

Public Alerting In Canada: A British Columbia Perspective on Emergency Notification

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Ron Martin, City of Vancouver

Dorit Mason, City of Coquitlam



Presentation Outline

- ▶ Lionel Eshleman, TELUS Geomatics – Overview of the Industry Canada – TELUS Public Alerting Field trial and the integrated emergency management solution used to test Public Alerting in Canada.
- ▶ Ron Martin, City of Vancouver - Describe the results of the Industry Canada TELUS field trial including key learning's in the City of Vancouver.
- ▶ Dorit Mason, City of Coquitlam - Describe the results of the Industry Canada TELUS field trial including key learning's in the City of Coquitlam.
- ▶ Conclusion of project and future items relating to public alerting in Canada.





Lionel Eshleman MBA, PMP

Emergency Management Program Manager

TELUS Geomatics

the future is friendly



GIS and Emergency Response

Success in Public Notification

Industry Canada Strategy

- ▶ Concept of a Canada wide public alerting system
- ▶ Build support from Federal & Provincial agencies
- ▶ Partner with private industry and the provinces in the planning and development stages
- ▶ Leverage existing telecom and broadcasting infrastructure
- ▶ Conduct field trials
- ▶ Share results and learning's
- ▶ Develop vision and standards



Public Alerting Principles

1. Integral to emergency planning, mitigation, and response.
2. Uses diversified delivery systems
3. Requires strong coordinated planning
4. Adopts standards and protocols
5. Minimal time delay
6. Addressable
7. Secure
8. Public consultation and public education
9. Tested regularly
10. Reaches visually and hearing impaired
11. Multilingual



Progress

2003 – 2005 Field Trials and Sharing Information

- ▶ 4 field trials
- ▶ First Canadian Public Alerting Workshop & Forum in Ottawa Nov 2003 and one in March 2005
- ▶ Provincial public alerting workshops held at EMOs
- ▶ Concept for Canada wide alerting system being tested in 2005-2006 in Alberta



Industry Canada Field Trial Details

- ▶ Objective - Illustrate how a public alerting system using Internet-based technology can efficiently and effectively contact stakeholders in the event of a real emergency - *landlines, cell phones, pagers & emails*
- ▶ To study the feasibility of 911 database integration in telephone public alerting solutions
- ▶ TELUS partnered with three cities: Vancouver, Coquitlam & Ottawa
- ▶ 2 Staged callout events (maximum 5000 callouts) in each city
- ▶ GPS phones provided to key Emergency Response personnel - *aid in the location and management of key human resources*



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About TELUS Geomatics

- ▶ Division of TELUS Communications
- ▶ We partner with industry leading GIS and data providers
- ▶ One product called **TELUS GeoExplorer**[®]
 - Hosted in TELUS Internet Data Center (IDC)
 - Delivered over the Internet
- ▶ GeoExplorer Services
 - Emergency & Incident Management
 - Mobile Resource Management - GPS Fleet Tracking
 - SPOT Satellite Data Distribution
 - Asset Management
 - Business Demographics



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Technical Field Trial Components

- ▶ Internet Data Centre – Hosts GeoExplorer application, Interactive Voice Response & spatial data
- ▶ GeoExplorer GIS – spatial tools and graphics to disseminate information and integration to IVR
- ▶ Interactive Voice Response – auto dialer of voice messages for outbound notification
- ▶ Internet – Connectivity between GeoExplorer & end user
- ▶ Data - Spatial data of field trial area, roll data and geo-coded Super Pages
- ▶ GPS phones – wireless TELUS iDEN network and GPS satellites
- ▶ Public Switched Telephone Network (PSTN) – Telco infrastructure (transport & access network), TELUS & Bell



System Capabilities & Functions

- ▶ Intuitive & flexible for non-GIS users (MapGuide platform)
- ▶ Ability to import 3rd party GIS data
- ▶ Pre-defined or adhoc buffers
- ▶ Contact management component to store stakeholder information
- ▶ Pre-recorded or live on-the-fly voice messages - *bilingual*
- ▶ Call out rate - 1500 calls per hour (redial, time duration)
- ▶ Text Messaging capabilities – up to 50 text enabled devices or email addresses
- ▶ Ability to map locations of unsuccessful calls
- ▶ Resident reports on demand – export to .xls, .doc, .pdf



GeoExplorer Application

The screenshot displays the GeoExplorer application interface. At the top left, the logo "Geo Explorer" is shown, followed by "Powered by TELUS™". A navigation toolbar contains various icons for map interaction. Below the toolbar, a menu bar includes "My Account", "Vancouver", "On-line Help", "Contact Us", and "Logout". On the right side, there are "Plot" and "Exit" buttons. A browser address bar at the top right shows "http://cgy.telusgec" and "Internet".




