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LLIS.gov Resource Compilation For Hurricane Sandy

The LLIS.gov team has compiled various resources to help support the efforts and initiatives in preparedness, response, and recovery during Hurricane Sandy. These resources are topic-specific and have been analyzed and used for deployment purposes to help provide support during the hurricane.

Use of Social Media

TABLE OF CONTENTS

| <u>OPEN SOURCES</u> | |
|--|-------------------|
| ▪ The American Red Cross and Dell Launch First-Of-Its-Kind Social Media Operations Center For Humanitarian Relief | 3 |
| ▪ Information Systems for Crisis Response and Management (ISCRAM) | 3 |
| ▪ Social Media's Crucial Role in Disaster Relief Efforts | 3 |
| ▪ Turkey's Earthquake: Social Media to the Rescue | 3 |
| ▪ Google Crisis Response | 4 |
| ▪ Open Street Map | 5 |
| ▪ Global Disaster Relief on Facebook | 5 |
| ▪ Ushahidi Community | 5 |
| ▪ IMSOCIO | 5 |
| ▪ Foursquare | 6 |
| ▪ Victims of Disasters Turn to Social Media (Video) | 6 |
| ▪ Social Media and SMS in the Haiti Earthquake (Study) | 6 |
| ▪ Social Media and Disasters: Current Uses, Future Options, and Policy Considerations. Congressional Research Service. 2011 Report for Congress. | 6 |
| ▪ 2007 National Academy of Sciences Report in Brief: Successful Response Starts with a Map Improving Geospatial Support for Disaster Management. | 7 |
| ▪ The Use of Social Media for Disaster Recovery | 7 |
| ▪ Backchannels on the Front Lines: Emergent Uses of Social Media in the 2007 Southern California Wildfires | 7 |
| ▪ The Role of Social Media as Psychological First Aid as a Support To Community Resilience Building. A Facebook Study from 'Cyclone Yasi Update' | 8 |
| <u>LLIS.GOV CONTENT</u> | |
| ▪ School Emergency Management Planning: Employing Multiple Systems to Deliver Protective Action Messages (LL) | 9 |
| ▪ Emergency Public Information: Using Social Media to Disseminate Updated Information During Incident Responses (LL) | 9 |
| ▪ Emergency Public Information: Establishing a Social Media Protocol (LL) | 9 |
| ▪ Public Health Emergency Planning: Disseminating Public Information through Non- | 9 |

| | |
|---|---------------------------|
| Traditional Methods (LL) | |
| ▪ Social Media in Emergency Management: The Virtual Operations Support Team Concept (PN) | <u>10</u> |
| ▪ Disaster Recovery: The Public Information Partnership formed by the Cities of Joplin and Duquesne, the State of Missouri, and the Federal Emergency Management Agency after the May 22, 2011 Tornado (PN) | <u>10</u> |
| ▪ Emergency Public Information: Montgomery County, Maryland, Fire and Rescue's Use of Social Media to Engage the Community After Consecutive Snowstorms (PN) | <u>10</u> |
| ▪ Emergency Public Information: Mecosta County, Michigan's Use of Social Media for Communicating with the News Media and Officials During Disasters. (PN) | <u>11</u> |
| ▪ Emergency Public Information: Cranford, New Jersey, Police Department's Use of Nixle After Hurricane Irene. (PN) | <u>11</u> |
| ▪ Emergency Public Information: The Harris County, Texas, Office of Homeland Security and Emergency Management's Implementation of a Social Media Protocol. (PN) | <u>11</u> |
| ▪ Public Affairs and Information: The District of Columbia's 2009 Presidential Inauguration Web Site and Use of Social Networking Programs. (PN) | <u>11</u> |
| ▪ The Response to the 2011 Joplin, Missouri, Tornado Lessons Learned Study. 20 Dec 2011 (LLIS.gov Document) | <u>12</u> |

OPEN SOURCES

- **Open Source: The American Red Cross and Dell Launch First-Of-Its-Kind Social Media Operations Center For Humanitarian Relief.**

<http://content.dell.com/us/en/corp/d/secure/2012-03-07-dell-red-cross-digital-operations-center>

In March 2012, the American Red Cross and Dell launched a new Digital Operations Center, the first social media-based operation devoted to humanitarian relief, demonstrating the growing importance of social media in emergency situations. The Red Cross also announced a Digital Volunteer program to help respond to questions from and provide information to the public during disasters.

