Social Media Practices
in Local Emergency Management
Results from Central New York

Social Media Practices in Local Emergency Management
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1 Introduction

Part of a long-term research project on the use of social media in government emergency management, this report identifies the online practices (particularly the best practices) of local emergency management organizations. Information for this report was collected using a "web coding system[1]" as a way to observe social media interactions between officials and citizens. Using this system, researchers tracked behavior on five social channels (Facebook, Twitter, YouTube, FourSquare, and Instagram), noting in particular statements about problems officials encountered and how they were resolved.

Motivation for this research comes from FEMA's "whole community approach," which stipulates that citizens are seen as "first-first responders"—people who are first at the scene, who call the authorities, who help survivors, and who report their observations on social media. This behavior also leads to observable online risk assessments, chronicling of emerging events, and oftentimes the spread of rumors and false information when this information is not immediately verified through formal government public affairs channels.

Our research team focused on five counties of Central New York: Onondaga, Cayuga, Cortland, Madison, and Oswego. These counties are part of Gov. Andrew M. Cuomo's Regional Economic Development area (http://regionalcouncils.ny.gov/), an initiative that provides this project additional demographic information. CNY's largest metropolitan area is Syracuse—population 144,669 (2013 estimate)[2]—and in addition to managing their own crises, emergency officials in these counties might be expected to manage the evacuation of city residents in case of a major disaster.

Many emergency management organizations operate with a limited budget and focus all their skills and resources on the task at hand: responding to emergencies and saving lives. Informing the public in real time is often a challenge. Few local emergency management organizations can maintain a 24/7 social media team to support the needs of citizens. It is therefore important that good practices developed in other parts of the emergency management system are transferred and that learning occurs across organizations.

To present our findings, we look at local social media tactics and content provided during the Preparedness, Response, and Recovery phases of the emergency management cycle; we highlight best social media practices by other local governments during crises; and we offer resources about how to design a social media strategy, how to measure social media impact, and how to use social media tools[3].

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[1] Researchers followed a web coding system based on existing research on the use of social technologies during emergencies (for a detailed look at our methodology, see the Appendix).

[2] Source: http://quickfacts.census.gov/qfd/states/36/3673000.html

[3] For an overview of the use of social media in law enforcement, see http://www.govtech.com/internet/Law-Enforcement-Social-Media-Use-Up-But-Policies-Lacking.html

2 The Importance of Social Media in Emergency Management

2.1   FEMA's "Whole Community" Approach

The Federal Emergency Management Agency (FEMA) considers the direct engagement of citizens to be an important element of crisis response:[4]

> "This larger collective emergency management team includes, not only FEMA and its partners at the federal level but also local, tribal, state, and territorial partners; non-governmental organizations like faith-based and non-profit groups and private sector industry; *[and] individuals, families and communities, who continue to be the nation's most important assets as first responders during a disaster"* [italics ours].

FEMA Administrator Craig Fugate expands the notion of including citizens through social technologies in a two-way communication during all four phases of the Emergency Management Cycle:

> "There is a lot of buzz about social media. I'm not so much looking at the different tools, like YouTube, Twitter, or blogging, as thinking that it's really opened up something that government never had before—two-way conversations with the public."

Mitigation

Preparedness

EMERGENCY
MANAGEMENT
CYCLE

Recovery

Response
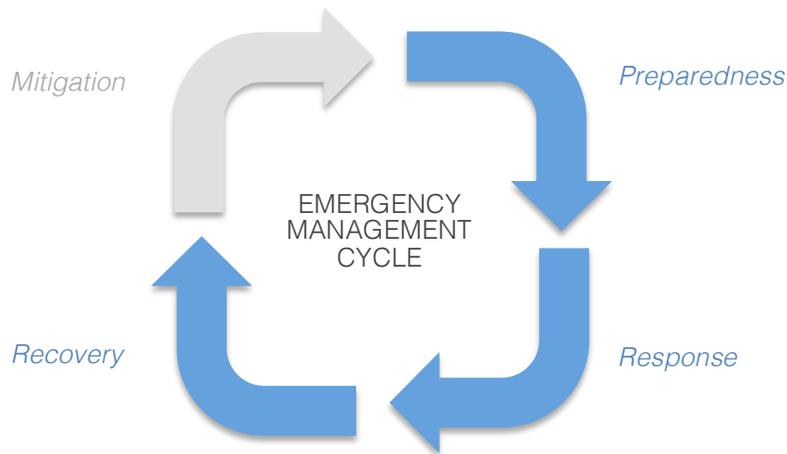
*Figure 1: FEMA's four-phase Emergency Management Cycle. In this report, because of the complexities of our web coding system (natural language processing, statistical analysis, etc.), we abbreviated the cycle and focused only on the Preparedness, Response, and Recovery phases. [5]*

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[4] See: http://www.fema.gov/whole-community

[5] See: http://www.fema.gov/pdf/about/state_of_fema/state_of_fema.pdf

2.2   Citizens Engage in Information "Milling" Activities Online

Citizens rarely go directly to first responders to verify information they hear on the news or alerts they receive through TV, radio, or in their social media feeds. Instead they engage in a form of information "milling" that helps them to assess the risk of an alert to their own lives.

For instance, citizens might collect breaking news bits and pieces from Twitter, review them with their friends on Facebook, and then post their own impressions of an impact. They might also turn to blogs for support and emotional release of their own experiences after an incident. Most importantly, those who are not directly impacted use social media for humor and levity or even watch and post YouTube videos to share shocking disaster visuals. The downside of social media was very visible during Hurricane Sandy in 2012, when citizens created shocking stories and spread rumors about dark clouds, sharks in the subway, and other monsters (see figure below).

Figure 2: Information "milling" and rumors after Hurricane Sandy read like the plot of a B movie.[6]

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[6] Source: Digital Trends: "How Hurricane Sandy and Twitter made the world scream fire in a crowded Internet" http://www.digitaltrends.com/social-media/the-ethics-and-illegalities-of-spreading-rumors-and-false-information-on-twitter/ and *The Atlantic* "Sorting the Real Sandy Photos From the Fakes." Available online: http://www.theatlantic.com/technology/archive/2012/10/sorting-the-real-sandy-photos-from-the-fakes/264243

2.3   Social Media Tactics

First responders can use three different online modes to communicate risk, send out calls for action, or prepare citizens for a disaster:

1. Traditional online engagement: In a one-to-many approach, government organizations push out information to inform a broad mass of citizens without directly engaging in back-and-forth conversations.
2. Citizen engagement: One-to-one approaches allow first responders to actively pull in information from citizens or respond directly to individual citizen requests.
3. Networking: Government sees itself as part of the overall social network; listens and reacts to rumors spreading through social networks; and works toward social convergence by proactively responding to rumors.
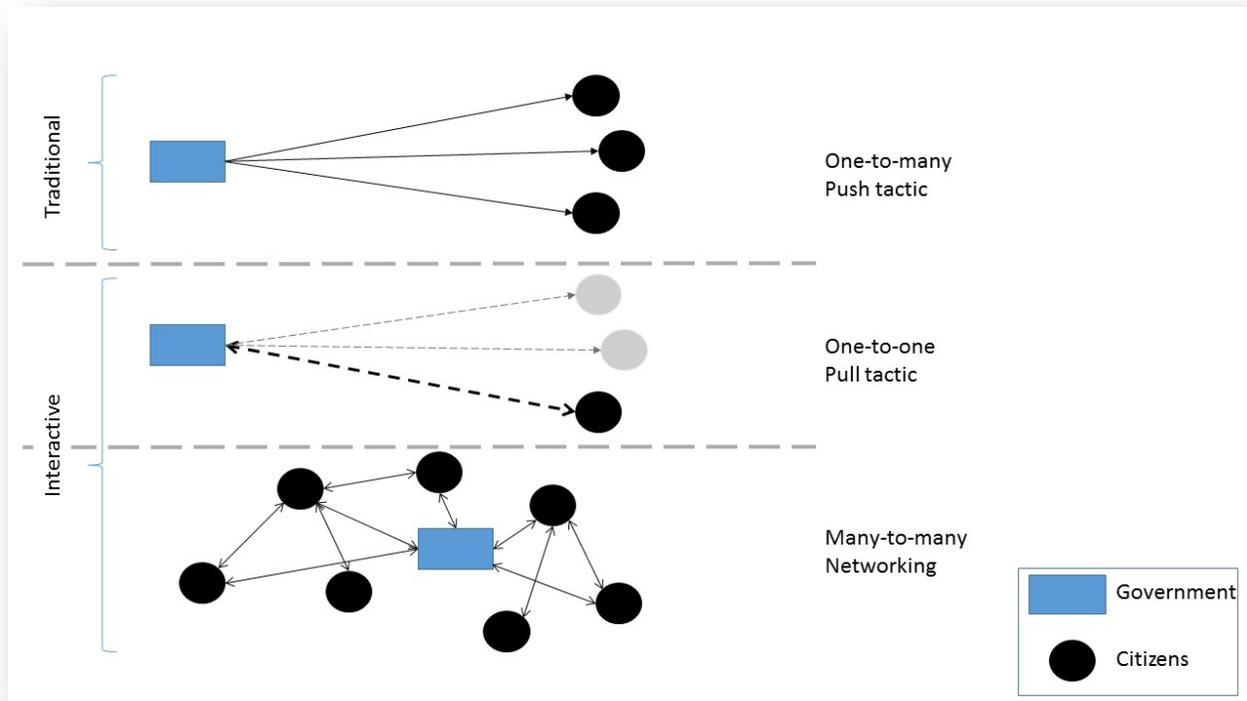
Figure 3: From traditional to interactive social media communication.

