an entire group of emergency responders to be notified of an emergency, and indicate if they are able to respond to it. This allows management to determine how he/she will respond to the threat. As well, on a larger scale, if this option was used for mass emergency call outs, it could indicate those with special needs, or those who need immediate emergency or medical assistance.
- It is strongly recommended that a return phone number be included in the body of your messages. This number will be to the local authority that is able to assist the public with any questions or concerns they may have. During larger scale emergencies, use of call centers, such as [211](#) or [311](#), for the dissemination of emergency information may be utilized. In any case, clearly state what number to call for more information.
- When recording a message, use of Cellular or other telephones without auto-attendants and extension numbers, will be most reliable.
- A post activation report will be completed shortly after the activation and confidentially maintained on file for audit and system review purposes. It is suggested that the report be maintained for a minimum of ten (10) years. **The report will include date and time of activation, reason for the activation, name of Authorized User who activated the CNS and the message sent to the public.**

Appendix I to Annex C

Naming Protocol

The Reverse 911® Emergency Notification System requires that all lists, call sessions, geo-zones, and messages be named. The system will not let you move onto the next step until a name is given to the option. A format will be given and followed in order to keep naming of messages the same, for organizational purposes. This way, the use of pre-recorded messages can be maximized enabling one to cut down on time it takes to launch a session.

Things to be included in name:

- Municipality/Area ex) Kingsville
- Type of Message ex) Test Message, Boil Water, Emergency
- Date ex) 19 OCT 06

Examples:

Outbound Session Name: LAKESHORE BW 19 OCT 06
KINGSVILLE HAZMAT 19 OCT 06

Recorded Message Name: ESSEX TEST MSG 19 OCT 06
LASALLE BW MSG 19 OCT 06

Geo-Zone Name: TECUMSEH BW GEO 19 OCT 06
ESSEX HAZMAT GEO 19 OCT 06

Essentially, message or session naming should indicate **WHO**, (who or what group created the message or session) **WHAT**, (what the situation is), and **WHEN**, (the date the message or call session was created)

Appendix II to Annex C

Session Priorities

The Reverse 911® Emergency Notification System has 9 priority settings. 1 is the lowest priority, and can be overridden by any higher priority. The highest priority is 9, which cannot be overridden. The priority of a session only becomes important when the system has 2 or more call sessions in progress. The system will process the calls at the higher priority level first, and upon completion of the current callout, return to the previous session to finish the remainder of calls. To prevent an outbound session to be launched at a higher priority than necessary, a few guidelines will be outlined.

Test Message- <i>always at:</i>	<i>Level 1 Priority</i>
Boil Water Advisory- <i>no higher than:</i>	<i>Level 3 Priority</i>
Hazardous Material Emergency- <i>no higher than:</i>	<i>Level 6 Priority</i>
Fire- <i>no higher than:</i>	<i>Level 6 Priority</i>
Severe Weather- (Tornado, Flood, Storms)- <i>set at:</i>	<i>Level 7-8 Priority</i>

* If there is an emergency that warrants the use of Reverse 911® and has not been assigned a priority level, use your discretion keeping in mind the current situation and the possible need to use the system for other emergencies. Ex) Missing child

In order to set a message at a *Level 9 priority*, it must be done so with the permission of the Emergency Management Coordinator or a delegate. This level of priority indicates an emergency that includes all of Essex County and requires immediate action from both emergency services and the public. This message will override and take priority over all existing messages that are using the Reverse 911® system.

Annex D

Reverse 911® Emergency Notification System Recommendations for Use, Training, Updates and Best Practices

In order to continually improve, not only efficiency of use, but accuracy and completeness of the system databases, various recommendations or best practices based upon lessons learned shall be implemented while accessing and operating the Reverse 911® Emergency Notification System.

➤ Access

The current version of Reverse 911® employs a web-based interface, which allows authorized users to access either server from their desk or laptop computers. The servers are within the County network and are protected by the firewall. This to say that in order to access Reverse 911® users must be within the County network. This prevents outside access, which is necessary to protect use of the system as well as the databases contained within.