Located in the Red Cross National Disaster Operations Center in Washington, D.C., the center is modeled after Dell's Social Media Listening Command Center and uses Dell technology solutions and consulting services. The center will help expand the Red Cross's ability to engage with the public during emergencies.

Specifically, the Digital Operations Center will help the Red Cross:

- Source additional information from affected areas during emergencies, so it can better serve those who need help;
- Spot trends and better anticipate the public's needs; and
- Connect people with the resources they need during a disaster, like food, water, shelter or even emotional support.

- **Open Source: Information Systems for Crisis Response and Management (ISCRAM)**

<http://www.iscramlive.org/portal/>

The ISCRAM Association's primary mission is to foster **a community dedicated to promoting research and development, exchange of knowledge and deployment of information systems for crisis management**, including the social, technical and practical aspects of all information and communication systems used or to be used in all phases of management of emergencies, disasters and crises.

- **Open Source: Social Media's Crucial Role in Disaster Relief Efforts**

<http://www.guardian.co.uk/sustainable-business/social-media-hurricane-sandy-emergency-planners>

This article lists incidents and disasters during which social media have been significantly used during several disasters, including the 2011 Japan earthquake and tsunami, and the 2010 New Zealand's Christchurch earthquake.

- **Open Source: Turkey's Earthquake: Social Media to the Rescue**

<http://world.time.com/2011/10/24/turkeys-earthquake-social-media-to-the-rescue/>

Groups like the Red Crescent (the Turkish equivalent of the Red Cross) and AKUT, a search-and-rescue organization have enabled one-click SMS donation services. On Facebook, users share updated information on aid requests – winter clothing, insulin, diapers — as filed by people on the ground in Van and have started pages listing bus and freight companies that are delivering aid packages free of charge.

➤ **Open Source: Google Crisis Response**

<http://www.google.org/crisisresponse/>

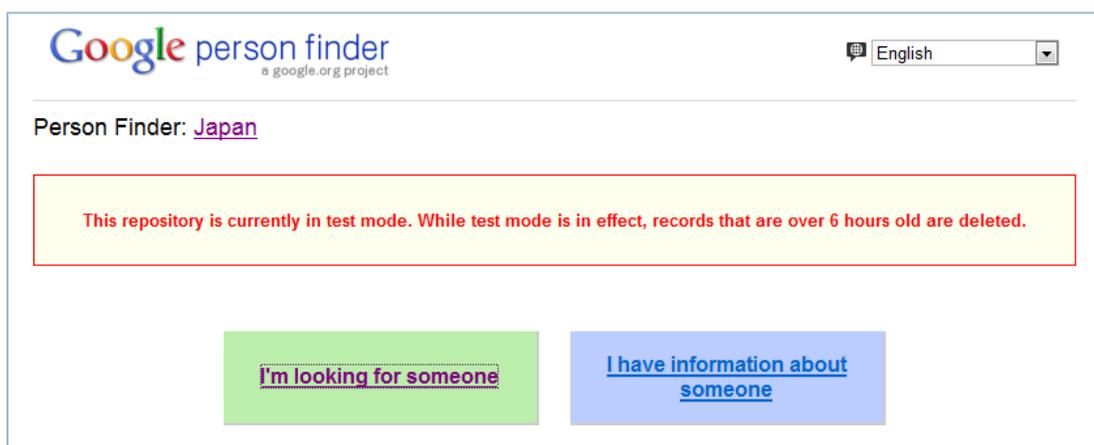
When a disaster strikes, the Google Crisis Response team assesses the severity and scope of the disaster, and the relevance of available tools. These resources include:

1. **Resource pages:** Web page with the most relevant emergency information and tools for a specific crisis. This might include contact information, news updates, donation links, and tools we launch for the crisis, Google Crisis Map or Google Person Finder. We're most likely to launch pages for major global crises where we have unique content and authoritative information to share.

2. **Google Person Finder**

<http://google.org/personfinder/global/home.html>

Google Person Finder helps people reconnect with friends and loved ones in the aftermath of natural and humanitarian disasters. Google Person Finder is a web application that allows individuals to post and search for the status of relatives or friends affected by a disaster. Google engineers built Google Person Finder in response to the January 2010 Haiti earthquake in order to help those affected by the earthquake connect with their loved ones. In 2005, during the aftermath of Hurricane Katrina, multiple websites created missing person registries, so families and aid workers had to search in multiple places when looking for information. Google Person Finder addresses this problem by accepting data from other registries in a common format and searching over all the data.