3 CNY Emergency Management Organizations

We selected five types of organizations that are part of the emergency management network in the five counties. These organizations are fire, emergency medical, law enforcement, public health, and executive offices.

The following graph shows what kind of social media accounts CNY organizations are maintaining. You can see that many organizations appear to be maintaining a website and a Facebook page. However, among this number are those that have not "claimed" their own Facebook page. Instead, Facebook has generated an "automatic" page on their behalf, offering little more than a geographic placeholder, rather than an active and informative organizational page. Similarly, the location-based service Foursquare seems to be in heavy use, but more often than not, these pages are automatically created rather than actively maintained. Many fewer organizations are using Twitter and/or YouTube (and these companies do not create automatic pages).
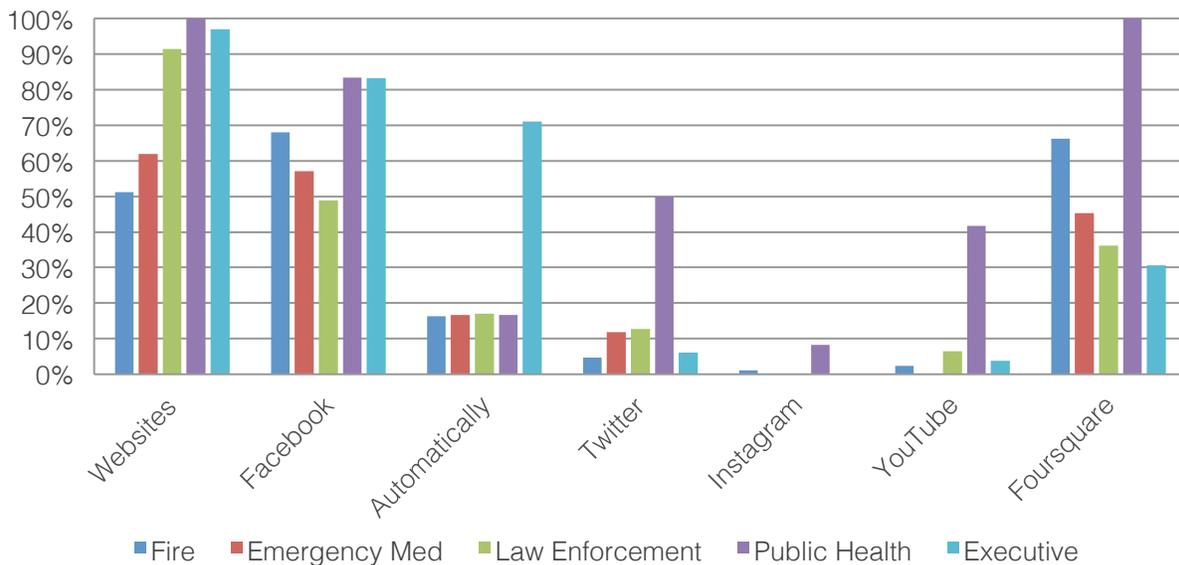
Figure 4: Social media accounts held, by agency type. "Automatically" refers to Facebook pages that have been created by Facebook as a public service rather than by an organization.

Because of the active use of Facebook, it is no surprise that the most followers can be found on Facebook pages (both those automatically created as well as those officially created and maintained), followed by a significant following on Twitter and Instagram. We tried to identify whether the population size of each county has an influence on the number of followers of emergency management organizations, but a county's population size does not appear to impact the popularity of EM agencies' social media accounts.

Facebook pages differ widely. We identified not only "Automatic Pages" created by Facebook (see graph below) and official organizational pages ("Facebook" in the graph below) but also pages that private individuals have created using their personal, "Regular" Facebook accounts. Unofficial Facebook pages (both "automatic" and personal/"Regular") accumulate a significant number of followers and should not be ignored.
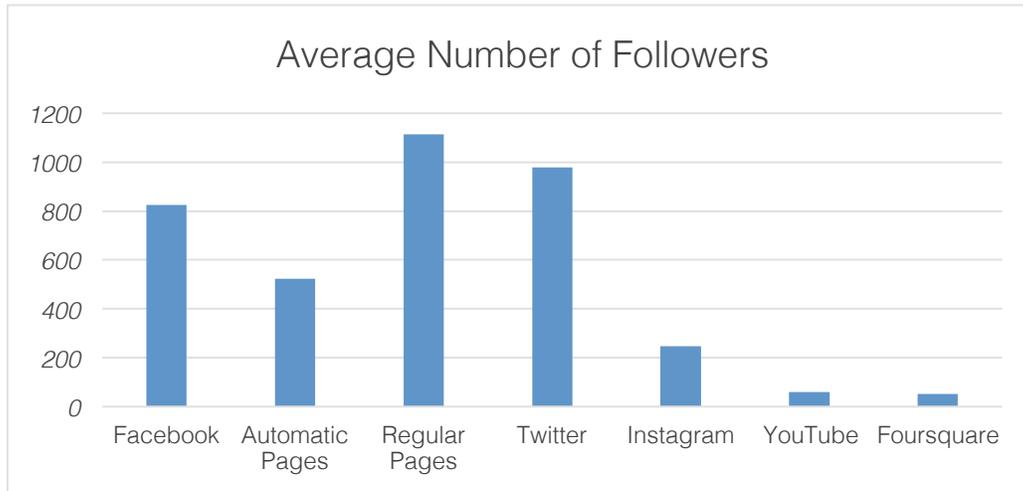
Figure 5: Average number of followers per social media channel. [7]

Number of Followers by County

Facebook						
	Cayuga	Cortland	Madison	Multiple	Onondaga	Oswego
Mean	220	145	1183	11251	713	634
Median	77.5	49	202	1019	364	334
Range	2333	714	33146	52891	5500	7344
Minimum	0	0	3	2	0	0
Maximum	2333	714	33149	52893	5500	7344
Valid Data	48	20	39	5	111	59
Missing Data	27	13	33	0	30	19

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[7] A detailed breakdown of followers by agency type is available in the appendix.

