Using Technology to Enhance Communities’ Engagement with Public Safety

The past decade has brought a massive expansion in broadband networks and mobile technology, affording ordinary citizens an unprecedented level of connectivity. This connectivity provides cities with many opportunities to improve public safety and government-constituent engagement. Four examples of public safety information strategies for which broadband and mobile technology can be of particular use are interfacing, crowdsourcing, broadcasting and mapping/analysis. This Municipal Action Guide provides examples of implementation of these four strategies.

Broadband and mobile technologies are increasingly recognized as important components of public safety. The Middle Class Tax Relief and Job Creation Act, adopted by Congress in February 2012, included a provision to fund the establishment of a nationwide, interoperable broadband public safety network. The goals of the Act are to allow for seamless communication between jurisdictions and departments and to also create a secure, reliable 4G network on the scale of a national wireless carrier that will allow first responders to utilize mobile applications similar to those ordinary citizens use on their smart devices. Portions of the funding will also go toward implementation of Next-Generation 911, the successor to current telephone-based 911, which will incorporate digital technology, such as texting capabilities and the ability to receive photographs and videos from citizens.

The physical creation of this network is still several years away. In the meantime, software companies have been developing programs explicitly meant to enhance public safety initiatives for use by public safety officials, as well as mobile applications for citizens to utilize over public networks. A number of these programs are mentioned in this guide, and they provide a starting point for cities and agencies wishing to improve their responsiveness prior to the nationwide network’s implementation.
The assurance of safety is undoubtedly one of the greatest assets a city can have in promoting growth. Many of these technologies allow city leaders to capitalize upon the knowledge of their constituents in combating crime and ensuring safety in the event of a disaster. They also provide communities with greater access to up-to-date public safety information. Keeping citizens engaged in the process of improving public safety can strengthen communities and civic participation overall. This can help cities become not just safer, but better places to live.

COMMUNITY INTERFACING AND COMMUNITY BUILDING

Internet and wireless connectivity can be used to give communities and public safety practitioners greater access to one another. This does not always require “cutting edge” technology. For example, John DeStefano, Mayor of New Haven, Conn., expressed a desire to equip community-oriented police officers with smart phones so that community members can have direct and immediate contact with officers whom they trust. While the return to placing officers on a community beat was a huge leap in police-citizen relations, equipping them with phones further improves their accessibility without requiring a large investment in new infrastructure or a change in methods.

E-mail listservs and community web forums also capitalize on existing platforms to improve government-citizen interaction. Each district in the Washington, D.C., Metropolitan Police Department has a corresponding online community discussion group, which has provided a channel for exchanging information between the police and citizens since 2004. The effectiveness of such tools may be further enhanced by the proliferation of smart phones, which enable users to upload information at any time and from any place. Online survey tools such as Moodle can allow public safety and local government officials to keep their finger on the pulse of community concerns and safety issues.

In addition to capitalizing upon existing, generalized tools, software developers have created programs and mobile applications specifically with public safety and community linkages in mind. E-Policing is a comprehensive software suite for police departments which includes a mailing list component that allows the police to keep subscribers updated on a regular basis. The suite also aids in the creation and maintenance of website content, which is likely where most people will turn first if they are seeking information or would like to give information about a crime. A benefit of this software suite is that a police department does not necessarily need to hire specialized staff for their web management.

Some websites and software meant to enhance Communities of Place can be capitalized upon to improve linkages between those places and public safety officials. A Houston-based web developer created My Virtual Neighbor after his apartment was robbed, in order to foster the sort of community ties that can lead to crime prevention. The website has a social-networking base; members of a certain housing complex or neighborhood can interact with each other for social purposes, but the site encourages the reporting of crimes and suspicious occurrences. Crime Stoppers of Houston has announced a partnership with My Virtual Neighbor due to its success in reducing crime in certain neighborhoods.

CROWDSOURCING

One unique public safety opportunity that constant connectivity provides is crowdsourcing, which occurs when the government or a firm solicits solutions to a particular problem from the undefined public. Those without particular expertise related to the problem are just as welcome to submit a solution as practitioners. This concept has expanded with the advent of smart devices. Public safety officials have a number of software platforms at their disposal to engage in crowdsourcing for public safety purposes.