3. **Crisis Map**

google.org/crisismap

Online maps that display many types of geographic information, such as storm paths, shelter locations, and power outages from a variety of sources, including official and user-generated content.

The **Google Blog** “Search Data Reveals People Turn to the Internet in Crises” article (<http://blog.google.org/2011/08/search-data-reveals-people-turn-to.html>) highlights the work of the crisis response team following specific disasters (Joplin, Haiti, etc.).

➤ **Open Source: Open Street Map**

<http://www.openstreetmap.org/>

In Haiti, Open Street Map volunteers began using satellite imagery to provide daily updates of passable roads, hospitals, refugee camps and cemeteries. Combined with text messages from people on the ground, aid workers were able to localize their relief efforts much more easily and readily.

➤ **Open Source: Global Disaster Relief on Facebook**

<https://www.facebook.com/DisasterRelief>

In January 2010, a devastating earthquake struck Haiti and the response in the days and weeks after has underscored the Internet's critical role in connecting the world's population in times of tragedy. Facebook launched the Disaster Relief on Facebook Page where millions of people could educate themselves and find out how to help not only in Haiti but wherever disaster and misfortune may strike. We want Disaster Relief on Facebook to serve as a collaborative resource for individuals, non-profits, governments and industry to raise awareness for those in need around the world.

➤ **Open Source: Ushahidi Community**

<http://community.usahidi.com/>

During the 2011 Japan earthquake and tsunami, as well as during New Zealand's Christchurch earthquake in 2010, crowdsourced, crisis mapping sites provided by the likes of Ushahidi and Google Maps proved crucial in helping local people and organizations identify communities that were crying out for relief.

➤ **Open Source: IMSOCIO**

<http://www.imsocio.org/home>

IMSOCIO is an organization working with high school students to help them achieve success before, during, and after college. The goal of IMSOCIO is to help the community and demonstrate the impact that students can have when they are dedicated and goal-oriented.

Dr. Wansoo Im and Franklin High School students of the program IMSOCIO created an interactive map showing open gas stations and waiting information in the Tri State area in response to the impact of Hurricane Sandy. The site has been covered by local news media including coverage by NBC, Huffington post and NYTIMES and has received endorsement of FEMA.



➤ **Open Source: Foursquare**

<https://foursquare.com/>

The geolocation app Foursquare allows users to "check in" on geocoded maps; Twitter's Twittermap, which puts users' exact locations on Google Maps with each message.

➤ **ABC Video: Victims of Disasters Turn to Social Media. Uploaded on Aug 27, 2011**

<http://www.youtube.com/watch?v=k7p5lyUWVAg>

Australian researchers have found websites such as Facebook and Twitter are increasingly being used as helpful communication tools during natural disasters. During the Queensland fires in January 2011, social media became critical for situational awareness.

➤ **Study: Social Media and SMS in the Haiti Earthquake.**

<http://www2012.wwwconference.org/proceedings/companion/p713.pdf>

ABSTRACT: We describe some first results of an empirical study describing how social media and SMS were used in coordinating humanitarian relief after the Haiti Earthquake in January 2010. Current information systems for crisis management are increasingly incorporating information obtained from citizens transmitted via social media and SMS. This information proves particularly useful at the aggregate level. However it has led to some problems: information overload and processing difficulties, variable speed of information delivery, managing volunteer communities, and the high risk of receiving inaccurate or incorrect information.

The Haiti Earthquake disaster gave rise to an unprecedented use of information systems (IS). In addition humanitarian workers had to cope with a massive amount of information received through web portals, platforms, and social networking media, such as SMS feeds, Facebook, Twitter [5]. The three most prominent IS were the UN inter-agency OneResponse Website, the SAHANA Free and Open Source Disaster Management System, and the crowdsourcing platform Ushaidi, which focuses largely on social media.

➤ **Study: Social Media and Disasters: Current Uses, Future Options, and Policy Considerations. Congressional Research Service. 2011 Report for Congress.**

<http://www.fas.org/sqp/crs/homesecc/R41987.pdf>

In the last five years social media have played an increasing role in emergencies and disasters. Social media sites rank as the fourth most popular source to access emergency information. They have been used by individuals and communities to warn others of unsafe areas or situations, inform friends and family that someone is safe, and raise funds for disaster relief.

The use of social media for emergencies and disasters may be conceptualized as two broad categories. First, social media can be used somewhat passively to disseminate information and receive user feedback via incoming messages, wall posts, and polls. To date, this is how most emergency management organizations, including the Federal Emergency Management Agency (FEMA), use social media.