The main map area shows a street grid in Vancouver, British Columbia. A call path is visualized with black arrows and red dots. A yellow popup box provides details for a specific call:

Number: 32
unit: DEMO9
at: 11/26/2004 12:40:38 PM
velocity: 8 KM/H
direction: -91
Event: Time-Distance


The left sidebar contains a list of map layers with checkboxes. The "Arrows: DEMO9 on : 11/26/2004" layer is selected. Other layers include "Location", "Unconfirmed Calls", "Call Answered - No Confirm", "Busy Signal", "Network Busy", "Outbound Line Problems", "Ring - No Answer", "Unexpected Tone", "Unknown", "GPS Phones", "Town and Cities", "Boundaries", "IVR Pilot Area", "Expressways & Interstates", "Primary Roads & Highways", "Secondary Roads & Highways", "Arterial Roads", "Local Roads", "Trails & Cutlines", and "Ferries".




At the bottom of the screen, a status bar displays the following information: "Lat: 49.236038, Lon: -123.043838", "Arrows: DEMO9 on : 11/26/2004", "Number: 32-unit: DEMO9-at: 11/26/2004", "0 feature(s) selected", "1 : 37,577", and "8.07 x 6.41 (Km)".

Contact Management


 Contacts
 Groups
 Locations

Contact Management

Find 

Contact details

Last Name
First Name
Family Role
Date Of Birth 
Gender Male Female
Home Owner
Primary Contact

Address **Business or School Information** **Notification Details** **Emergency Response Information** **Groups** **Locations**

Home Address		Mailing Address	
Street Number	<input type="text" value="10707"/>	Street Number	<input type="text"/>
Number Suffix	<input type="text"/>	Number Suffix	<input type="text"/>
Street Prefix	<input type="text"/>	Street Prefix	<input type="text"/>
Street Name	<input type="text" value="132"/>	Street Name	<input type="text"/>
Street Type	<input type="text" value="STREET"/>	Street Type	<input type="text" value="Please Select"/>
Street Suffix	<input type="text" value="Please Select"/>	Street Suffix	<input type="text" value="Please Select"/>
City	<input type="text" value="Edmonton"/>	City	<input type="text"/>
Province	<input type="text" value="Alberta"/>	Province	<input type="text" value="Please Select"/>
Postal Code	<input type="text" value="T5M 1C8"/>	Postal Code	<input type="text"/>
This is same as my mailing address <input checked="" type="checkbox"/>		PO Box	<input type="text"/>



Interactive Voice Response

TELUS Geomatics - IVR - Microsoft Internet Explorer

File Edit View Favorites Tools Help

TELUS® geomatics

TELUS IVR SYSTEM

IVR Parameters

Message Groups

Message Types

Select a Scenario Group
to access Scenario Types

Description

Duration (in minutes) Attempts (until contact) Delay (in minutes) Message Repeats

60 2 10 3

Callees by Group Selection

Callees by Custom Feature or Location

Callees by Map Selection

Callees by Callback

SUBMIT CLOSE

Done Internet



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Group Selection

Callees by Group Selection

All Groups

Alex Demo
Alex_EM_officials_demo
Atcomid
BCH
BIG TEST MARCH 6
Buffer Segment 1
Buffer Segment 2
Daniel Demo
Demo Disaster Management
Dino and Jen
GEOC_TEST
GOC
Geo - Jacqueline
Geo and IVR - Testing
Geomatics Test

>
<
SHOW

To view the contacts of a group,
select the group in "All Groups" box
and click "SHOW" button.

Selected Groups

Hold CTRL to select many
or SHIFT to select a range.