Twitter						
	Cayuga	Cortland	Madison	Multiple	Onondaga	Oswego
Mean	350	107	40	5380	937	179
Median	250	107	33	7812	476	147
Range	319	0	86	7672	4058	337
Minimum	90	107	11	328	5	20
Maximum	409	107	97	8000	4063	357
Valid Data	2	1	5	3	15	7
Missing Data	73	32	67	2	126	71

While we identified several hundred emergency management organizations across the five counties, there are only a few that are truly actively updating their social media accounts. We noted that fire departments are the most active organizations on social media, followed by executive offices and law enforcement agencies. The least active are emergency medical providers and public health agencies:

■Fire Department ■Emergency Med ■Law Enforcement ■Public Health ■Executive
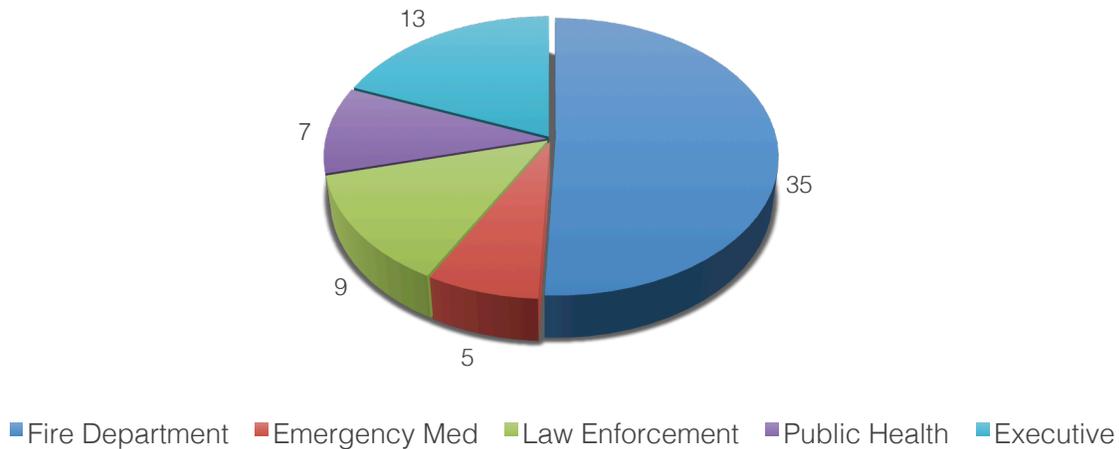
Figure 6: Most active organizations on social media.

Breakdown: Social Media Followers by Agency Type

Overall, Facebook is the clear preference of citizens who follow emergency managers on social media. Executive offices seem to be the only organizations that have a significant following on Twitter. Other social media sites—such as YouTube, Instagram, or Foursquare—have close to zero followers.

Fire Followers

Emergency Med Followers

Law Enforcement Followers

Public Health Followers

Executive Followers
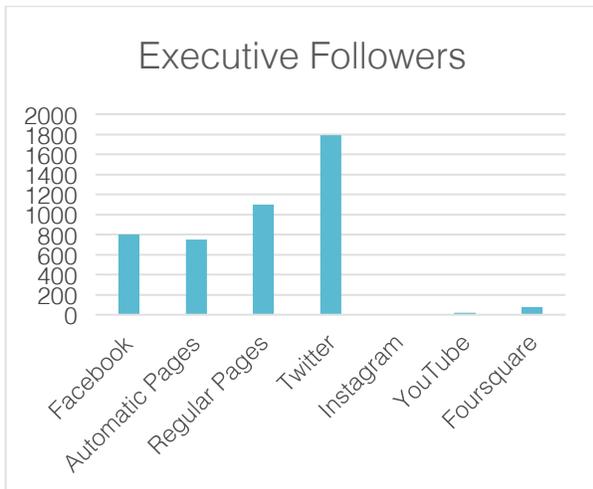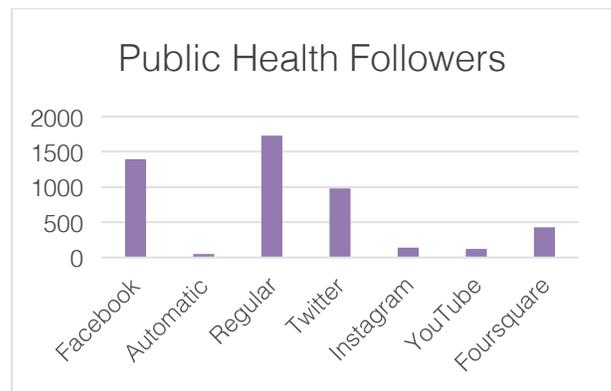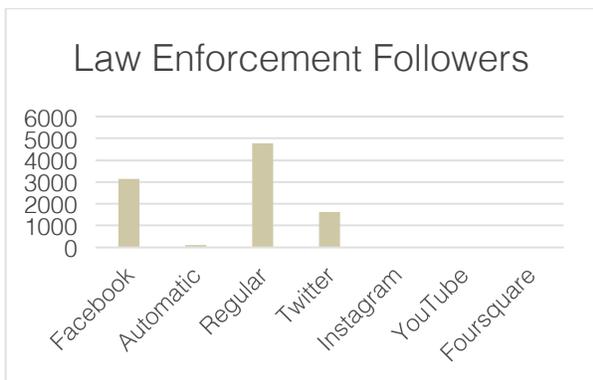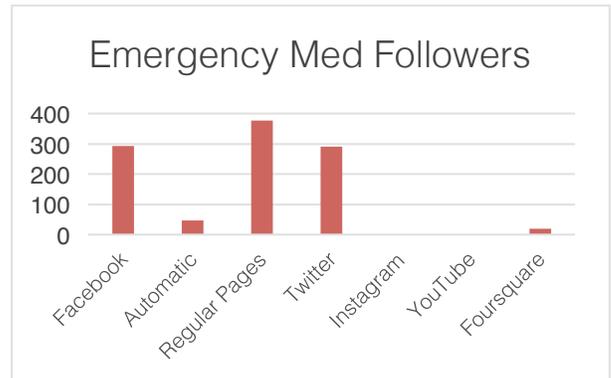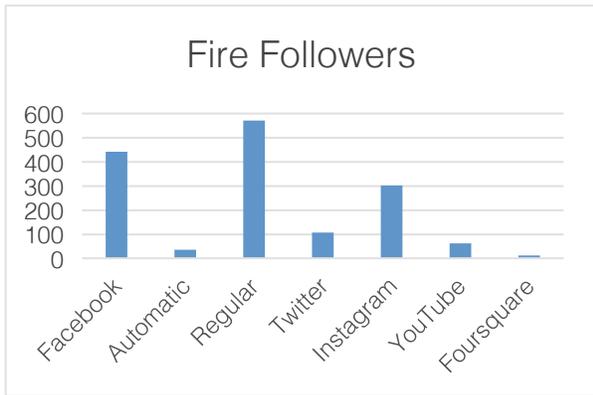
4 CNY Social Media Practices During the Emergency Management Phases

Based on our website coding of social media accounts, we identified social media content and tactics CNY emergency managers provide during three of the four phases of the emergency management cycle (Preparedness, Response, Recovery). Overall, we noticed that the number of updates are very sparse and oftentimes occur after events as formal press releases or statements but rarely as interactions with citizens or critical updates during an event.

4.1 Social Media Tactics

We coded online activities under the headings of three social media tactics:

1. Push Tactic
   a. Press releases
   b. After-action reports
2. Pull Tactic
   a. "Send us your pictures"; "Let us know"
   b. Responses to citizens
   c. Calls for action
3. Networking
   a. E.g., Retweets of citizens' messages
   b. Community engagement
   c. Responses to media organizations

In the following section, we review the three tactics and provide examples for each using the two most active social media sites, Facebook and Twitter.

4.1.1 Push Tactic

In the push tactic, the medium is used as an extension of an existing (usually relatively static) presence and as an additional communication channel "to get the message out".

This tactic often results in un-moderated Twitter updates that are mainly used to re-publish press releases or notes appearances of officials; unmanned Facebook pages that are blocked from public comments; and sparsely populated YouTube channels. For the push tactics coded in this report, we include the distribution of press releases and after-action reports that are shared with the public through social media with very few bidirectional interactions. Citizens rarely find formal information sharing (i.e., press releases) attractive and infrequently respond or interact with the content.

Twitter: Push Tactic

	Emergency Medical	Law Enforcement	Public Health	Fire	Executive
1. Yes	40%	67%	42%	62%	38%
2. No	60%	33%	58%	38%	63%
Total	100%	100%	100%	100%	100%

Facebook: Push Tactic (Press Releases/After-Action Reports)

	Emergency Medical	Law Enforcement	Public Health	Fire	Executive
1. Yes	50%	73%	44%	59%	44%
2. No	50%	27%	56%	41%	56%
Total	100%	100%	100%	100%	100%

The push tactics we observed are part of an official organization's mission to inform and educate the public, and it certainly is a safe tactic to move official information into social media channels. As the tables indicate, on both Twitter and Facebook, emergency managers in law enforcement and fire tend to mostly push information. One example is the City of Auburn's Twitter updates:

Figure 7: City of Auburn Twitter updates about city council meeting times.

4.1.2   Pull Tactic

In the pull tactic social media applications are used to bring audiences back to a home website where news is aggregated (to avoid losing control of what happens with the information). Using a pull tactic, EM

organizations can actively involve audiences, which results in more interaction with the published/shared content—such as additional comments on Facebook walls; re-tweets (re-publishing messages by other Twitter users); or answers to comments to responses from Twitter followers.

