NYC

Emergency
Management

Testimony of Benjamin Krakauer
Director of Watch Command
New York City Emergency Management
Oversight: Notify NYC and Notification Technologies
Before the New York City Council
March 2, 2015

Good afternoon Speaker Mark-Viverito, Chairperson Vacca, and members of the Committees on Technology and Fire and Criminal Justice. I am Ben Krakauer, Director of Watch Command for New York City Emergency Management. I am joined here today by Henry Jackson, Deputy Commissioner of Technology.

I am happy to be here today to update you on the Notify NYC program, which is now entering its eighth year of service. We have learned many lessons over the last eight years, strengthened our protocols, redesigned our website to make registering and managing accounts simpler, increased enrollment, and reduced the time it takes to message the public after an incident occurs.

I will also take a few minutes to discuss steps we have taken to ensure that the Notify NYC program is resilient and accessible to all residents, even during the most trying of times, and I will provide a high-level roadmap for where we want to take the program in the future.

As you know, the mission of NYC Emergency Management is to plan and prepare for emergencies, to educate the public about preparedness, to coordinate the City's response and recovery operations, and to collect and disseminate critical information to key stakeholders and the public during emergencies. Notify NYC is just one of the many tools we use to provide information to the public. During an emergency, we work with the Mayor's Office to issue media releases, update social media, provide information to 311, and send messaging to our corporate partners through Corp Net, our special needs partners through the Advanced Warning System and to all elected officials through emails and conference calls spearheaded by our Intergovernmental Affairs Unit.

Notify NYC began as a pilot program in 2007 following the tragic Deutsche Bank fire on Liberty Street and was designed to provide city residents, businesses, and visitors with near real-time information about emergency activity and possible disruptions in their communities. The program went citywide in 2009 and now has almost 300,000 subscribers. We advertise Notify NYC through a variety of outlets including on bus shelters and through social media, Pandora, Ready New York events, newsletters, elected officials, and other means. Registration is free and open to anyone with information provided through landline phones, mobile phones, instant

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message or email addresses and through social media, including Twitter and our RSS feed. We take into account sensitivities about sharing personal information with the government and therefore we do not require subscribers to provide us with their name or home address; instead, they are able to provide an intersection near their home, place of business, or where members of their family live. Having access to a computer in order to register is not required; registration is also available by calling 311. Since the program's beginning in 2007, Notify NYC has sent out more than 5,000 separate messages. Notify NYC information has been distributed via more than 145 million e-mails, almost 45 million text messages, and more than 3.5 million telephone calls.

All subscribers are automatically enrolled in the Emergency Alert group – messages that direct them to take a protective action, such as evacuate an area for any reason. Subscribers are also able to choose additional notification features targeted to their area or areas of interest and tailored to the category of messages they wish to receive such as significant events like large fires, major mass transit disruptions, major road closures, public health notifications, Department of Education school closures/delay advisories, and emergency suspensions of Alternate Side Parking rules. For those who recreate in or around the City's various waterways, individuals may also register for Combined Sewer Overflow advisories.

While we encourage every New Yorker to register for the Notify NYC system, we know that not everyone will. For the most serious of emergencies – such as an area evacuation ahead of a hurricane or an order to stay off the roads during a major snow storm – NYC Emergency Management can send out Wireless Emergency Alerts – we call them WEAs – which are the messages that you get on your phone that you never signed up for. These alerts are accompanied by a loud tone and a vibration. Additionally, the National Weather Service and the National Center for Missing and Exploited Children are the other authorities in our region permitted to send out WEAs for severe weather events and AMBER Alerts, respectively.

You have likely received some of these messages on your phone during the last few years. NYC piloted this technology for the federal government and during Hurricane Sandy we became the first local or state government in the country to utilize it. NYC Emergency Management has sent four WEAs since the technology became available to the City: three during Hurricane Sandy and one ahead of the potentially historic blizzard forecast in January.

The objective of the Notify NYC program is to get important information out to the public. In this regard, we view the information as the critical commodity and are happy to have messages rebroadcast by other entities so it can reach the broadest possible audience. While only those subscribed to the system receive the messages, it has a multiplier effect that we encourage – messages are rebroadcast through the media, elected officials, businesses, and even subscribers themselves.