Name Home Bus. Cell Alt. Car Pager



Detail Report

CALLOUT DETAIL REPORT											
Status		IVR - Complete Success									
Description		TG OTF Multi Digit - Jennifer Fort Sask BP Demo									
Date/Time		9/24/2003 9:57:06 AM									
Callee List											
Number	Sequence	Type	Description	Start Date/Time	Duration	Attempt	Status	Pickup Date/Time	Confirmation	Key Press	Progress Mark
7807183565	1	CELLPHONE	Rolph Jennifer	9/24/2003 9:56:52 AM	47	1	Answered	9/24/2003 9:57:07 AM	Yes	No Key Press	H4
7809036450	1	CELLPHONE	Nestransky Garry	9/24/2003 9:56:52 AM	51	1	Answered	9/24/2003 9:56:58 AM	No	No Key Press	N6
7809039783	1	CELLPHONE	Dulaba Bob	9/24/2003 9:56:52 AM	29	1	Ring No Answer				Null
				9/24/2003 9:58:37 AM	37	2	Answered	9/24/2003 9:58:51 AM	Yes	No Key Press	H2
7809133442	1	CELLPHONE	Mirbach Cory	9/24/2003 9:56:52 AM	29	1	Ring No Answer				Null
				9/24/2003 9:58:37 AM	29	2	Ring No Answer				Null
7809201314	1	CELLPHONE	Jones Randy	9/24/2003 9:56:52 AM	43	1	Answered	9/24/2003 9:57:05 AM	Yes	No Key Press	H4
7809755235	1	CELLPHONE	Worman David	9/24/2003 9:56:52 AM	63	1	Answered	9/24/2003 9:57:11 AM	No	No Key Press	N6
Callback Criteria											
Status: <input type="text" value="Any Status"/> <input type="button" value="Filter"/>											
<input type="button" value="Back"/>						<input type="button" value="Callback"/>					



Ron Martin
Emergency Planning Coordinator
City of Vancouver



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Success in Public Notification

Concept

- ▶ Use TELUS GIS and IVR technologies to notify people within a target area where evacuation or an important message is required
- ▶ Provides an additional method of notifying people in a target area during an emergency situation



Pilot Project Components

- ▶ City provided TELUS Geomatics with GIS data
- ▶ TELUS provided training in Vancouver
- ▶ COV identified two call-out areas
- ▶ Execution included pre-notifying, devising message, initiating calling process
- ▶ Testing several GPS-enabled cell phones for tracking operations staff on the ground
- ▶ Evaluative comments by City



Pilot Call-Out Areas

- ▶ November 26
 - Everett Crowley Park in southeast Vancouver
 - Chosen because of urban forest fire hazard
 - Multi-lingual, mixed density
 - Call list of about 1,900
 - Conducted with major emergency exercise
- ▶ December 17
 - Manitoba Yards area in south central-east Vancouver
 - Chosen because of mixed use
 - More English as first language
 - Call list of about 1,200



Field Trial Areas



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Call Structure

- ▶ Hello greeting
- ▶ Press 1 to hear message
- ▶ Key message
- ▶ Press 1 or 2 to repeat message
- ▶ Goodbye message
- ▶ Reporting facilitates knowing at which stage each call end



