McMaster University
Emergency Notification Systems Testing

March 1, 2013

Purpose

Since 2007 McMaster University has installed a number of emergency notification systems intended to be activated in the event of a campus emergency.   Due to size, population and diversity of the McMaster campus, one method of communication in the event of an emergency would not be effective in reaching all community members.   Therefore multiple methods of communication, using different mediums, have been established to increase the efficiency of the message.

Testing of these systems ensures that the university is demonstrating due diligence in ensuring all systems are functioning appropriately as designed.   It also allows community members, staff, faculty, students and visitors, to increase their familiarity with the systems that are in place and increase their knowledge of emergency procedures and methods of notification in an emergency. Testing also allows for actual hands on training of personnel who are required to activate these systems in an emergency. Lastly, testing provides an opportunity to identify any potential gaps in the communication plan and develop contingency plans for enhancement. Also demonstrates to the McMaster community the ability to respond during emergencies and thereby providing a level of comfort and safety.

Systems Tested

LCD Screens -

In early 2013, LCD screens were installed in almost all campus buildings. These LCD screens are designed to share information with the community on a daily basis. In the event of an emergency, an emergency message is sent to all screens, warning our campus community and providing information about the incident to override current programming.   A total of 57 screens are equipped with this software as of March 1, 2013.

Text Messages -

All community members have an option of registering their mobile phone number to receive text messages in the event of an emergency on campus. Text messages are expected to be delivered to all cell phone providers by our Emergency Notification System (Send Word Now) within 5 minutes of activation.

Sirens -

Three outdoor sirens are installed on the campus.   Sirens have the option of sending a verbal message in addition to an audible siren. The magnitude of the siren sound and the ability of persons to hear them depends on the weather, wind and physical sound barriers such as buildings.   These sirens were installed

with the expectation of alerting persons outside of buildings. It will also be heard from within some buildings.   Due to our complex building construction, the sirens are not expected to be audible in all areas.

Assistance Phones – Public Address System –
9 newer campus assistance phones (formerly red emergency poles) are equipped with a public address system.   The PA system includes a verbal message only.   The verbal message is expected to be heard instantly by persons who are outside and in the area of one of these phones.

Communication Plan

Prior to completing this testing the community and neighbours were advised of this event through a number of means such as article in the Hamilton Spectator, Daily News, Full Page Ad in the Silhouette, McMaster Twitter account and Signage at all entrances to the campus.
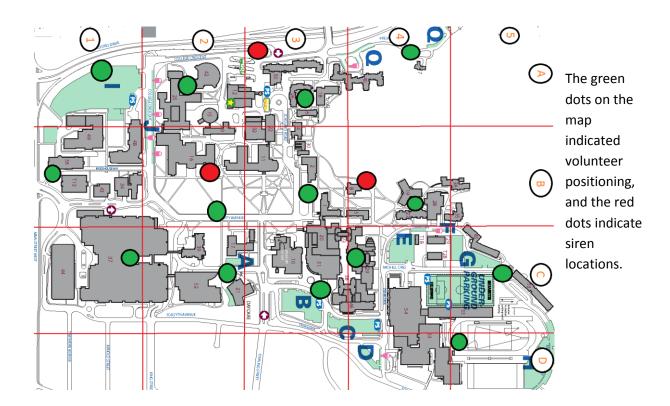
Testing Process

The McMaster campus was divided into grids to ensure we are obtaining information and results from all areas of the campus. Volunteers from campus partners, such as EOHSS and members of Health and Safety Committees were assigned to monitor grid areas throughout the testing time.

All volunteers were provided with a testing sheet so areas could be rated using the same scales.

5 = Loud/clear visual

3 = heard okay

1 = not heard or no visual

Emergency Notification Systems
Live Testing

Date:	March 1, 2013	
Observer/Tester:		
Observer Assignment Grid:	A1 – Lot I	
SYSTEM	**** RATING:** *(please circle)*	**COMMENTS:**
1. Text Message *(include cell phone provider in comments)*	Time Received:	
2. Sirens - Verbal Message	1 2 3 4 5	
3. Sirens – Wail Tone	1 2 3 4 5	
4. Assistance EPhone - Verbal Message	1 2 3 4 5	
5. Building LCD Screens:	Visual Alert: 1 2 3 4 5	
ITB Lobby	Audible Alert: 1 2 3 4 5	
ABB Entrance	Visual Alert: 1 2 3 4 5	
	Audible Alert: 1 2 3 4 5	

** **Rating :**   5 - loud / visual   3 - heard okay   1 - not heard / seen

The green dots on the map indicated volunteer positioning, and the red dots indicate siren locations.

Testing Results

At 10:00hrs our emergency notification system was activated.

The results of the emergency texting were:

Email addresses in system = 7406.   The message was delivered to 92.13% of email accounts.

Mobile numbers in systems = 4861.   The message was delivered to 80.6% of aggregators.