We coded pull tactics in the form of calls for action ("send us your pictures"; "Let us know what you think") or direct responses to citizens' requests. For example, Dewitt's Police Department asked its social media followers on Facebook to provide information identifying a suspect on the run:

Figure 8: Crowdsourcing citizen knowledge, in this case about an alleged shoplifter in DeWitt, NY. An example of a "pull" social media tactic.

Twitter: Pull Tactic (Calls to Action: Send us your pictures/Let us know/etc.)					
	Emergency Medical	Law Enforcement	Public Health	Fire	Executive
1. Yes	20%	58%	33%	13%	38%
2. No	80%	42%	67%	88%	63%
Total	100%	100%	100%	100%	100%

Facebook: Pull tactic (Calls for Action: Send us your pictures/Let us know/etc.)					
	Emergency Medical	Law Enforcement	Public Health	Fire	Executive
1. Yes	0%	27%	25%	21%	6%
2. No	100%	73%	75%	79%	94%
Total	100%	100%	100%	100%	100%

4.1.3   Networking

The third tactic—and at the same time the least observable—can be called the "networking" tactic, or "community building". The use of social media tools is highly interactive with potentially a lot of back-and-forth between an agency and its diverse audiences. In this tactic, organizations understand themselves as one of the nodes in a larger network, and they usually have a sense of who is following them and who they want to reach. These organizations use Facebook, Twitter, etc. very strategically, not only to control and direct messages to their audiences but also to have their ears and eyes on channels where actual issues are discussed, those that might be of relevance to their mission.

In this tactic, social media tools are not only used for publishing press release or informing the public—and they are not viewed as a time sink for an already overworked IT staff—but also as strategic information sharing and knowledge creation tools involving "social media champions" from different content areas.

Twitter: Networking Tactic (Retweets/Responses to media)					
	Emergency Medical	Law Enforcement	Public Health	Fire	Executive
1. Yes	20%	25%	50%	6%	25%
2. No	80%	75%	50%	94%	75%
Total	100%	100%	100%	100%	100%

Facebook: Networking Tactic (Community management/engagement)					
	Emergency Medical	Law Enforcement	Public Health	Fire	Executive
1- Yes	63%	80%	88%	90%	81%
2-No	38%	20%	13%	10%	19%
Total	100%	100%	100%	100%	100%

Community engagement can take many different forms. Notably, we observed many times postings about events that engage the community beyond the core mission of an organization, such as Moyers Corners Fire Department's Halloween "candy check" event (below) or Cicero Fire Department's helpful reminder about polling places on Election Day. These interactive postings and events create trust and lower the barriers between officials and the community (especially important when children are involved).

Figure 9: Examples of good "networking" using social media. Moyers Corners Fire Department's Halloween Candy Check update from Nov.1, 2014, and Cicero Fire Department's voting day reminder.
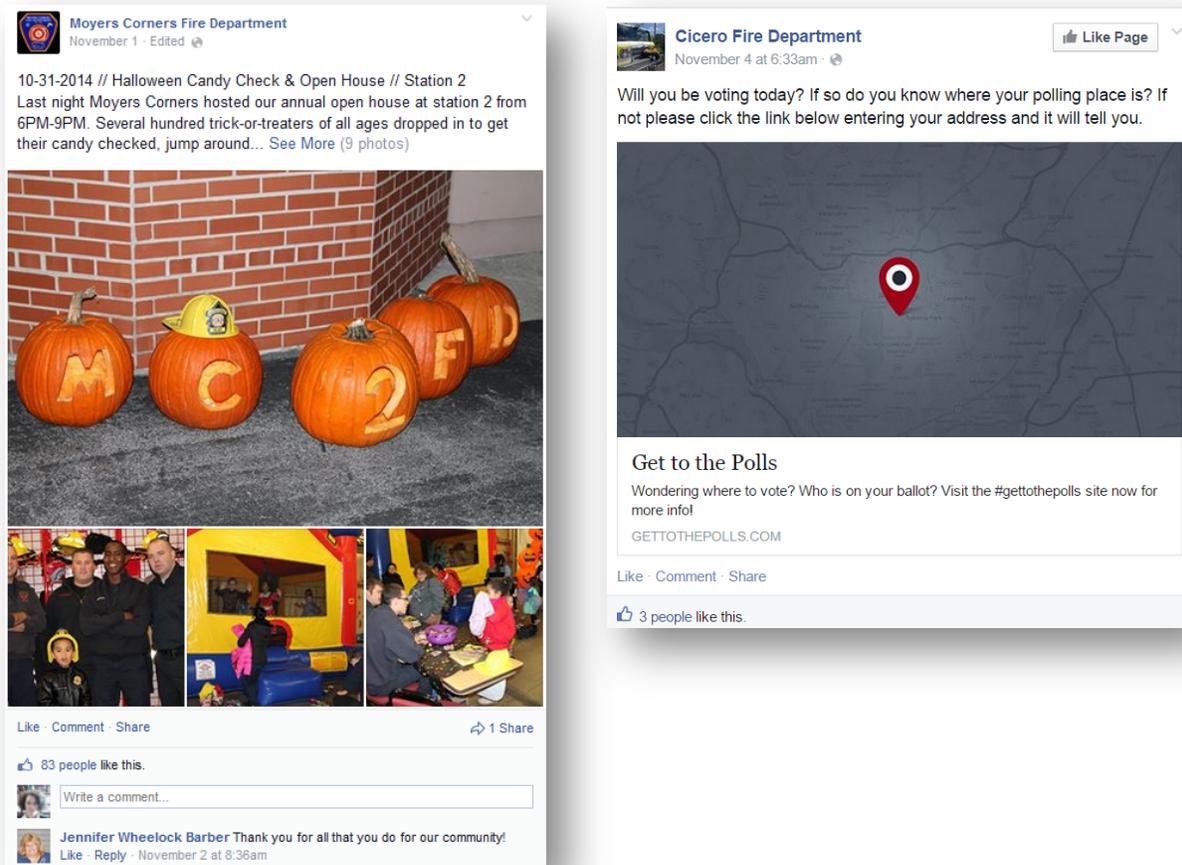
4.2   Social Media Content

EM organizations in our CNY sample provide many types of online content to their followers and friends. We divided the content into the three of the four phases of the emergency management cycle using the following categories:

- ❖ Phase 1: Preparedness
  - o   Preparedness Information
  - o   Community Engagement
- ❖ Phase 2: Response (Impact/Event)

> ○ Live Coverage of Events
> ❖ Phase 3: Recovery
> > ○ After-Action Reports
> > ○ Press releases

4.2.1 Phase 1: Preparedness

The preparedness phase readies citizens for a potential crisis. For instance, public health agencies know with certainty at what time of the year citizens should prepare for the flu season, and using social media they can encourage them to get flu shots. Other emergency management agencies might help citizens prepare for hurricane season—or in CNY, a heavy snowfall or damaging flood. The example below is a screenshot of Oneida's Healthcare Facebook page, preparing citizens for an outbreak of a seasonal illness.

Figure 10:   Preparedness 101: Oneida Healthcare's timely reminder on Facebook about staying healthy during an outbreak of Enterovirus.

Social media can help increase awareness between events, so that citizens might change their behavior and put together a preparedness kit, change to winter tires, get vaccinated, etc. A great example of prevention information disseminated via social media is the following city of Auburn's posting on Twitter concerning the Auburn Police Department's safety tips for Halloween.

Figure 11:   The city of Auburn's tweet about the Auburn Police Department's safety tips for Halloween. Also an example of the efficient "recycling" of social media content.

The Auburn Fire Department has a great practice of sharing information about recreational burning regulations. All five types of organizations we researched shared preparedness information through their social media channels. The following two tables provide a breakdown of organizations and their activities on Twitter and Facebook.