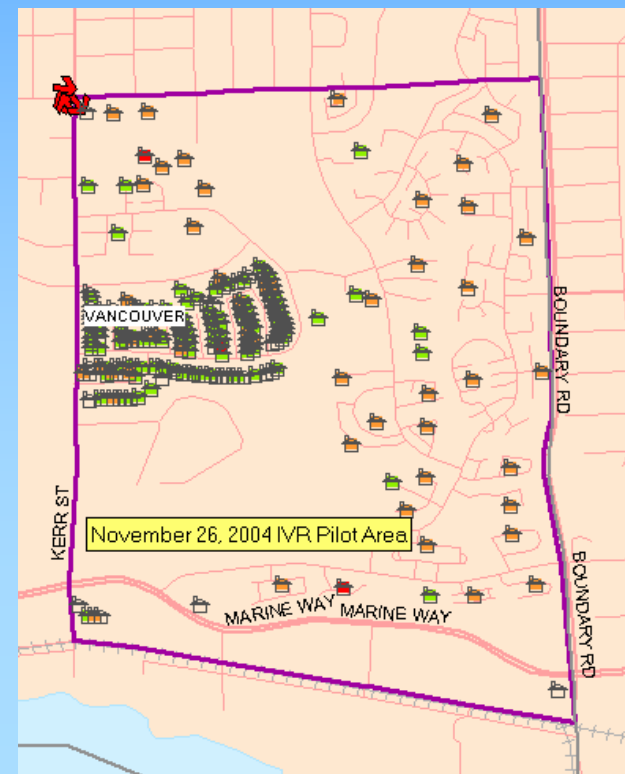
November 26 Pilot Results

- ▶ Maximum of two attempts to get an answer
- ▶ 91% of calls answered by person or device
- ▶ Of answered calls
 - 31% hung up early
 - 25% pressed 1 to hear key message
 - 44% likely heard all or part of key message via recording
- ▶ Averaged 1,143 calls per hour
- ▶ Average duration of 97 seconds per call



November 26 Pilot Results

- ▶ 4 GPS enabled phones given to military participants in overall exercise
- ▶ Vehicle locations were tracked with 20 second delay as they moved around Vancouver and North Shore
- ▶ Valuable to know where vehicles were at all times for deployment purposes



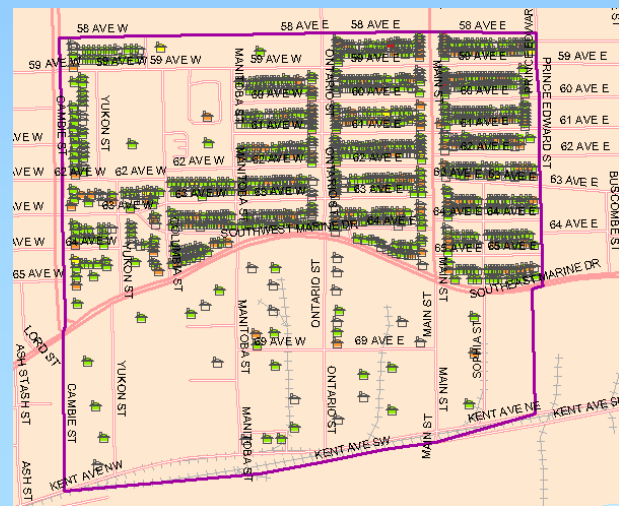
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December 17 Pilot Results

- ▶ Maximum of three attempts to get an answer
- ▶ 88% of calls answered by person or device
- ▶ Of answered calls
 - 34% hung up early
 - 30% pressed 1 to hear key message
 - 36% likely heard all or part of key message via recording
- ▶ Averaged 1,292 calls per hour
- ▶ Average duration of 73 seconds per call



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Combined Pilots: General Conclusions

- ▶ Noting the calls were during prime time to be out of the house (10:30am to 12:45pm)
 - 90% of call list answered the call
 - 68% of answered calls likely heard the entire message or a message was left
- ▶ Average calls placed per hour: 1,195



Possible Future Enhancements

- ▶ Use of E911 database rather than White Pages (FCM going for CRTC approval)
- ▶ Inclusion of cell phones & pagers addressed in target area
- ▶ Inclusion of cell phones & pagers passing through target area
- ▶ Inclusion of email addresses addressed within target area
- ▶ Increased multi-language capabilities
- ▶ Closer ties to VanMap (Vancouver web GIS)



Dorit Mason, M.Sc., A.B.C.P
Manager Emergency Programs
City of Coquitlam



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Methods to Inform Public

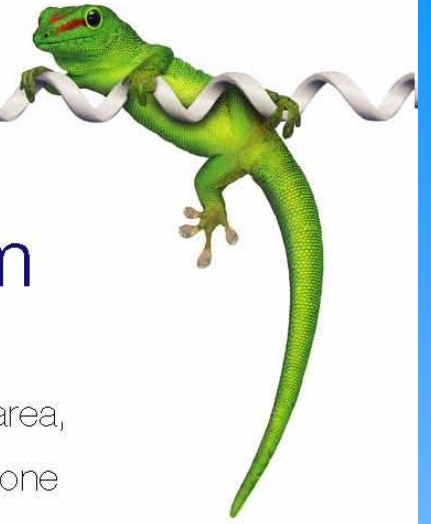
- ▶ Media
 - Radio, TV, print
- ▶ Physical
 - Sirens, loud speakers
 - Door to door campaigns
 - RCMP, Search and Rescue, City staff