NYC Emergency Management, working with our partner agencies such as the Department of Information Technology and Telecommunications, City Hall, NYPD, FDNY, the Department of Health and Mental Hygiene, the Department of Buildings, the Department of Education and others, has developed a series of messaging procedures and protocols that governs which messages are sent out, to whom and when. For example, one of our triggers is a three-alarm fire and anytime that FDNY transmits a three-alarm fire a message to the local area will be broadcast

from Notify NYC. Similarly, when the Federal Aviation Administration notifies us about a military flyover or low-flying aircraft, a Notify NYC message will be issued.

Operationally, the Notify NYC program is embedded within Watch Command, a 24x7 unit that, consistent with our role in the Citywide Incident Management System – CIMS – is charged with coordinating emergency activity in New York City and disseminating critical information. The program is staffed by an exceptional team of Public Warning Specialists who are trained to identify trigger incidents – both those within protocol and those that rely upon their discretion and expertise – and build a relevant message for release.

In emergency management, we learn from our response to past incidents. Notify NYC is also careful to incorporate changes and best practices into procedures. Beginning in January of 2012 we began studying time frames for each step in the messaging process and realized that creating message templates and streamlining the approval process would reduce the trigger-to-message time. Since implementing that change our issuance time is consistently between 7 and 9 minutes after an incident occurs – down from 15+ minutes. In 2014 almost 30% of messages were sent out in 5 minutes or less and almost 75% were sent out in 10 minutes or less.

The collection and review of user feedback informed a comprehensive upgrade of the Notify NYC website and registration system in 2014. The new and improved website is mobile optimized – so you can register from your smart phone or tablet – and added additional messaging categories so subscribers can tailor their messages as much as possible. It also added "Do Not Disturb" and "Vacation Setting" options and incorporates accessible design features that make registration by people with visual disabilities easier.

More recently, we began delivering many of our messages in American Sign Language with audio and subtitles. We have mechanisms in place for message translation if an incident occurs in an area where the population speaks a language other than English. We first did this in Spanish with the many messages that were issued following the East Harlem Building Explosion in March 2014 and are prepared to do so again when necessary. Unfortunately, real-time or machine translation technology is not solid enough yet for us to offer every one of our messages in other languages – we hope the technology develops to allow us to do this more regularly.

Resiliency is an important part of any critical system and NYC Emergency Management, working closely with DoITT and our third-party vendor, has taken a series of proactive measures to ensure the Notify NYC system is always available. With respect to the Notify NYC registration system, we worked with DoITT to build an exact replica of our primary system at their Disaster Recovery Site where information is synchronized every 15 minutes. We have tested the back-up server environment and can report that it is just as robust as our primary environment. We plan on regular testing going forward.

Similarly, our notification vendor's contract requires that they maintain their delivery services at two separate data centers on opposite sides of the country. At any time that our vendor plans downtime of their system for maintenance we are notified and hold an open conference line with them so they can send messages on our behalf if we are unable to access their system. Lastly, in the event our primary vendor is unable to deliver our messages, we sync our data with a second

vendor every 24 hours. We would utilize this contingency vendor to send the message out to our subscribers.

We believe that these multiple levels of redundancy are critical to ensuring that the City is able to communicate with our citizens. It is important to note, however, that delivery of Notify NYC messages is reliant on a multitude of technologies that we do not have control over – such as e-mail vendors and telephone carriers. When we become aware of problems with these systems we do make contact to the vendors and ask that they expedite system recovery.

In closing, we feel strongly and are proud that we have built a world-class emergency public notification system that keeps New York City informed. But we are not done. We are exploring new and innovative ways of informing the public through location-based technologies, such as mobile applications and registration by text messages. In the near future, we will adopt a commonly accepted IT format for all of our messages that will allow anyone who wants to redistribute our messages or integrate our content into an app of their own to do so seamlessly. We are also working with the Department of Parks and Recreation to integrate Beach Advisories into our system so that beachgoers can be alerted to areas that are closed prior to making a trip. Finally, to reiterate a key point, we need to continue to grow the number of participants in the program and we would appreciate your help encouraging your constituents to sign up for Notify NYC.

Thank you for your interest and continued support of the Notify NYC program, we are happy to answer any questions that you have.

To: NYC Council - Committee on Technology
From: Dirk Kelly, A BetaNYC community Member

Re: Notify NYC and other notification technologies.

Monday, 2 March 2015

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Chairman Vacca and Committee,

Thank you for giving us the honor to present our vision for the future of municipal notification tools.