Twitter: Preparedness Information					
	Emergency Medical	Law Enforcement	Public Health	Fire	Executive
1. Yes	60%	83%	83%	50%	100%
2. No	40%	17%	17%	50%	0%
Total	100%	100%	100%	100%	100%

Facebook: Preparedness Information/Community Engagement					
	Emergency Medical	Law Enforcement	Public Health	Fire	Executive
1. Yes	53%	80%	88%	76%	72%
2. No	47%	20%	13%	24%	28%
Total	100%	100%	100%	100%	100%

4.2.2 Phase 2: Response (Impact/Event)

During an event the first priority of emergency management organizations is to respond; secure the scene; and put out a fire, clear debris, save lives, etc. However, at the same time citizens desire to know what is happening around them. Take for example the January 2014 power outage in the city of Syracuse[8]. Although not a devastating event, nevertheless more than 7,000 homes were without of heat and power for several hours with temperatures in the single digits (the low on that day was -3°F). Citizens had no access through their landlines to emergency managers, and Internet connections were down. No information was transmitted via the local utility companies (a non-responsive website was not accessible through smartphone browsers); executive offices had no updates; and there were no law enforcement cars patrolling the neighborhoods offering help. Radio stations picked up the news only hours into the outage, and they did not cover any advice or updates on their programs.

However, cellphone towers were still working, so social media channels became the only connection to other citizens outside the impacted area. People wanted to know how long the outage would be on a freezing night and whether they needed to find a safe place for their children and pets. Providing live coverage of events via Facebook and Twitter can therefore be vital for citizens. It should be transmitted through trusted social media channels and through formal sources, such as the mayor's office, law enforcement, fire departments, etc.
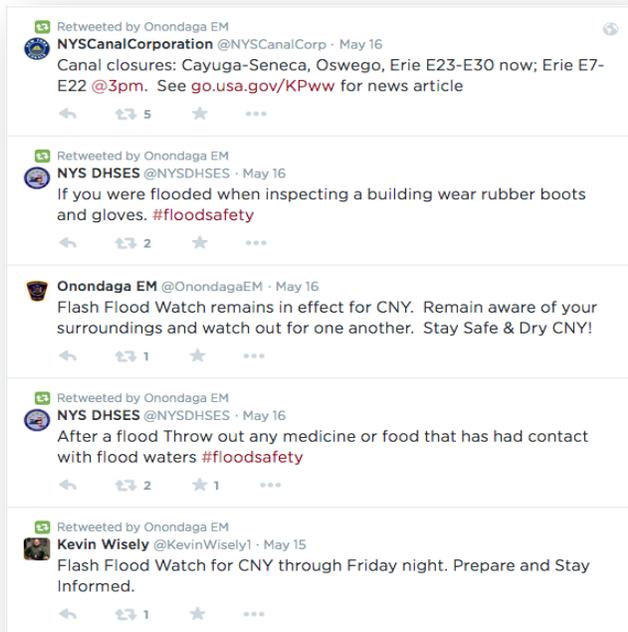

Figure 12: Onondaga Emergency Management tweets during the 2014 flood season showing re-tweets from other agencies as a way to disseminate trustworthy information.

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[8] http://www.syracuse.com/news/index.ssf/2014/01/power_out_for_7000_in_syracuse_onondaga_county.html

These activities don't need to be the responsibility of a single organization, instead follow the example of the Onondaga Department of Emergency Management (above). It used its Twitter account to aggregate updates regarding forecasted heavy rains and flash floods around May 15, 2014, posting its own information and retweeting from other governmental organizations (including NYS Department of Homeland Security and Emergency Services) and journalists. In addition to providing valuable information for Onondaga County residents (as well as others in the region), this agency engaged with others to provide important information through Twitter:

Another example of real time response phase updates comes from the Baldwinsville Volunteer Fire Company, which provides useful, timely information about how it responded to a rush-hour traffic incident:

Figure 13: The Baldwinsville VFD keeps citizens informed about a rush-hour traffic accident
https://www.facebook.com/BaldwinsvilleVolFireCompany/posts/875571675802630

However, overall we noticed that first responders rarely provide up-to-the-minute live coverage of events on Twitter or Facebook:

Twitter: Live Coverage of Events					
	Emergency Medical	Law Enforcement	Public Health	Fire	Executive
1. Yes	0%	83%	17%	25%	75%
2. No	100%	17%	83%	75%	25%
Total	100%	100%	100%	100%	100%

Facebook: Live Coverage of Events					
	Emergency Medical	Law Enforcement	Public Health	Fire	Executive
1. Yes	6%	27%	67%	14%	31%
2. No	94%	73%	33%	86%	69%
Total	100%	100%	100%	100%	100%

4.2.3   Phase 3: Recovery

After-action reports, press releases, or live updates after an incident occurred are important formats that can be easily shared through social media. Information can include the progress of repair or restoration of infrastructure, such as street-by-street restoring of power or removal of trees after a snowstorm.

These social media activities increase the public's trust in the abilities of EM organizations and increase transparency that something is being done to help. As an example, in April 2014, the Constantia Volunteer Fire Department posted a picture on Facebook showing the department assisting a resident with a flooded basement.
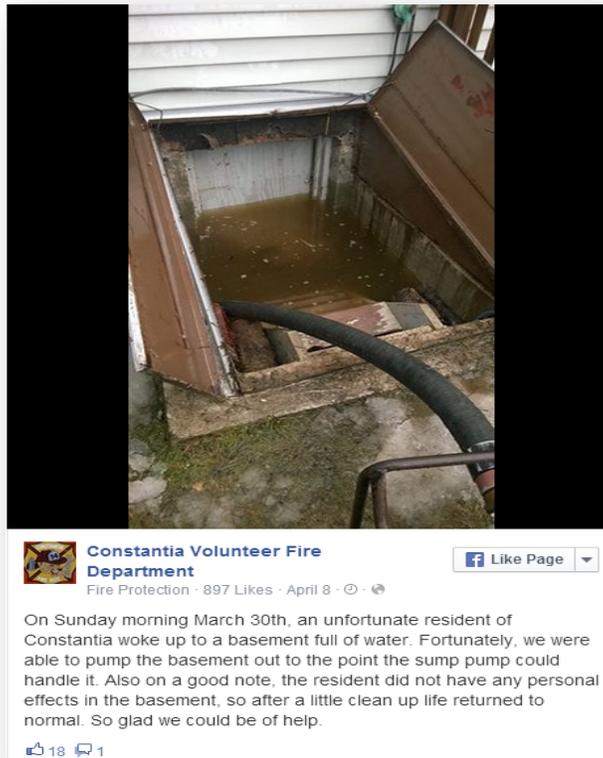

Figure 14: Constantia VFD lets citizens know via Facebook about how it helped a resident with a flooded basement.

Other types of recovery information we found include arrest reports and fugitive information, posted on Facebook by law enforcement agencies, or the outcome of an Amber Alert. The Camillus Police Department, for example, reported (below) that it was no longer seeking assistance after a suspect was arrested.
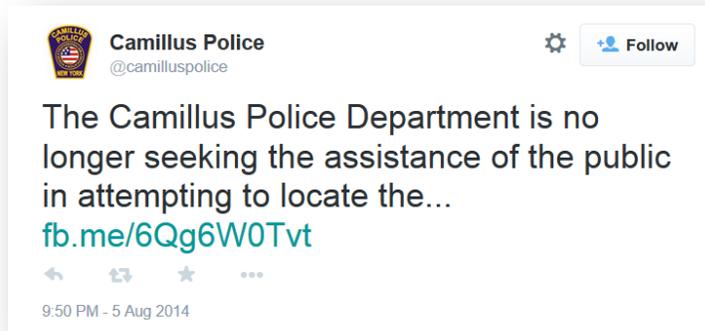
Figure 15: Camillus Policy inform residents about an arrest via Twitter.
https://twitter.com/camilluspolice/status/496835612654063617

Other agencies use social media to update their followers with pictures they have taken during a response. Even though this is not real-time information, it still increases a sense of trust, transparency, and accountability. Consider the following example from Rural/Metro Medical Services of Central New York:

Figure 16: An After-Action Report by Rural/Metro Medical Services

Overall, we noticed that while law enforemcent and fire are volunteering these information after an event has passed, other agencies never close the feedback loop and leave citizens in the dark.

Twitter: After-action reports/Press releases					
	Emergency Medical	Law Enforcement	Public Health	Fire	Executive
1. Yes	40%	67%	42%	62%	38%
2. No	60%	33%	58%	38%	63%
Total	100%	100%	100%	100%	100%

Facebook: After-action reports/Press releases					
	Emergency Medical	Law Enforcement	Public Health	Fire	Executive
1. Yes	50%	73%	44%	59%	44%
2. No	50%	27%	56%	41%	56%
Total	100%	100%	100%	100%	100%

5 Social Media Best Practices in Emergency Management

FEMA suggests using social media in emergency management for the following purposes:

- ❖ Information sharing
- ❖ Situational awareness
- ❖ Donation management
- ❖ Investigation
- ❖ Reconnecting loved ones
- ❖ Rumor control

We will discuss suggestions for each purpose using local government examples in the following sections.