➤ Administrative Rights

It is necessary that users of the Reverse 911® Emergency Notification System have administrative rights on their workstation. In order for a user to obtain the most up to date map layers and the information within, the workstation must download files from the Reverse 911® servers. These files are stored within

‘xxxxx’

In order for the workstation to create this folder, administrative rights are required.

➤ Java

Administrative rights are also necessary to download [Java](#), which is used to view the mapping application contained within Reverse 911®. Currently, it has been tested up to *Java Standard Edition 5 Update 11*. Newer releases may cause issues with the mapping application.

IMPORTANT- Users must delete their current Java Version prior to downloading the correct version of Java.

➤ Use of Proxy Servers

Reverse 911® Version 6.0 and higher is accessed through a web-based interface. When accessing Reverse 911® through an Internet proxy server(s), certain problems may occur. In order to prevent these issues, it is highly recommended that Reverse 911® users be enabled to by-pass the proxy server while accessing Reverse 911®.

➤ Downloading the Updated Map Layers

Once the County of Essex Reverse 911® Emergency Notification System's map layers have been updated with data provided by the municipalities and uploaded into the Reverse 911® servers, users will be prompted to upload the most current map layers. Please carefully follow the

instructions contained within [Annex B - Reverse 911® Mapping Tutorial](#)

* Pay particular attention to the order in which the map layers are to be loaded.

➤ Hot Wash/Follow Up Discussions

It is important that once an emergency message or a test of the system has been launched that follow-ups be conducted on two separate fronts.

- 1) *The Public*– First and foremost, random call backs from each listed call result (i.e. Successful, hung up, answering machine) should be completed to ensure that the Reverse 911® Emergency Notification System is correctly reporting call results. If there are discrepancies, they should be recorded using the Reverse 911® Complaint Recording Form (see Annex G) so that necessary steps are taken to identify potential issues and prevent reoccurrence.

Similarly, the Reverse 911® Complaint Recording Form can and should also be used to record information from calls into the agency or municipality that initiated the call session, working with the vendor through the County of Essex to identify and troubleshoot any issues.

- 2) *The County of Essex*– A hot wash/follow up should also be conducted with the County of Essex Emergency Management Staff to identify any issues and/or concerns. These concerns will be documented and followed up with in a priority basis ensuring that useful recommendations be made and implemented into the *County of Essex General Guidelines/Overview, Standard Operating Procedures, & Protocols*.

Annex E

Reverse 911® Test Operations Guidelines

Part I- Testing Rationale

What is being testing?

In order to ensure the various components of Reverse 911® are functioning, each municipality and community support agency that requires use of the Reverse 911® system, should conduct call sessions to both Call Lists and Geo-zones. In particular, these tests aim to analyze capability of the Reverse 911® system's telephone lines (both in Leamington and the Civic Center), the Intel® Dialogic® voice cards, as well as the associated Reverse 911® hardware/software. In addition, testing is also conducted to verify authorized users are able to consistently gain access to the Reverse 911® servers through the County of Essex fiber-optic network and that they have the appropriate applications necessary to operate the associated mapping application.

Why should Reverse 911® be tested?

Testing is conducted to ensure that all authorized users are able to access, operate, and conduct appropriate follow-ups when using the Reverse 911® Emergency Notification System. Testing will ensure continued familiarization with all aspects pertaining to use of the system. Specifically, testing will give insight into the inconsistencies with regards to reporting. Focus should be placed on differences when attempting to reach cell phones, landlines, auto-attended answering systems, VOIP, etc. It needs to be determined whether certain issues, for instance, message not playing in full to answering machine, pertain to specific service providers (Bell Canada, Rogers, Telus Mobility, Cogeco etc.).

When should tests be conducted?

Testing should be conducted regularly, on as frequent a basis as possible. A testing schedule should be developed by each municipality/community support agency to continually exercise staff, confirm ability to access the system, and to ensure functionality of the Reverse 911® servers, as well as the associated hardware/software.

Tests can be set up through the Reverse 911® system to launch on a recurring schedule (once a day, once a week etc.) or can be created manually each time. Each test should be similar to the types of tests outlined in the [Methods of Testing](#), located in part II of this Annex. This list of tests is not exclusive, however, provides a framework for the types of tests that can be conducted to identify issues, confirm accuracy of data, etc. As municipalities and community support agencies continually test Reverse 911®, additions and ideas for different methods of testing are encouraged.