Communications for Field Tests

- ▶ TELUS 'postcard' sent to residents
- ▶ News release
 - Local papers ran articles Nov 20, 2004
 - City TV news clip Nov 23, 2004
- ▶ Newspaper ad in local paper Nov 20, 2004
- ▶ Information provided to Council and front line staff
- ▶ Fire/Rescue, RCMP dispatches informed on trial days





TELUS Testing New Public Alert System

TELUS Geomatics and the City of Coquitlam will be testing a new technology in your area, designed to contact the public in emergency situations. Residents will receive a telephone call with a recorded message between the hours of 6:30 p.m. and 8:30 p.m.

November 23, 2004

The area east of Mariner Way to the Port Coquitlam boundary and south of Lougheed/Barnet highway.

December 7, 2004

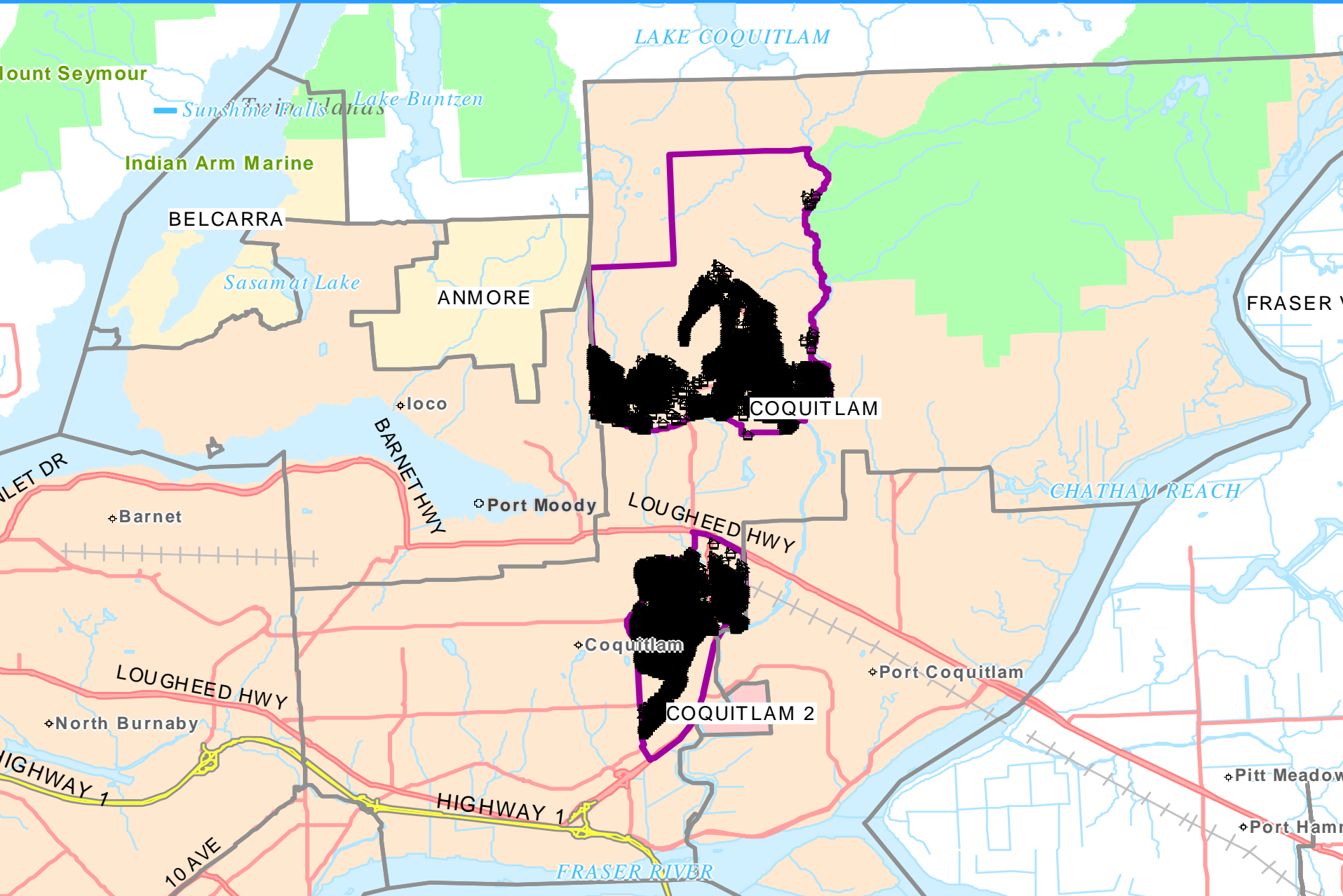
The area north of David Avenue and west of Coquitlam River to the Port Moody border