The following chart is the results from the campus volunteers:

Location	Text Messaging	Sirens - Verbal	Sirens – Wail	Assistance Phone Paging	LCD Screens Visual	LCD Screens Audible
A1 – Lot I	10:06 hrs	5	5	1	5	1
A2 – Thode	N/A	3	5	4	N/A	1
A3 – WR	10:17 hrs	3	5	2	5	5
A4 – Presidents	10:10 hrs	2	5	2	5	1
B1 – ETB	10:03 hrs	4	5	1	5	2
B2 – JHE	N/A	4	5	3	5	2
B3 – HH	10:07 hrs	5	5	4	5	3
B4 – NR	10:01 hrs	5	5	1	5	5
C2 – MDCL	Email only	5	5	2	5	1
C3 – Lot B	10:03 hrs	3	5	4	5	3
C4 – Quad	10:09 hrs	2	5	1	5	2
C5 – Les Prince	10:03 hrs	2	5	1	5	1
D5 – Track	N/A	3	5	1	1 - DBAC	1
West Campus	N/A	2	4	1	N/A	1

Follow up comments were also received from others on the campus:

1. Siren was audible in the Commons Building.
2. Siren was audible inside the Campus Services Building.
3. Siren is not audible in the Council Chambers.
4. Siren is not audible in the large classroom of MDCL.
5. Numerous successful reports of people receiving text and email messages.

Findings

LCD

57 buildings have LCD screens installed that are connected to the Alertus software notification system. These screens are an effective method of notification, but only when someone is looking at them to read the message. The verbal component to the LCD screens is dependent on a number of things, such as volume level on the screens themselves, ambient level of sounds in the screen location. The verbal component also reads the message on the screen, which was not always clear and/or easy to understand.

Prior to the testing we had a number of areas who had independent screens in their area inquiring as to connecting to the university's emergency systems. Many of these areas were connected and other areas are expected to be connected by mid-2013. The emergency software system is capable of working with all university LCD systems.

Sirens – verbal

The public address component of the sirens is only effective when persons are outside and in the immediate area of one of 3 sirens. If you are in this area, you are able to hear the verbal message. The actual effectiveness of the communication is related the person speaking and the message into the radio microphone i.e.; language, speed and clarity.

Sirens – wail

The Federal Siren wail system was effective in notifying persons on the campus who were outside of the buildings, in 100% of the grid locations. It was also a benefit to see that many persons working inside buildings were also able to identify the wail sound of the sirens.

Assistance Phone Public Address

The Public Address component of the assistance phones is only effective when persons are outside and in the immediate area of one of 9 phones equipped with a PA system. The actual effectiveness of the communication is related the person speaking and the message into the phone - i.e.; language, speed and clarity.

Text Messaging

When the initial promotion the testing took place we had an additional 204 persons register for our text messaging system. On the day of the test an additional 209 persons registered. This demonstrates that the promotion of the event is successful in engaging the community to participate. As of March 1, we had 5172 persons registered in to receive text messages; 1013 staff and 4159 students.

The emergency notification system successfully distributed messages to these persons and our snap shot of results indicate that most were delivered by their providers in less than 10 minutes, many less than 5. The discrepancy in time is related to the cell phone provider companies such as Rogers, Bell, Telus and the speed in which they can deliver the message.

Recommendations and Conclusions

This testing was a success, but more can be done to ensure that all members of the community are immediately aware of a campus emergency.   In order to enhance our communication plan the following enhancements should be made.

LCD Screens
1. Have all screens set to the highest volume level possible .
2. Disable the ability to adjust the volume at the screen.
3. Change the verbal message to an avi file of the siren wail for easier recognition of the sound.

Sirens
1. Interior sirens will be installed in larger buildings to increase the effectiveness of the wail.   MDCL, MUSC and DBAC will be the first buildings to receive this enhancement due to their size. 2013/14 $275,000.00 to begin this process

Assistance Phones
1. Any new assistance phones will be equipped with a Public Address System to increase the areas that are covered by this method of communication.   Plans are underway to have an avi file of the sire wail be send over the PA system to increase clarity and for easier recognition of the sound.

Text Messaging
1. The opt in of this emergency service should be increased to be mandatory for all staff and students – thus increasing the number of person receiving this message by approximately 20,000 people. This has been supported by the CMG and preliminary discussions have been underway with the registrar with this recommendation.

UTS Network Notifications
1. Discussions are underway between Security and UTS to install the electronic message systems on all network computers. This functionality is currently capable as part of the Alertus software system which sends messages to the LCD Screens

Frequency of Testing

1. This testing exercise should be completed a minimum of annually during the academic year with the ultimate goal to be testing once a term. The next testing session shall include volunteers accessing the effectiveness from within highly populated areas of the campus. The communication plan with the testing has resulted in a dramatic increase in community engagement in obtaining knowledge about our program.

Action Plans 2013/14

Capital funds have already been secured in the security budget to complete the following enhancements during the 2013/14 budget year:

1. Install 11 new assistance phones with public address systems - $434,000.00
2. Install approximately 23 interior siren units - $275,000.00
3. Complete another test of the notification systems in Fall 2013