The aforementioned My Virtual Neighbor and Crime Stoppers partnership is an example of crowdsourcing, as it solicits crime-related information from everyday citizens in order to prevent and solve crimes. A very innovative example comes from San Ramon, Calif. Through the use of the Fire Department’s smart phone application, CPR-certified volunteers can be immediately notified if someone goes into cardiac arrest nearby. They are given the location of the person as well as the
nearest automatic defibrillator. For cities that have emergency response services that are spread thin due to limited budgets or whose response times are impeded by traffic or a catastrophic event, this application can be particularly beneficial. **Elerts** was conceived by a Massachusetts-based former Deputy Fire Marshall, who had grown frustrated with the information flow between first responders and citizens during crises. He created this mobile application, which allows ordinary people to use their smart phones to provide helpful information to responders and fellow citizens during disasters and other emergencies. Users upload photo or video content with a short message, and the program uses the phone’s GPS to transmit its location to the receiving responders and users. This allows responders to anticipate complications, such as a blocked roadway, spreading fire or dangerous individual before they arrive on the scene.

Getting tips about crime from community members can pose a challenge in many communities, even with neighborhood police officers building relationships. In some places, the threat of retribution makes people too afraid to submit a tip about criminal activity. The San Jose, Calif. Police Department has found a solution to this problem via access to the **TipSubmit** smart phone application. This application allows residents to submit anonymous tips to the police department with text, video and photographs. Users’ security is ensured through unique IDs, message encryption and routing through secure servers.

**ALERT BROADCASTING**

Broadcasting alerts is a long-standing tactic in disaster mitigation. It connects public safety professionals with communities by turning their ability to predict an impending disaster or knowledge of response into an alert for the general public. The practice has been constantly evolving to reach more people in a shorter amount of time.

A significant innovation in emergency notification was the creation of **Reverse 911** by the Cassidian Communications Corporation. Telephone listings tied to Geographic Information Systems (GIS) databases allow responders to send automated recordings to geographically select groups of recipients in the event of a natural disaster, accident or serious crime. This system has been successfully implemented in cities of all sizes throughout the country. In 2004, when a man went on a rampage in a bulldozer in the small Colorado town of Granby, officials credited their Reverse 911 system for warning citizens in the man’s path to flee. A shortcoming of this system has been that cell phones are not automatically included, and incorporating them requires users to voluntarily sign up. Efforts to broaden Reverse 911’s reach to cell phones have not been especially successful.

The most recent innovation in alert broadcasting takes the form of the Wireless Emergency Alert (WEA) system, also known as the Personal Localized Alerting Network (PLAN) unveiled in 2011. Phones that are CMAS-enabled and served by the four major mobile carriers (Verizon, AT&T, Sprint and T-Mobile), as well as a number of local carriers, will receive text-like messages under 90 characters in length alerting users to imminent safety threats in their immediate area, as well as AMBER alerts and national Emergency Alert System messages originating from the Office of the President. The messages are created by federal, state or local government officials, and are relayed via providers’ towers to all customers within a certain radius. Because the system is opt-out, it is capable of reaching the maximum number of people possible – nearly 97 percent of mobile users, according to one estimate.

The WEA system is intended primarily to alert citizens about extreme weather events. Police departments may still want to send out crime alerts independently or to be able to interact with recipients, which WEA does not allow. Geographically selective electronic alert broadcasting has been built into several of the available public safety software suites. E-Policing includes a component that allows police to send emails and text messages to a select geographic area, but those wanting to receive alerts must sign up for the service. Elerts’ user-submitted information is sent to other users as well as to responders based on location. A host of other platforms exist to enable alert broadcasting to smart phones and tablets, such as **Nixle** and BlackBoard.
CRIME DATA MAPPING

Taking advantage of available technologies for the consolidation of crime or disaster data holds great potential for strengthening the effectiveness of public safety professionals. It also provides easy-to-understand information to communities affected by crime. The New York Police Department’s CompStat system is the most well-known implementation of crime data mapping.

Crime mapping systems involve placing crime reports on a map with the type of crime, when it happened and a brief description. ArcGIS is a commonly used program for mapping and statistical analysis. E-Policing includes a crime mapping feature and websites such as Crimemapping.com and Crimereports.com will host crime maps on behalf of police departments. Using GIS software to map crime data can be a personnel intensive process. Additional staff may need to be hired, or current staff may need to be trained in the use of the programs. Though the software packages themselves are not particularly expensive, the associated personnel costs should be taken into consideration.