Coquitlam is one of three Canadian cities working in partnership with Industry Canada and TELUS Geomatics to conduct tests to evaluate this new technology.

TELUS Geomatics
1-877-877-9939
telus.com/geomatics

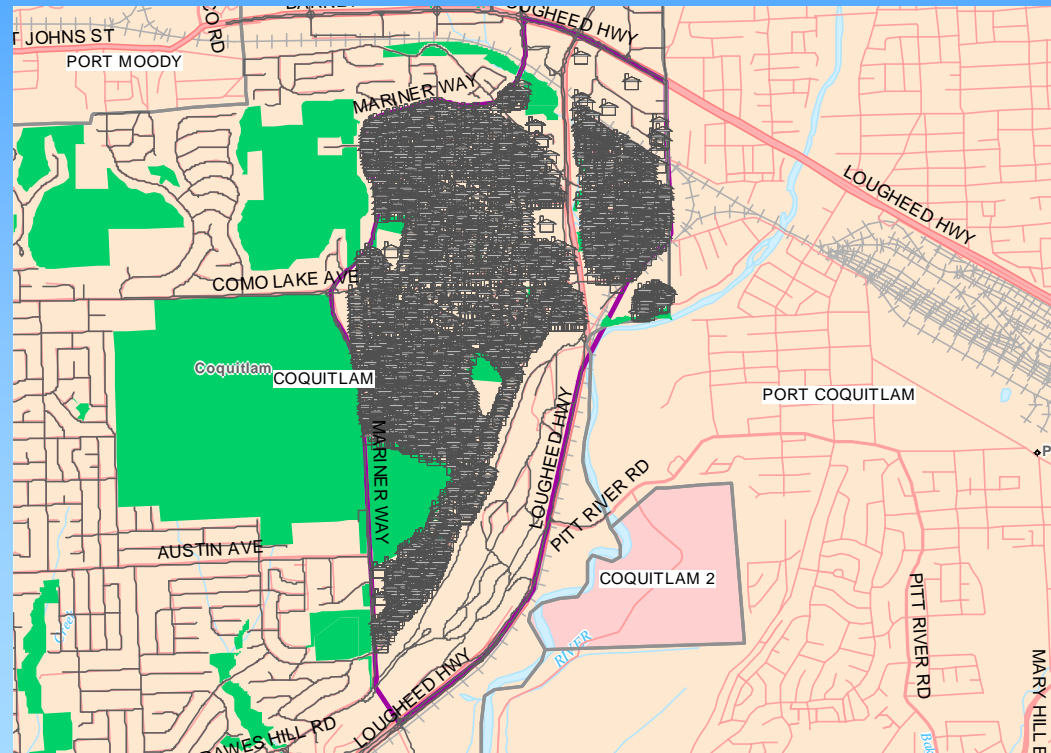


Field Trial Areas



Field Trial #1

- ▶ Part of area within the Coquitlam river flood plain
- ▶ 2419 phone numbers selected
- ▶ Nov 23, 2004
- ▶ 18:30-20:30hrs