Part II- Goals and Methods of Testing

Aim

To put forth a general guideline and framework for all municipalities and community support agencies to use in testing the Reverse 911® Emergency Notification System and their authorized key staff members.

Goals

To identify difference in the post activation reports when attempting to reach various communication devices including cell phones, landlines, auto-attended answering systems, VOIP, etc. and provide training to municipal, community support agency staff members, and the public alike. In doing so, Reverse 911® users will be able to recognize and develop methods to reduce anomalies by ensuring completeness and accuracy of data and promoting a public education campaign that will keep the public informed as to what they can do to ensure successful receipt of Reverse 911 messages.

Methods of Testing

Each of the follow types of tests can be used to guide testing at the municipal and agency level. All tests require immediate follow up by available staff to confirm accuracy of post activation reports as well as to identify anomalies within the system. Any issues are to be reported to the County of Essex for further analysis and dissemination to all Reverse 911® users.

- New Registration Test- All residents and/or businesses that have provided information for input or update into the Reverse 911® system should be placed on a call list to confirm receipt of their

information. A 'Welcome and Confirmation' message will indicate that their information has been inputted into the system as well as provide an opportunity to disseminate additional important information. For more information on correct [message format](#) and [naming protocols](#), please see [Annex C](#).

- **Contact List Test**- Test aimed to confirm accuracy of emergency response call lists. Municipalities/community support agencies are responsible for ensuring accuracy of test lists. Test can be used to gauge effectiveness of contact means and determine if additional telephone numbers should be added to increase number of successful results. Similarly, this test can assist in determining if there are differences when contacting the different communication devices and service providers.
- **Geo-Zone Test**- Test aimed to confirm completeness and accuracy of data within specific geographical area. This test can also assist in determining if there are differences when contacting the different communication devices and service providers as those within the geo-zone likely utilize various means of communication through different service providers.
- **Cell Phone Test**- This test is aimed to confirm system's ability to reach intended recipients on cellular phones, likely with various service providers. Similarly, this test can be set up to exercise the ability of the telephone lines and confirm local-long distance exchange settings in reaching cell phones throughout the region as the location of recipients can vary. This test should focus on

noting, if any, differences in call results based on location and different service providers used.

- Error Test- This test uses a control group of telephone numbers that are known to report differently than the actual call result. For example, if the Reverse 911® system does not play the message to an answering machine, that phone number should be placed on a call list and tested until it can be determined what causes this error, whether it be the answering machine greeting, associated beeps and tones, service provider, local long distance exchange etc.
- Local Long Distance Dialing Test- Test aimed to confirm the Reverse 911® systems ability to differentiate between a local and long distance call. Each server, due to its associated telephone line exchange, has telephone numbers that are long distance within the region. Tests should be aimed at confirm that the Reverse 911® systems, working separately and together (.NET capability), are able to differentiate and correctly dial intended phone numbers.

Annex F

Common Call Results Glossary and Lessons Learned

The following is a list of results that may have been reported different by Reverse 911® for various reasons. This list is based on lessons learned through continued testing it will be added to in the future.

- **Answering Machine** – The call result returned to the REVERSE 911® system when the cadence is interpreted by the Intel® Dialogic® cards as a voicemail service or answering machine.
 - *Depending on the service provider, content of voicemail greeting, local vs. long distance call and associated beeps and tones, the voice cards may interpret the Operator as an Answering Machine and will play the message to the operator. The report will record an answering machine result.*
- **Busy Call** – The call result returned to the REVERSE 911® system when it encounters a busy signal.
- **Call Timed Out** – The call result returned to the REVERSE 911® system when a dialed phone number is not answered in 30 seconds.
 - *Intended recipient may have an answering machine, however, if it does not pick up within 30 seconds of call out, will be recorded as Call Timed Out and the message will not be played for the recipient.*
- **Fax Tone Detected** – The call result returned to the REVERSE 911® system when a fax machine is detected by the Intel® Dialogic® cards during an outbound call session.
- **Hung-Up (Line Dropped)** – The call result returned to the REVERSE 911® system when the cadence is interpreted by the Intel® Dialogic® cards as a live person answering the call and then hanging up prior to the delivery of the REVERSE 911® message.
 - *Intended recipient may have heard all or most of message but hung up line prior to Reverse 911® registering call as completed. Recipient will not get a call back for Hung Up calls.*