A second approach involves the systematic use of social media as an emergency management tool. Systematic usage might include using the medium to conduct emergency communications and issue warnings; using social media to receive victim requests for assistance; monitoring user activities to establish situational awareness; and using uploaded images to create damage estimates, among others. Many of these applications remain speculative, while other uses are still in their infancy. Consequently, most emergency management organizations have confined their use of social media to the dissemination of information.

- **Study: 2007 National Academy of Sciences Report in Brief: Successful Response Starts with a Map Improving Geospatial Support for Disaster Management.**

http://dels.nas.edu/resources/static-assets/materials-based-on-reports/reports-in-brief/successful_response_final.pdf

Geospatial data and tools should be an essential part of every stage of emergency management, from planning through response and recovery to the mitigation of future events. If future emergency responses are to be more effective, significant investments should be made in training of personnel, coordination among agencies, sharing of data and tools, planning and preparedness, and the tools themselves.

Geospatial Data and Tools mentioned in this report include:

- **Remote sensing** is the collection of data from a wide range of automated systems, including satellites and aircraft, and ground-based sensors and surveillance cameras.
- **Geographic information systems (GIS)**, which are among the most important and widely used of geospatial tools, are software systems used to capture, store, manage, analyze, and display geospatial data resources. A coordinate system is used as an organizing principle for these data resources.
- **Computer-assisted design (CAD) systems** are widely used to create and manage three-dimensional digital models of buildings and other engineering structures. When accurately registered to the Earth's surface, CAD data can be combined with other geospatial data.
- **Clearinghouses, geolibraries, archives, geoportals, and geobrowsers** are Web sites that provide access to large collections of geospatial data sets.
- **Spatial decision-support systems (SDSS)** provide decision-makers the information they need when decisions involve location. They are designed to make comparisons between many possible alternatives.

- **Study: The Use of Social Media for Disaster Recovery.**

<http://extension.missouri.edu/greene/documents/PlansReports/using%20social%20media%20in%20disasters.pdf>

This document includes information and lessons learned on use of social media during specific disasters, including:

- Joplin tornado
- Branson Tornado
- 2011 Missouri flooding
- Woodward, Oklahoma, and Wichita, Kansas, tornadoes

- **Study: Backchannels on the Front Lines: Emergent Uses of Social Media in the 2007 Southern California Wildfires.**

<http://www.cs.colorado.edu/~palen/Papers/isgram08/BackchannelsISGRAM08.pdf>

In this paper, we report on our first round of findings from research we conducted during and after the October 2007 fires in Southern California. Using data from a broadly distributed on-line questionnaire, we report on emerging features of a rapidly changing information arena, showing illustrations of emergent, ICT-supported "backchannel" response activity, and instances of incorporation of such backchannel activity into more recognized, traditional information outlets.

The patterns of technology adoption and use that we present here have been observed in prior, yet the reasons for and descriptions of respondents' information seeking behaviors further illustrate the mounting need for changes in emergency response management policy that take into account the changing, ICT-extended information arena of disaster, and recognize its advantages.

- **Study: The Role of Social Media as Psychological First Aid as a Support To Community Resilience Building. A Facebook Study from 'Cyclone Yasi Update'.**

http://www.em.gov.au/Publications/Australianjournalofemergencymanagement/Currentissue/Documents/AJEM%2027-1/Cyclone_Yasi_Update.PDF

This paper we review data collected from an online, social media-administered survey developed to explore public use of social media during a series of natural disasters, predominantly in Australia and New Zealand, during January to March 2011.

The survey was completed by 1146 respondents who had used social media in relation to the recent natural disasters. Data indicated that the public relied on a mix of formal and informal information sources, often using social media to re-post or re-tweet links from government websites felt to be of use to communities, thus acting as filters and amplifiers of March 2011.

LLIS.GOV CONTENT

➤ **LLIS.gov Lesson Learned: School Emergency Management Planning: Employing Multiple Systems to Deliver Protective Action Messages. 19 Aug 2011.**

<https://www.llis.dhs.gov/docdetails/details.do?contentID=52781>

University officials employed multiple mechanisms to notify students, faculty, and staff members of the incident and to inform them that all buildings were in lockdown, including:

- Text alerts sent by UTPD dispatch;
- An audible siren system staffed by UTPD dispatch;
- Postings on Facebook, Twitter, and other social networking sites managed by university operations and public affairs staff ;
- Emails sent by the university president and university operations;
- Updates to university Web pages managed by university operations and public affairs staff;
- The campus closed-circuit cable television system managed by information technology and emergency preparedness staff;
- Pager messages sent by UTPD dispatch;
- Pop-up alerts on campus computers manage by information technology and emergency preparedness staff; and
- Updates to the media by public affairs staff.