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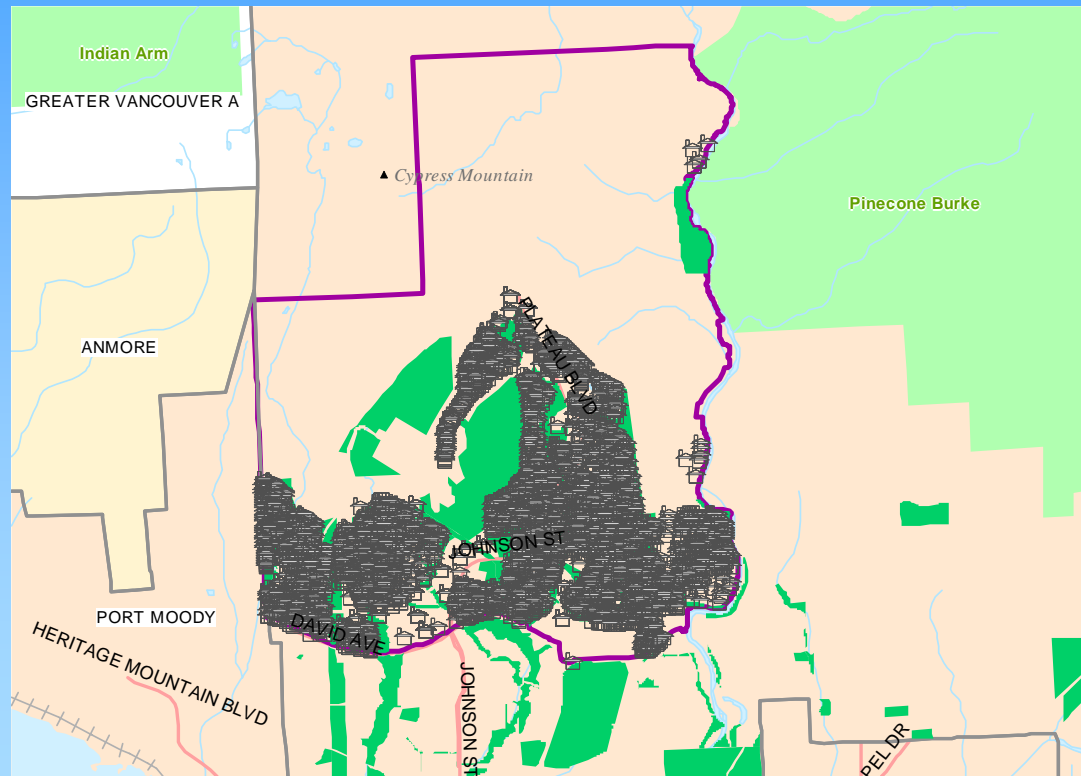
Field Trial #1 - Results

- ▶ 2659 calls made (240 had two attempts)
- ▶ Average call duration 76.239 seconds
- ▶ Average of 1343 calls per hour
- ▶ 85.9% calls answered
 - 2.36% hang up, 60.73% not confirmed, 36.91% caller confirmed
- ▶ 14.1% calls unanswered
 - 6.88% ring no answer, 3.91% busy, 0.11% unexpected tone, 3.2% outbound line problem



Trial #2

- ▶ Forest interface area
- ▶ 4091 phone numbers selected
- ▶ Dec. 7, 2004
- ▶ 18:30 - 20:30hrs