Good morning, my name is Dirk Kelly I'm the code maintainer of Citygram.NYC, a service which uses open data feeds to send real time and weekly notifications to users about issues that are relevant to them. An open source project developed by Code for America for any city, there are currently 5 operating services: New York, Charlotte, Lexington, San Francisco, and Seattle.

Citygram is a lightweight, flexible code base, it is simple to understand and could easily be self hosted and maintained by other cities across America and the world. We aim to prove Citygram.NYC as a successful example of this by providing notifications from sources such as 311 and Vision Zero.

Citygram.NYC greatly benefits from the open data provided by the City of New York. There are many more opportunities in this database that we're encouraging civic minded builders to investigate and publish with us.

Subscribers of Citygram service opt into either weekly email or daily sms notifications. To date there are 388 total subscriptions, of those 309 are email and 79 sms. There is currently no data real-time 311 or Vision Zero data available to subscribers. Feedback from users is that sms notifications provide less value than email subscriptions as the information is usually days old by the time they receive it.

The City of New York is leading the nation in its open data initiatives, the resources being provided are inspiring people across the city to build services which help others. However the full potential of Citygram.NYC and other such services cannot be reached until the data sources we're subscribing to are able to provide real time event notifications.

I am excited to think of the future of open data in New York City, it appears that the foundations have been well built, the general public has been sufficiently engaged in efforts to consume and interpret this information. We now need to aim at reducing latency in recording the data.

Thank you,
Dirk Kelly

To: NYC Council - Committee on Technology
From: Noel Hidalgo, Executive Director

Re: Notify NYC and other notification technologies.

Monday, 2 March 2015

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Chairman Vacca and Committee,

Thank you for giving us the honor to present our vision for the future of municipal notification tools.

CityGram.NYC

Last fall, we deployed CityGram.NYC as an alternative notification tool. CityGram's purpose is to demonstrate that New Yorkers want its municipal data in real time. For now, we ingest NYC 311 requests and Crash data and have 388 subscribers. In a bit, Dirk Kelly will talk about the future of CityGram. For now, I want to paint a better picture as to the future of notification tools we want built.

New York City businesses that live off of City data

SiteCompli - http://www.sitecompli.com/monitoring#alerts
They support the real estate industry *"avoid unnecessary fines with on-the-go alerts that bring you information in real time - at the exact moment when important events occur or are upcoming for your buildings."*

Mind My Business - http://www.mindmybiz.nyc/
One of last year's NYC BigApps winners they focus on supporting the City's small business by sending notifications each time something happens outside or around their business. The goal: worry less about what happening outside, so you can focus on more important things.

Revaluate - https://revaluate.com/
"What are the sounds, smells and sights? The traffic noise, pest infestations, broken heating systems, safety hazards? Revaluate pulls back the curtain, exposing the truth about any address."

Commune.io - http://commune.io/
"We have created an extensive civic meeting database that analyzes and maps out the public actions taking place in your neighborhood.... Stay informed about new meetings on the issues you care about by subscribing to an issue - you'll receive a notification anytime an event related to your interest is shared on the platform."

Garbage in equals garbage out

Since the launch of the City's open data program, we have fought a battle of bad data. For this city's data to be more useful, several steps can be taken to minimize bad data creation. We call on the City to minimize free form data. Data input tools need structure and this needs to be a priority. Some of the tools that need investment are the NYPD's crash data, NYC 311, the MTA's service alerts tool, and the City Record.

Notify NYC as a platform

I love this program. While it is innovative to inform the public about important events, I wonder if it will mature into something better. Just this past weekend, the Notify NYC system sent out notice about bad weather and included a press release link. Instead of sending a link to a webpage, users were sent to imgur, a site commonly known for internet memes and not safe for work images.

In its eight years of existence, Notify NYC has evolved to be a dependable system for alt side parking notices, accident notices, and emergency notifications. After eight years, it is time for Notify NYC to evolve from a tool to a platform. From official public notices, to MTA service alerts, to critical 311 complaints, Notify NYC can be a go-to platform, but needs more resources.

Ideally, Notify NYC would be as much as a tool as a data platform. We ask for the city to immediately pipe Notify NYC notices into the City's open data portal and provide the public access to its data as a machine readable dataset with a restful API. Within this data, we want distinct dates, locations, incident details, and a link to more information.

Data Input best practices

We want basic standards to the City's notification data. Currently, many event or issue codes have to be reversed engineered. For us to make the city's data useful, we need access to the data maintainers and data dictionaries.