Together, these systems enabled the university to provide the initial notification to the campus community within minutes of the first call to 9-1-1.

➤ **LLIS.gov Lesson Learned: Emergency Public Information: Using Social Media to Disseminate Updated Information During Incident Responses. 04 Feb 2011**

<https://www.llis.dhs.gov/docdetails/details.do?contentID=49305>

Public information officers (PIOs) should consider utilizing social media during incidents to disseminate updated information about operations to response personnel as well as to the general public.

➤ **LLIS.gov Lesson Learned: Emergency Public Information: Establishing a Social Media Protocol. 29 Oct 2010**

<https://www.llis.dhs.gov/docdetails/details.do?contentID=47368>

Emergency managers should consider establishing a protocol to guide joint information center (JIC) personnel when monitoring social media networks. This can help ensure that JIC personnel manage information from these networks effectively.

➤ **LLIS.gov Lesson Learned: Public Health Emergency Planning: Disseminating Public Information through Non-Traditional Methods. 23 May 2008**

<https://www.llis.dhs.gov/docdetails/details.do?contentID=31754>

Public health departments should consider developing alternative methods of disseminating public information in addition to traditional methods such as television and Internet. This can help to ensure that all populations are reached in a public health emergency.

TTX participants noted a heavy emphasis on disseminating public information through television and the Internet in OPH Region III. Participants observed that some members of the community do not have access to these media types, either because of their inability to afford computers or Internet/cable service or because of the lack of access in rural areas.

The TTX after-action report (AAR) recommended that OPH Region III should investigate alternative methods of public information dissemination. These methods could include distributing flyers and posters in stores, banks, and video rental stores. The AAR also stated that OPH Region III should consider asking faith-based groups, home health agencies, and local volunteer groups to bring the information to the parts of the community that they serve.

➤ ***LLIS.gov Practice Note: Social Media in Emergency Management: The Virtual Operations Support Team Concept. 09 Jul 2012.***

<https://www.llis.dhs.gov/docdetails/details.do?contentID=56027>

A Los Ranchos de Albuquerque Emergency Management Office, New Mexico, emergency management coordinator established a group of “trusted agents,” to assist with the office’s social media presence. In a large-scale incident, this Virtual Operations Support Team (VOST) can manage aspects of social media operations for the office or for other jurisdictions and organizations that need support.

On March 14, 2011, the coordinator posted a request on Twitter for volunteers interested in participating on a VOST. More than 20 volunteers responded to his request. On March 16, the coordinator organized 16 of those volunteers using a modified Incident Command System (ICS) Assignment List (Form 204) and began communicating with VOST members using Skype for orientation and collaboration purposes.

➤ ***LLIS.gov Practice Note: Disaster Recovery: The Public Information Partnership formed by the Cities of Joplin and Duquesne, the State of Missouri, and the Federal Emergency Management Agency after the May 22, 2011 Tornado.***

<https://www.llis.dhs.gov/docdetails/details.do?contentID=56025>

The cities of Joplin and Duquesne, Missouri, the State of Missouri, and the Federal Emergency Management Agency (FEMA) partnered to effectively communicate public information about the debris removal process after the May 22, 2011, tornado that struck Jasper and Newton counties. The information partnership employed innovative strategies and developed customized products for the impacted areas. These strategies ensured that residents received accurate and up-to-date information about debris removal, which helped them make informed choices for their own recoveries.

City personnel used social media to supplement information disseminated through traditional methods. Prior to the tornado, city personnel had not extensively employed social media to share information with residents. Shortly after the tornado, a city employee with social media expertise began managing Joplin’s Facebook page and established a Twitter page and a YouTube channel. Other city employees provided assistance when the number of postings increased significantly. The city’s Facebook page contained posts exclusively by city officials about sheltering, disaster recovery centers, volunteer and donations opportunities, applying for FEMA assistance, and other critical information.