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Field Trial #2 - Results

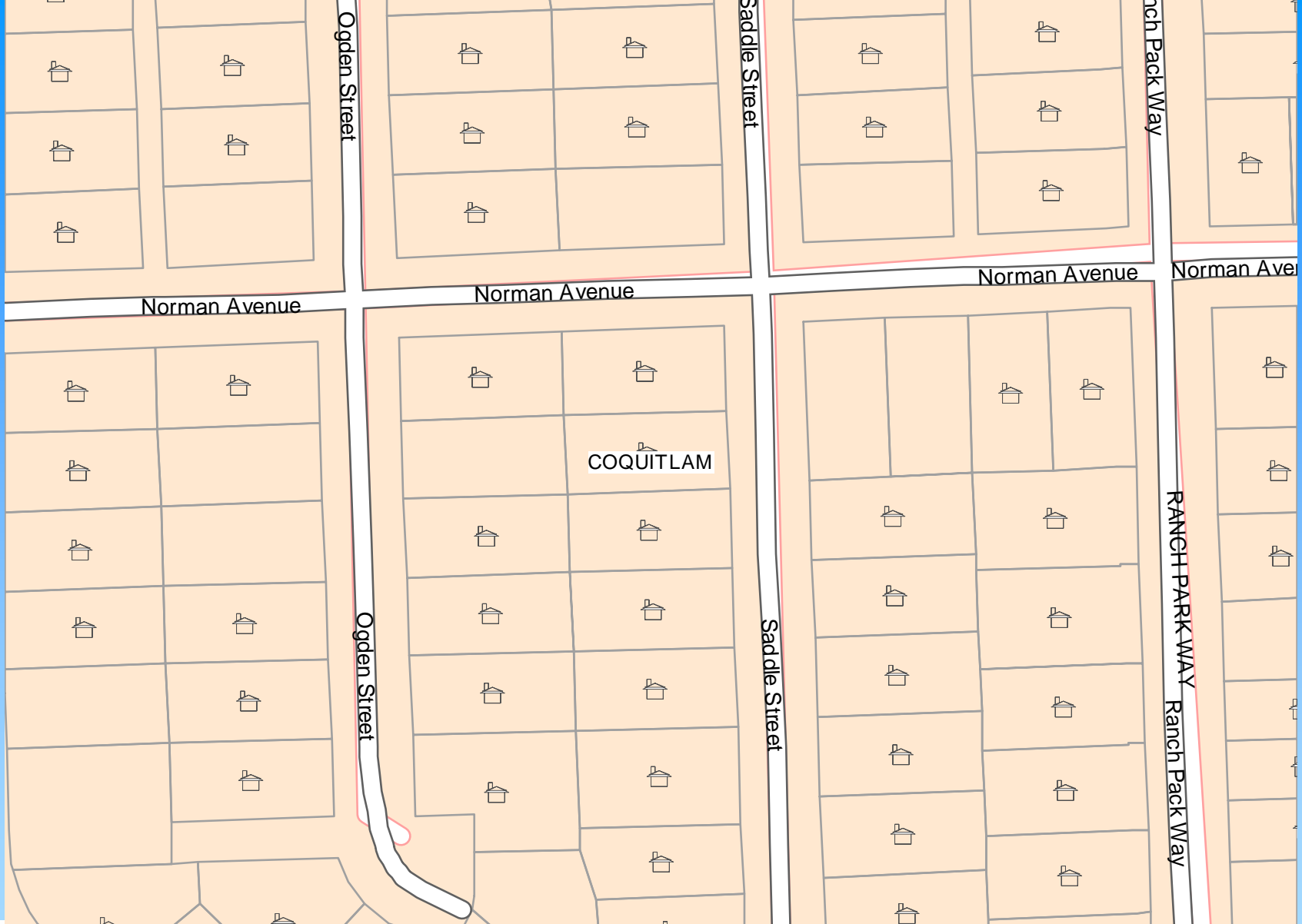
- ▶ 2680 calls made (84.75%) - 0 second attempts
- ▶ Average call duration 71.09 seconds
- ▶ Average of 1340 calls per hour
- ▶ 85.78% calls answered
 - 1.48% hang up, 63.9% not confirmed, 34.62% caller confirmed
- ▶ 14.22% calls unanswered
 - 6.9% ring no answer, 3.96% busy, 0.07% unexpected tone, 3.28% outbound line problem



Comments

- ▶ One method of alerting
- ▶ Components all established before trials
- ▶ Callout easy to initiate
- ▶ Delivery of targeted messages to specific areas
- ▶ On-the-fly messages
- ▶ Large areas – calls made in numerical order
- ▶ Role of other levels of government in public alerting, cross jurisdictional emergencies
- ▶ White pages data – incomplete, current?





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Summary

- ▶ Municipalities are responsible to inform the public of potential or realized disasters
- ▶ Public alerting could save lives and/or reduce impacts
- ▶ Method must be supported by politicians and public
- ▶ Targeted, specific messaging
- ▶ Multiple methods provide redundancy



Parting Words

- ▶ The field trials are complete – final reports have been submitted and sharing of results will result (on IC site)
- ▶ The concept of focused Emergency public alerting was shown to be effective for municipal users
- ▶ Concept for a Canada Wide Public Alerting and Warning System can be supplemented by existing telephone based systems
- ▶ The user community for Public Alerting must share resources, learning's and education processes to ensure maximum benefits to all



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Conclusion



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