5.1   Information Sharing (Beyond 140 Characters)

Social media sites limit the space they provide for updates; Twitter only allows 140 characters per tweet. However, a new convention has emerged—the use of text embedded in images. For instance, the Virginia Department of Emergency Management's use of "infographics" on Twitter (below) provides much more information than can be contained in 140 characters. Besides, recent research shows that people tend to pay more attention to pictures and graphics than to plain text.

Figure 17: Using text-enhanced graphics ("infographics") to extend space and increase attention.

5.2   Situational Awareness

Situational awareness is a great example of the "give-and-take" that social media provides emergency managers. On the one hand, emergency managers can use social media to increase situational awareness among citizens of an impacted area. On the other hand, reports by citizens and others closer to the field can inform managers of the true impact an event is having.

Oftentimes, an event's impact is not directly reported to an official help line; instead, citizens report the impact of an earthquake, flood, storm, etc. on social media. A manager can use social technologies to identify impact zones, direct citizens to new locations, calm them down, and/or diffuse rumors.

Recent social media experiences of first responders and utility companies[9] have shown that citizens need to know that they are heard, that their issues are taken care of, and that help is on the way during a crisis. During the 2013 Calgary flooding in Canada, Cst. Jeremy Shaw tweeted with citizens through two long nightshifts, handling repeated requests for information in what appears to be a very calm and polite way. Below are some of the tasks the Calgary Police was able to fulfill using Twitter as a parallel and resilient communication infrastructure, while more formal communication channels were used for life-threatening situations and to direct first responders to the scenes.

Managing Donations and Volunteers

In a very polite way, volunteers were informed that the police did not want to put citizens in danger and prevented them from showing up on the scene.

https://twitter.com/CalgaryPolice/status/348097119086850048

Assuring People That Officials Are Listening and That They Are Being Heard

Citizens were assured that something is being done behind the scenes:

https://twitter.com/CalgaryPolice/status/348067504893083648

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[9] See http://www.c-spanvideo.org/program/313156-1

Diffusing Rumors to Avoid Panic, Lower Anxiety

At right is an example of promptly responding to the rumor that a dam broke. Other official updates responded to concerned citizens who were worried that the zoo had to kill its animals:

https://twitter.com/CalgaryPolice/status/34825726 0310495232
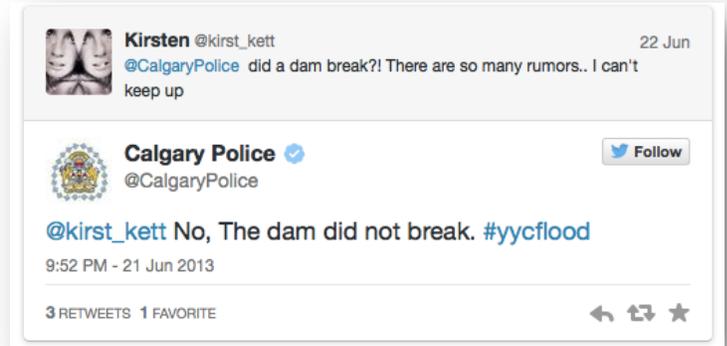
Diffuse Rumors About Looting

https://twitter.com/jpr978/status/348227 920801710080

It appeared that every single citizen tweet was responded to, that questions were directly answered, that volunteers were thanked, etc. Twitter can be an important direct lifeline when all other channels are overwhelmed.

5.3   Proactive Information Sharing

Some more good ideas for the use of social media by and among EM organizations:

Volunteer Helpful Information So People Come Back

As an example, the Facebook update below, by New Hartford's Police Department, provides a helpful reminder about changes in the driving while distracted policy (at the same time providing a trustworthy link to the New York Department of Motor Vehicles). These types of helpful update keep citizens interested in an agency's status even between critical events, when they are not actively looking for information regarding an emergency.
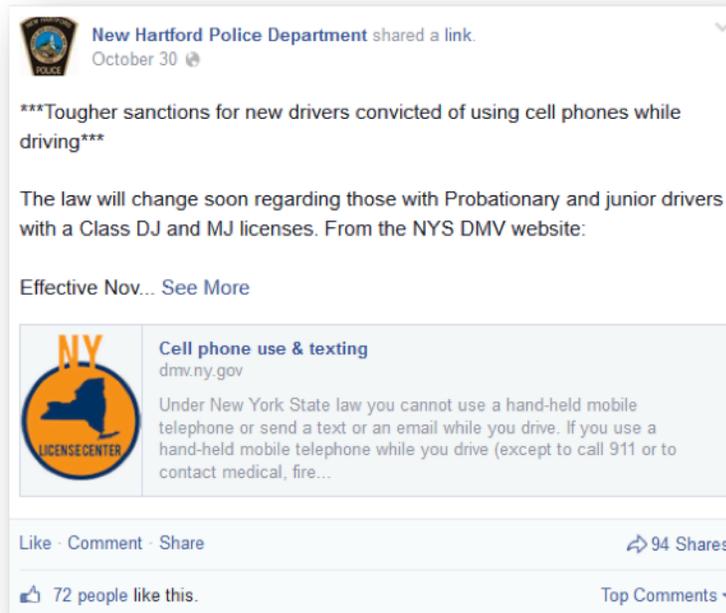
Figure 18: A helpful public safety Facebook message from the New Hartford Police Department

Cross-Agency Collaboration and Information Sharing

Responding offline and keeping people out of harm's way while responding online is a challenge that requires immense additional manpower. Sometimes non-essential personnel can be recruited to provide updates through social media that can then be recycled by other responders. In the example of the Calgary flood, people were pointed to alternative information sources, such as the city's frequent blog updates.

Figure 19: Citizens used Twitter during the 2013 Calgary floods to ask for help; the police respond with a helpful link pulled from another city organization. Note the "hashtag" #yycflood, which will aggregate similar tweets in one place online.
https://twitter.com/CalgaryPolice/status/348077247472734208

Or Calgary's utility company updates:

5.4   Crowdsourcing

5.4.1   Asking Citizens to Verify Updates on the Ground

During the Calgary flood, the police welcomed citizen "first-first responder" reports and updates. The potential of using citizens in a crisis is enormous because some of the reporting responsibility can be shared by those who are observing an impact first-hand. It is impossible for one social media manager to fulfill all the different roles of a busy social media community, so the Calgary Police focused on direct feedback and on providing the lifeline that many citizens needed. But the police also served as a connector among first responders and other information sources.

Figure 21: A citizen who is closer to an event can use social media to provide critical reports to the police, as in this case from the 2013 Calgary flood https://twitter.com/CalgaryPolice/status/348149993678442496.

The task of pulling in citizen reports (especially those that should be stored for future use) during a crisis can seem insurmountable because of the sheer volume of incoming information. Useful, long-term crowdsourcing information needs to be automatically processed and directed, and for this an organization can turn to other types of online reporting platforms such as *SeeClickFix* (http://irevolution.net/2013/06/11/uber-waze-airbnb-seeclickfix-for-disaster-response/) or *USGS' Internet Intensity Map* (http://pubs.usgs.gov/fs/fs030-01/).