➤ ***LLIS.gov Practice Note: Emergency Public Information: Montgomery County, Maryland, Fire and Rescue’s Use of Social Media to Engage the Community After Consecutive Snowstorms. 17 Feb 2012.***

<https://www.llis.dhs.gov/docdetails/details.do?contentID=55115>

The Montgomery County, Maryland, Fire and Rescue Service (MCFRS) used Facebook, Twitter, and a blog to request that the community uncover fire hydrants buried in snow after consecutive February 2010 winter storms. MCFRS personnel used social media to share information with, and provide guidance to, the community. This effort resulted in the effective participation of the community in recovery operations after the snowstorms.

On February 4, personnel began using the department's social media accounts and blog to request that community members clear fire hydrants of snow. Personnel included safety tips with these requests. On February 8, personnel posted a photograph of a properly cleared hydrant on the MCFRS blog for reference by community members.

In the days following the first storm, MCFRS personnel monitored social media platforms and responded to comments and questions from community members.

During this process, a former volunteer firefighter living in Germantown, MD, submitted a YouTube video to MCFRS personnel explaining how to uncover a fire hydrant. He demonstrated the proper technique for shoveling snow from the hydrant in a way that would make the hydrant usable by fire fighters. MCFRS personnel reviewed the video and provided a link to it on the department blog and social media accounts.

- **LLIS.gov Practice Note: Emergency Public Information: Mecosta County, Michigan's Use of Social Media for Communicating with the News Media and Officials During Disasters. 27 Jan 2012.**

<https://www.llis.dhs.gov/docdetails/details.do?contentID=54975>

The Mecosta County, Michigan, Emergency Management director used social media to share images and video of damage caused by flooding in April 2011. County officials and the news media followed Mecosta County's social media platforms to get real-time damage information from the director.

- **LLIS.gov Practice Note: Emergency Public Information: Cranford, New Jersey, Police Department's Use of Nixle After Hurricane Irene. 16 Dec 2011**

<https://www.llis.dhs.gov/docdetails/details.do?contentID=54633>

Cranford, New Jersey, Police Department personnel used Nixle to disseminate information to the public after Hurricane Irene. Nixle allowed personnel to reach residents through text messaging, email, and social media platforms simultaneously.

- **LLIS.gov Practice Note: Emergency Public Information: The Harris County, Texas, Office of Homeland Security and Emergency Management's Implementation of a Social Media Protocol. 28 Oct 2011.**

<https://www.llis.dhs.gov/docdetails/details.do?contentID=54078>

The Harris County, Texas, Office of Homeland Security and Emergency Management (HCOHSEM) implemented a social media protocol and utilized Facebook and Twitter during wildfires in 2011. These social media efforts enabled HCOHSEM to disseminate information rapidly, to answer questions, and to dispel rumors posted on social media Web sites.

- **LLIS.gov Practice Note: Public Affairs and Information: The District of Columbia's 2009 Presidential Inauguration Web Site and Use of Social Networking Programs. 30 Oct 2009.**

<https://www.llis.dhs.gov/docdetails/details.do?contentID=39459>

The District of Columbia Presidential Inaugural Committee developed a 2009 Presidential Inauguration Web site and used social networking programs to provide important information to the public prior to and during the 2009 Inauguration. These efforts, in collaboration with other National Capital Region partners, contributed to a unified and coordinated public information effort for the 2009 Inauguration.

- **LLIS.gov Document: The Response to the 2011 Joplin, Missouri, Tornado Lessons Learned Study. 20 Dec 2011.**

<https://www.llis.dhs.gov/docdetails/details.do?contentID=54802>

Preliminary Finding 2.5: The City of Joplin used both traditional mechanisms and social media to communicate emergency information to the public and conduct outreach to support long-term recovery.

Discussion: City officials used press conferences, press releases, and news alerts to disseminate emergency information to the public and to response partners. The city also distributed this information through email and posted it on the city's Web page and Facebook page. The Facebook page contained posts exclusively by the city about sheltering, disaster recovery centers, volunteer and donations opportunities, applying for FEMA assistance, and other critical information. The city also used the page to provide phone numbers for Joplin residents who were attempting to locate family members or share information. Individuals could comment on these posts but could not create their own posts. The city's Facebook page also proved invaluable for engaging with those outside the region who wished to support the Joplin response.

Several weeks after the tornado, the city created a Twitter account that provided it with an additional social media mechanism for disseminating public information. The city Tweeted about volunteer opportunities, town meetings, and general information for the public, such as about a class on how to protect against home repair contractor fraud.

The use of both traditional and social media proved especially valuable for informing the public about FEMA's Expedited Debris Removal (EDR) program.

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