We call on the City to better resource the City's open data program. We need better data collection tools and we need a conversation on how those tools should report out data. Additionally, MODA and DOITT should not be the only ones responsible for open data. In their Mayoral Management Reports, every agency should be responsible for the data they release.

Data best practices

The city needs to produce data in two forms: human readable and machine readable. By machine, I don't mean spreadsheets, calendar feeds, nor PDFs. We need data to be as accurate as possible, accessible via restful APIs, and where needed with date, time, and locations. Data should not be a "report." We, the people, need dependable and sub-daily updated data.

Lastly, we want this information to live in spaces where we live. The businesses mentioned above bring the city's data into the real world. We want data readable by humans and machines. The world we live in requires the web, email, sms, push notifications, and place based signs (think subway or bus countdown clocks). All of this information is dependant on our machines reading this data. We call on the City to share the best possible data.

Data improvement suggestions
- **NYC 311 should be published in a near real time / sub-daily format.**
- **911 calls should be released.** Similar to what the city of Seattle already publishes, NYC needs this type of transparency. Note, Seattle publishes its information in a near real time format.
- **MTA's service alerts** feed should be cleaned up so developers can accurately re-publish its information.
- **Restaurant inspection data** should be cleaned up so the address columns are able to be mapped.
- The **street network changes and/or the street closure database** should be updated to include every type of street closure and be updated on a near real time / sub daily basis.
- The **Department of Sanitation** should turn back on the snow plow data feed and allow the public to see where the city's plows are located.
- All of the city's mapped data should be publicly accessible. **We call for the Council to reintroduce Introduction 364-2014, the OpenMaps bill, and stop creating a two tier public data system.**

Policy Suggestions
- We ask the city to immediately pipe Notify NYC notices into the City's open data portal and provide the public access to its data as a machine readable dataset with a restful API.
- We call on the City to minimize free form data. Data input tools need structure and this needs to be a priority. Some of the tools that need investment are the NYPD's crash data, NYC 311, the MTA's service alerts tool, and the City Record.
- MODA and DOITT should not be the only agency responsible for open data. In their Mayoral Management Reports, every agency should be responsible for the data they release.
- MODA and DOITT should have larger open data teams and empower agencies to have a direct relationship to the public.
- We need data to be as accurate as possible, accessible via restful APIs, and where needed with date, time, and locations.
- Open conversations with the City's data maintainers.
- Allow the public to build off of data bridge.

How to improve MTA Service Alert Notifications

Coordinated by Danielle Carrick and Henry Baughman
URL - https://talk.beta.nyc/c/working-groups/mta-alerts

The MTA's computer-readable service-alert system contains most of it's data in ways that, while easy for a human to understand, can be quite challenging for a computer. As it stands, alerts are broken down into lines and each line is said to have a single status (e.g., "DELAYS", "PLANNED WORK", "GOOD SERVICE"). All further detail is found in a single text field which is pre-formatted to appear on the MTA's website.

Ideally the computer interface (API) would list the affected stations in a way that was easily machine readable (i.e., in an array). A suitable naming system for the many MTA stations already exists on the MTA developer portal (GTFS data), but is currently not integrated. Keeping this data locked in separate silos prevents the public from being able to analyze it in a meaningful way.

Ultimately it would probably be easiest for the person doing this alert data- entry if their interface were redesigned with computer readability in mind, but if this is seen as too difficult or expensive, a standardized syntax would help tremendously. Changes such as these needn't make the data-entry any more time consuming, simply more computer friendly. The following is a quick suggestion for a possible syntax:

between 7:45 PM and 9 PM
starting at 7:45 PM

all stations from foo (1234) to bar (6789)
the stations foo (1234), bar (6789), baz(5432)

are experiencing [description]

as a result of [description]

Travel Alternatives: [details of the detour]

Also notable is that while a user can find out what service alerts are active at this very moment, there is no (publically accessible) way to see historical data. While this does allow us to make a simple alert system, it precludes any sophisticated analysis. To this end, we have begun recording the MTA alerts once a minute, but if you could provide the old data we would be thrilled to have it.

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I represent: BETANYC CITYGRAM.NYC

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Name: Benjamin J. Krakauer

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I represent: NYC Emergency Management

Address: 165 Cadman Plaza East 2nd Brkl. NY

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Name: NOEL HIDALGO

Address: 85 DRIGGS AVE 11222

I represent: BETA NYC

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