5.4.2   Mapping

Crowdsourced information from "first-first responders" also can be mapped on Google Maps, which can be turned into a social media tool. Below, the Google Crisis Mapper was first used during Hurricane Sandy, to illustrate which gas stations were empty and which stations were still serving customers who needed fuel in order to leave the impacted area.
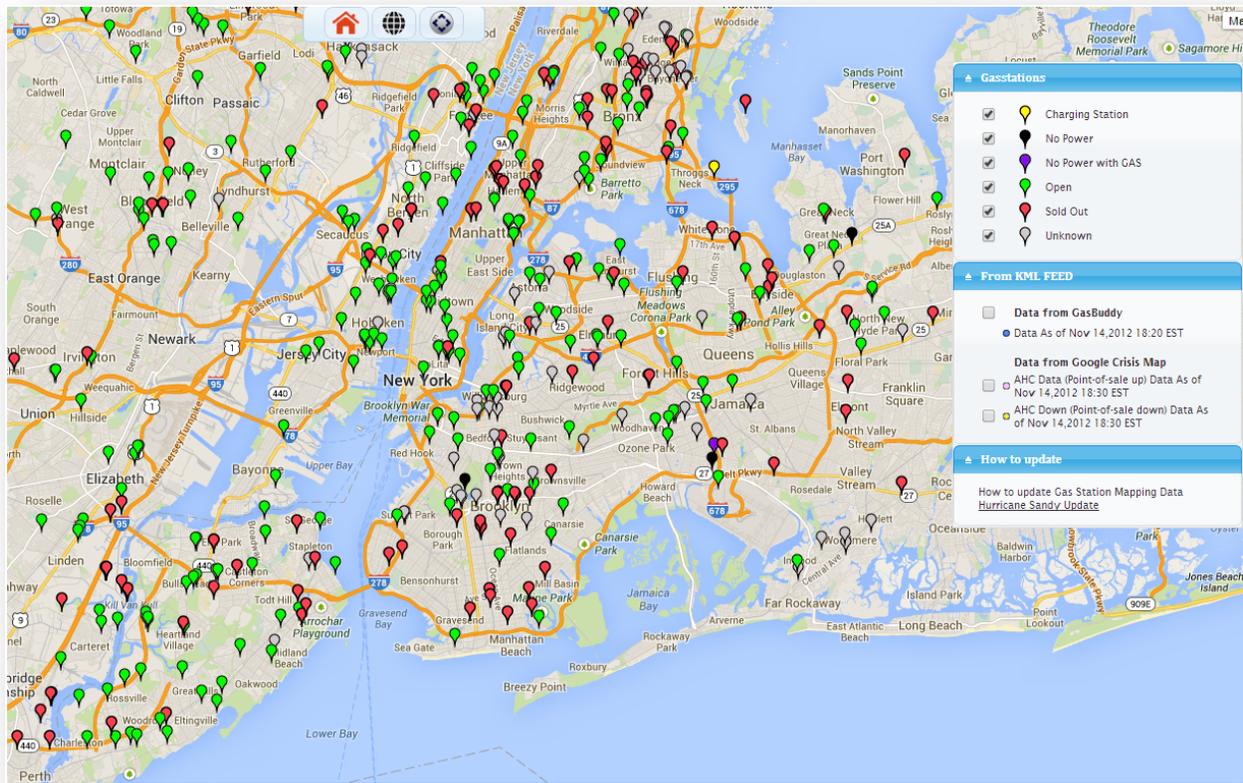
Figure 22: Superstorm Sandy—Using Google Maps to follow the status of gas stations during the aftermath.

6 Recommendations for Using Social Media in Emergency Management:

1. Design a social media strategy that supports the mission of your individual organization.
2. Recycle information through retweeting, sharing, and cutting and pasting. Many EM organizations are sharing general, relevant emergency information for the public, so should you.
3. Build a trusted online community that perceives your updates as valuable and that is willing to share your updates within its own networks.
4. Identify non-governmental knowledge hubs in your network and encourage them to share your updates with their network.
5. Be creative. Think about social media tactics beyond pushing out press releases. E.g., look for helpful infographics by other organizations—and share them!
6. Photos and infographics are engaging content that draws people back to your social media feed and keeps them engaged.
7. Understand your audience. What are its characteristics and expectations?
8. Situational awareness—understand that there's a 24/7 expectation by social media followers, but avoid automatic updates during a crisis.
9. Share outside the crisis. Offer valuable information even when there is no need to inform the public of crimes, emergencies, and disasters.
10. Set a daily routine—using social media "management suites" (such as HootSuite http://hootsuite.com), you can write several updates at once and push them out on multiple channels at set intervals.
11. Respond to citizen requests—this will increase trust and transparency. People will start to pay attention.
12. Design a social media policy to help your team and citizens understand what is appropriate online behavior when it comes to commenting and conduct on your channels.
13. Assign organizational responsibilities and roles. Distribute light work across many shoulders (strategists, content curators, content providers, etc.)
14. Test and adopt new tools and techniques. Provide more training and place an increased focus on formalizing internal procedures.
15. Measure your impact: Who is listening? Which channels are most used? What content is perceived as valuable? Many social media products offer their own, easy-to-use analytical tools.

Notes

Notes

Appendix I: Additional Resources

Social Media Reports

For reports on the use of social media by organizations, visit http://faculty.maxwell.syr.edu/iamergel/

IBM Report A Manager's Guide to Assessing the Impact of Social Media Interactions
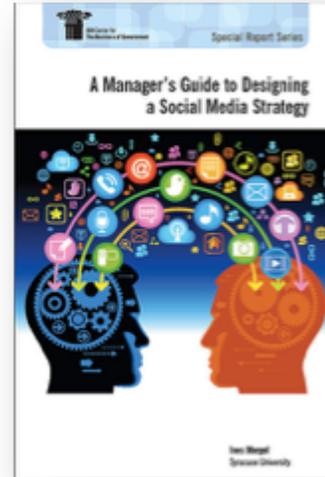
IBM Report A Manager's Guide to Designing a Social Media Strategy
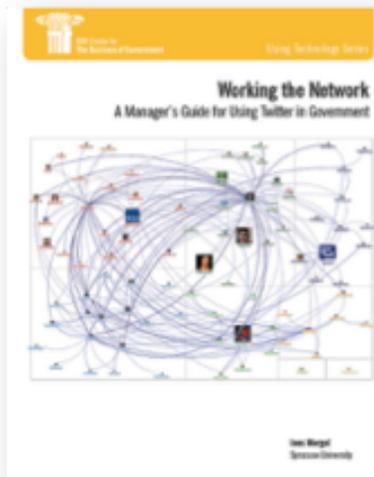
IBM Report Working the Network: A Manager's Guide for Using Twitter in Government

IBM Report Using Wikis in Government: A Guide for Public Managers

Government Social Media Resources

❖ US Department of Homeland Security (DHS) Lessons Learned Twitter account
https://twitter.com/llis

❖ DHS Homeland Security Studies and Analysis Institute: "Social Media in Emergency Management: A First Look" http://www.homelandsecurity.org/docs/reports/RP11-01.01.05-01_A Quick Look_30Nov12.pdf

❖ DHS Homeland Security Studies and Analysis Institute: "The Resilient Social Network: @OccupySandy #SuperstormSandy"

❖ FEMA online course: "Social Media in Emergency Management"
http://emilms.fema.gov/is42/index.htm available online (IS-042).

❖ FEMA's social media landing page http://www.fema.gov/official-accounts.

❖ FEMA's Ready campaign on Facebook https://www.facebook.com/readygov.

❖ FEMA/DHS: National Strategy Recommendations: Future Disaster Preparedness
https://duckduckgo.com/l/?kh=-1&uddg=http%3A%2F%2Fwww.fema.gov%2Fmedia-library-data%2Fbd125e67fb2bd37f8d609cbd71b835ae%2FFEMA+National+Strategy+Recommendations+(V4).pdf

❖ National Preparedness Community
http://www.community.fema.gov/connect.ti/cfghome/grouphome

❖ UN Office for the Coordination of Humanitarian Affairs (OCHA): "Hashtag Standards for Emergencies" https://app.box.com/s/yvobt4n9wptqa8sd0887

Twitter Resources

❖ Use the Twitter hashtag #SMEM or search for the hashtag to stay up-to-date and learn about the newest developments in social media and emergency management.

❖ Follow hashtag #SocialGov on Twitter to connect to the social media professionals in government.

Appendix II: Methodology

Research for this report used a web-coding system that coded interactions by government officials across several social media channels and throughout three of the four phases of the EM cycle (Preparedness, Response, Recovery).