Implementation of crime mapping relies on good reporting, which can be a challenge for cities whose police budgets have been cut. CopLogic and other companies have created platforms for web-based citizen incident reporting that has been adopted by many cities, including Camden, N.J., and Oakland, Calif. With the CopLogic system, victims of non-emergency and non-violent crimes such as graffiti, identity theft and property theft can submit their own report online. This frees officers for more urgent situations and ensures that even if an officer is not available to take a report, one can be submitted and incorporated into the database.

Effective crime mapping does not end when the map is on-line and accessible to the public. The main goal of the practice is to enable predictive policing, so officers must be constantly analyzing the data that they gather in order to recognize trends and move in anticipation of crime. Continued community engagement is necessary to interpret data and identify long-term trends versus shorter-term crime sprees. Crime reports must be analyzed in their environmental and temporal contexts. Whether personnel and resources are being properly allocated must be considered. These processes all involve frequent meetings and analysis, with the possibility of constantly changing tactics and resource allocations. A flexible, adaptable police force and bureaucracy are required to use crime data mapping for effective predictive policing.

CONSIDERATIONS FOR CITY LEADERS

There are several elements that city leaders should consider if they are looking to augment their public safety apparatus and community policing models with some of the technological innovations outlined above.

1. Needs. Low-crime communities may need to spend less time and money on a sophisticated crime data mapping system. The same may be true for communities that are threatened by frequent natural disasters such as wildfires or tornadoes. In these cases, funding and time are better spent on strengthening and expanding alert broadcasting systems or adopting software that enables communities to aid responders.

2. Funding. Many of the strategies in this guide are not especially expensive, but they can involve supplementing public safety budgets in order to use new software packages or to hire additional staff for systems management and outreach. The scope of a technologically-based public safety initiative should be based on access to funding in conjunction with needs assessment. Money should be spent where it will be most effective, and where it builds the strongest bridge between government and citizens. Local governments may be able to supplement their broadband infrastructure or public safety funding through grants from the Department of Justice and the National Telecommunications and Information Administration.
3. Infrastructure. A city without reliable, extensive mobile internet and cellular service cannot take advantage of some of the most innovative crowdsourcing, broadcasting and community building solutions. It can try to operate within these constraints or use those constraints as a case for more investment in broadband infrastructure. Increased connectivity is a desirable outcome, especially if it can lead to improved public safety.

4. Regionalism. Cities may look to their regional neighbors for innovative applications of technology to public safety in a similar context. Links between cities within a region can lead to a great deal of collaboration, whether by sharing resources or creating a unified public safety program. It is especially important that neighboring municipalities work in tandem to improve their public safety infrastructure given budget shortfalls, expectations of seamless service from residents and the impending creation of the nationwide public safety broadband network.

5. Planning Purchasing. This field is changing rapidly. With new technologies appearing regularly and the implementation of a nationwide public safety broadband network, municipalities must be judicious about purchasing solutions that could prove to be costly short-term investments. The building of a nationwide public safety broadband network is a positive development for first responders. It will ensure that neighboring jurisdictions are able to communicate with one another and bring innovative new applications that could revolutionize public safety to the marketplace. However, many cities will have to make significant investments when the system goes on-line in order to utilize the network and should consider that prior investments may prove duplicative or obsolete.

The most important point that city leaders should consider is how they can use technology to strengthen connections between their public safety professionals, communities and concerned citizens. Good governance is just as important, perhaps more important, than enabling media-supplemented incident reports or being able to accurately place a crime report on an online map. Using technology to create a more responsive government and public safety apparatus will ultimately lead to an improved quality of life for citizens.

ABOUT THIS PUBLICATION
The National League of Cities (NLC) is dedicated to helping city leaders build better communities. NLC is a resource and advocate for more 2,000 member cities and the 49 state municipal leagues, representing 19,000 cities and towns and more than 218 million Americans.

Through its Center for Research and Innovation, NLC provides research and analysis on key topics and trends important to cities, creative solutions to improve the quality of life in communities, inspiration and ideas for local officials to use in tackling tough issues and opportunities for city leaders to connect with peers, share experiences and learn about innovative approaches in cities.

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