- **No Ring** – The call result returned to the REVERSE 911® system when the cadence is interpreted by the Intel® Dialogic® cards as no dial tone or picking up before dialing.
 - *The Civic Center Server uses a Meridian switch, which has a 24-call capacity. The current configuration sees 20 of these lines available to be utilized by the Reverse 911® system(s). This means there are 4 lines available for the remainder of various departments within the Civic Center during a Reverse 911® call session. As a result, if during a call session, more than 4 lines are being used, a NO RING will occur on those calls that attempt to pick up a line that is in use by others within the Civic Center. A traffic study to assess and identify whether additional or dedicated telephone lines are needed is ongoing. To mitigate any foreseeable impact, all Call Sessions, by default, are configured to attempt a non-successful call 2 times. Those calls that may have received a NO RING on the first attempt will likely utilize a different line on the second attempt.*
- **Operator Intercept** – The call result returned to the REVERSE 911® system when any automated telephone company message is detected. This includes, but is not limited to, messages like, "the number you have dialed is no longer in service."
 - *Depending on the reason for operator intercept, type of service provider and associated beeps and tones, the Intel® Dialogic® voice cards may recognize the operator as a live person or answering machine. As a result, the message will be played to the operator intercept and will report as either an answering machine or successful call. Continued testing will serve to identify instances where this occurs and steps will be taken to minimize occurrences through changes to the system settings, Reverse 911® user and public education.*
- **Successful** – An outbound telephone call initiated by the REVERSE 911® system when the cadence is interpreted by the Intel® Dialogic® cards as a live person.
 - *Intended recipient's answering machine may sound like or be configured in a manner that suggests a live response on the other end. In this case, the Intel® Dialogic® voice card will interpret recorded message as a live person and play*

message to answering machine.

- *Typical outcome is a truncated message as the system begins playing the message when it interprets a live person at the other end. As a result, intended recipients may only receive a lagger portion of the message.*
- **Timed Out Waiting for Response** – The call result returned to the REVERSE 911® system when a response is set as a required parameter of a session and the recipient does not touch a key on the phone pad within 30 seconds following the completion of the message.
- **Unknown Error** – An outbound telephone call initiated by the REVERSE 911® system that did not reach the intended phone number.



Annex G

COUNTY OF ESSEX
REVERSE 911® COMPLAINT RECORDING FORM

Date _____ Completed By (Name) _____

Call Session/Notification Referred to _____
(As named within system)

Municipality _____

To be completed internally and forwarded to Emergency Management Coordinator at the County of Essex Civic Center.

The Resident or Business has registered for the Reverse 911® system.	Yes <input type="checkbox"/> No <input type="checkbox"/>
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N.B. Residents whose information changed since they registered (ex: moved, changed phone numbers etc.) must re-register. A new registration must be completed upon each change made. Reverse 911® Registration Forms are available on our municipal website and electronic registration via www.countyofessex.on.ca

Full Name of Person or Business to whom the phone number is registered.	
Telephone Number (Including Area Code)	() -
Complete physical address (Including Street Address, Apt/Unit #, Town, Postal Code).	
Resident has received a call at some point from the Reverse 911® System.	Yes <input type="checkbox"/> No <input type="checkbox"/> Yes, but not recently <input type="checkbox"/>
Resident has Caller ID.	Yes <input type="checkbox"/> No <input type="checkbox"/> If YES, message displayed:
Resident has answering machine.	Yes <input type="checkbox"/> No <input type="checkbox"/> If YES, was Reverse 911® message left? Yes <input type="checkbox"/> No <input type="checkbox"/>
Describe message received. (Most recent) <input type="checkbox"/> Cut Off <input type="checkbox"/> Delay in starting <input type="checkbox"/> No message played <input type="checkbox"/> Garbled or Unclear <input type="checkbox"/> Other (Describe in space below)	