Case Selection

The project team focused on EM organizations in Central New York region across five sectors: fire, emergency medical, law enforcement, public health, and executive departments or offices.[10]

At the county level, executive and public health organizations were found via official county websites. For example, the Onondaga County Health Department was identified as an organization to be included in this report after it was located on the Onondaga County government website (ongov.net). Local executive agencies were located via lists of villages, towns, and cities located on county government websites. Many municipalities were listed alongside links to the municipality's website; where no link was provided, a web

Organizations by Type

131
172
12
47
42

- Fire Department - Emergency Med - Law Enforcement
- Public Health - Executive
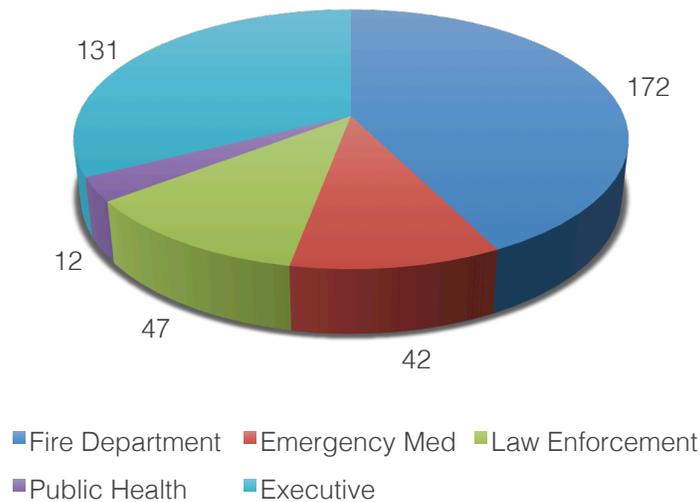
search was performed. Executive agencies within local municipalities were included, whether or not they had resources dedicated to emergency management.

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[10] See Table 1 for a breakdown of emergency management organizations by sector and by county.

Hospitals (included in the public health category) were located using the "Hospitals in New York State" tool on the New York State Department of Health website (http://hospitals.nyhealth.gov); this tool provides a listing of all hospitals by county. Some hospitals have multiple listings on this tool based on multiple locations, but only primary hospital locations were listed.

Law enforcement agencies were located via local and county executive agency websites. Where no law enforcement agency was listed on these websites, a web search was performed for "law enforcement," "police," and "sheriff" alongside the municipality or county name to confirm that no law enforcement agency existed for that location.

Fire departments were located using the "What is My FDID Number" tool on the New York State Division of Homeland Security and Emergency Services Fire Prevention and Control website (http://www.dhses.ny.gov/ofpc/faq/fdid.cfm). This tool provides a listing of all fire departments by county.

Emergency medical providers were located by conducting web searches for "ambulance" along with each county name.

The following table provides an overview of the organizations included in this report:

Table 1: Organizations by County and by Sector[11]

	Fire	Emergency Medical	Law Enforcement	Public Health	Executive	Total by county
Cayuga	33	6	6	1	29	75
Cortland	12	2	3	1	15	33
Madison	29	7	11	3	22	72
Onondaga	67	15	18	4	37	141
Oswego	31	10	8	3	26	78
Total by organization type	172	42	47	12	131	399

Web Coding of Social Media Accounts

After compiling a list of emergency management organizations in the region, the researchers performed extensive web searches to locate any possible website; Facebook page; Twitter or Instagram account;

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[11] This table does not include five organizations that serve multiple counties in CNY. These organizations are the New York State Police (law enforcement); the New York State Preparedness Training Center (executive); the New York State Division of Homeland Security and Emergency Services (executive); Rural/Metro of CNY (emergency medical); and TLC Emergency Medical Services (emergency medical).

YouTube Channel; or Foursquare page. Facebook, Twitter, YouTube, and Foursquare searches were performed using the search feature on those platforms. As Instagram does not have a search feature, a web search was performed using "Instagram" alongside the organization name.

After compiling a list of these pages, each post on each Facebook and Twitter account was examined to see whether it fell into one of several categories (press release, call for action, social media interaction, preparedness information, live coverage of events, reposting from other local agencies, reposting from other organizations, after-action reports, community engagement, and political/election activity). This project did not examine frequency of posts in these categories, but simply looked to see whether organizations were using a social media platform for a particular purpose.

Several codes were specific to particular social media platforms:[12]

- ❖ For Facebook, the researchers recorded the year an account was set up; the number of likes; whether citizens were allowed to comment on posts by the organization (and if so, the highest number of comments on an individual post); whether citizens' comments were positive, negative, or neutral; whether the organization responded to citizens; and whether the organization included text, pictures, or videos in their posts. Finally, figures were obtained for whether the account was active in 2014 and how frequently the organization posted.
- ❖ For Twitter, the team recorded the year the Twitter account was set up; the number of people following the organization; the number of people the organization was following; whether the organization followed other emergency management agencies, citizens, other governmental agencies, journalists, or other or undefined users; whether the organization retweeted citizens; whether the organization responded to citizens or to journalists; whether the account was active in 2014, and the frequency of posts.
- ❖ For Instagram, the project recorded the year the account was created, the number of users following the organization, the number of users the organization was following, the number of pictures posted, whether the account was active in 2014, and the frequency of posts.
- ❖ For YouTube, the team recorded the year the channel was set up, the number of videos posted, the number of subscribers to the organization's channel, whether the videos posted were educational or informational, whether non-educational/informational videos were posted, whether the channel was active in 2014, and the frequency of posts.
- ❖ For Foursquare, the researchers recorded the number of visitors and the number of check-ins.

The following table summarizes the codebook used to code the selected social media accounts:

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[12] See Table 2 for a breakdown of codes used for each social media platform.

Table 2: Codes by Social Media Platform

Facebook	Twitter	Instagram	YouTube	Foursquare
Year account created	Year account created	Year account created	Year channel created	Number of visitors
Number of likes	Number of followers	Number of followers	Number of videos posted	Number of check-ins
Comments from citizens	Number of accounts followed	Number of accounts followed	Number of subscribers	
Highest number of comments	Who following?	Number of pictures posted	Category of content	
Nature of citizens' comments	Other EM organizations	Active in 2014?	Educational/informational	
Responses to citizens?	Citizens	Frequency of posts	Other	
Type of content	Other government organizations		Active in 2014?	
Text	Journalists, media orgs		Frequency of posts	
Picture	Other/undefined			
Video	None			
Alert	Retweets of citizens?			
Category of content	Responses to citizens?			
Press release	Responses to media organizations?			
Call for action	Category of content			
Social media content	Press release			
Preparedness information	Call for action			
Live coverage of events	Preparedness information			
Reposting from other local agencies	Live coverage of events			
Reposting from other organizations	After-action reports			
After-action reports	Other			
Community Engagement	Active in 2014?			
Political/Election Activity	Frequency of posts			
Other				
Active in 2014?				
Frequency of posts				

Appendix III: About the Region

In this report, Central New York is defined as Cayuga, Cortland, Madison, Onondaga, and Oswego counties. This region has a total population of 791,939, with 69% of that population living in urban areas. Population density in the region varies, from a high of 600 people per square mile in Onondaga County to a low of 99 people per square mile in Cortland County.

The region is more racially/ethnically homogenous than the overall figures for the United States: 86.8% white versus 77.9% for the nation as a whole; 7.3% black versus 13.1%; 3.2% Hispanic versus 16.9%. In terms of education, 11.5% of residents of the region never completed high school; 27.1% have at least a bachelor's degree, while 11.0% have a graduate or professional degree. The per capita income for the region is $25,349, while the mean household income is $63,542. The unemployment rate is 7.7%, with a labor force of 371,205. 13.5% of individuals fall below the poverty line.

Healthcare and education are dominant sectors of the region's economy, with 28.4% of the workforce employed in these sectors. Sales comprise another 14.6% of the workforce, while manufacturing employs 10.8% of the workforce. Agriculture is a major industry: while 21% of the acreage in New York State is devoted to agricultural output (including cropland and pastureland), 34% of the land in CNY is used for such purposes (from a high of 54% in Cayuga County through a low of 15% in Oswego County).

Many of the region's emergencies center on extreme weather, particularly severe winter storms and flooding in spring. Additional emergency risks relate to nuclear power: FEMA-defined Ingestion Pathway Zones—50 miles around nuclear plants—for the Nine Mile Point and R.E. Ginna reactors include parts of the region.

Appendix IV: About Us

Author: Dr. Ines Mergel

Dr. Ines Mergel is Associate Professor of Public Administration and International Affairs at Syracuse University's Maxwell School of Citizenship and Public Affairs. Her research focuses on the diffusion and adoption of new technologies in the public sector and innovations in public management. She is the author of *Social Media in the Public Sector* http://faculty.maxwell.syr.edu/iamergel/SocialMedia_Book.html and *Social Media in the Public Sector Fieldguide* http://faculty.maxwell.syr.edu/iamergel/SocialMedia_FieldGuide.html published by Jossey-Bass/Wiley.

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Research Assistants

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Sam Jackson is a Ph.D. student in the Maxwell School's interdisciplinary Social Science program. His research focuses on religious and political extremism in the United States. Sam provided initial research support coding the social media sites.

Social Media Practices in Local Emergency Management
Results from Central New York

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