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DISASTER LEGAL TECH: STRATEGIES FOR PROVIDING LEGAL INFORMATION TO SURVIVORS

*Jeanne Ortiz-Ortiz & Jessica Penkoff**

I. INTRODUCTION

In 2015, one decade after Hurricane Katrina, the American Bar Association interviewed Rachel Piercey and Bonnie Allen, two individuals who were deeply involved in the legal community's immediate response to Katrina. Piercey and Allen identified 6 lessons learned from Katrina in an article titled "10 Years After Hurricane Katrina: Lessons Learned and Opportunities for Change."¹ Piercey and Allen noted, among other things, that different legal issues arise

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¹ April Faith Slaker, *10 Years After Hurricane Katrina: Lessons Learned and Opportunities for Change*, AMERICAN BAR ASSOCIATION (Oct. 15, 2015), https://www.americanbar.org/groups/legal_services/publications/dialogue/volume_18/fall-2015/10-years-after-hurricane-katrina—lessons-learned-and-opportunit/. According to the National Hurricane Center, Katrina claimed over 1,800 lives, displaced over one million people, and was the costliest hurricane in United States history. See Richard D. Knabb, Jamie R. Rhome, and Daniel P. Brown, *Tropical Cyclone Report – Hurricane Katrina, 23-30 August 2005*, NATIONAL HURRICANE CENTER (last updated Aug. 10, 2006), https://www.nhc.noaa.gov/data/tcr/AL122005_Katrina.pdf.

over different periods of time in the aftermath of a disaster. Therefore, not all of the legal issues caused by a disaster will be apparent in the immediate aftermath.² Piercey and Allen also noted that one of the lessons learned from Katrina is that “getting the message out about the need for legal services and advocacy is an important part of attracting resources, volunteers, and funding.”³ Informing survivors and the broader community about the need for legal services necessitates getting legal information to disaster survivors following a disaster by whatever means possible.

In the aftermath of natural disasters, technology plays an important role in the delivery of legal services in the short-term, mid-term, and long-term recovery phases. From the simple craft of writing an email to connect others, to developing an automated interview that helps people file an appeal with FEMA, the legal aid community has responded to the country’s most cataclysmic disasters in diverse ways.

This Article will survey the ways in which legal service providers and non-profit community organizations have used technology to get legal information to disaster survivors both in the short-term immediately after a disaster, and in the longer term as the recovery process continues. Fact-gathering about specific methodology was performed primarily via email (legal service providers/community organizations provided written responses to questions) and phone interviews, and in some cases through online research. This Article will include a chronological discussion of Superstorm Sandy, and Hurricanes Harvey, Irma, María, Florence, and Michael.⁴ The purpose of this Article is to further identify best practices for disaster recovery with a specific focus on how technology helps legal service providers and community organizations to empower people with the legal information and advice they desperately need after a disaster.⁵

² Slaker, *supra* note 1.

³ *Id.*

⁴ We recognize that this list does not encompass all disasters that have occurred since Katrina. We do not intend to suggest anything by omission.

⁵ While we have attempted to be as comprehensive as possible, we regret that due to time constraints, there are many organizations that we did not have the opportunity to interview. We laud the efforts of all legal service providers and community organizations in this space. We do not intend to suggest anything by omission of any organization from this process.

II. SUPERSTORM SANDY

On October 29th, 2012, Superstorm Sandy reached the Northeastern Coast of the United States after traveling up the East Coast from the Caribbean. In total, 7 countries and 24 states were affected, and 650,000 homes were damaged or destroyed.⁶

In New York, New Jersey, and Connecticut, a total of 106 people died.⁷ The storm resulted in damage to or destruction of around 300,000 homes in New York State, and approximately one-third of those homes were in Long Island.⁸ In New York City alone, 43 lives were lost.⁹ The surge from Sandy reached 76,000 buildings containing 300,000 residential units – 9% of the total number of residential units in New York City – and covered over 16% of New York City’s land.¹⁰ Power outages lasted for weeks to months in certain areas of the City and Long Island, placing a dangerous strain on telecommunications, transportation, and access to health care, fuel, and drinking water.¹¹

A. Hotlines

The most commonly cited use of technology in the immediate aftermath of essentially all disasters researched in this article was a disaster hotline staffed by pro bono attorneys and law students to provide brief legal advice and connect disaster survivors with appropriate resources. These hotlines function in both the immediate and longer-term post-disaster. In 1973, the American Bar Association Young Lawyers Division (ABA YLD) and FEMA signed a Memorandum of Understanding (MOU) whereby the YLD’s Disaster

⁶ Eric S. Blake, Todd B. Kimberlain, Robert J. Berg, John P. Cangialosi, and John L. Beven II, *Tropical Cyclone Report, Hurricane Sandy (AL182012) 22-29 October 2012*, NATIONAL HURRICANE CENTER (2013), https://www.nhc.noaa.gov/data/tcr/AL182012_Sandy.pdf.

⁷ *Mapping Hurricane Sandy’s Deadly Toll*, N.Y. TIMES (Nov. 17, 2012), <https://archive.nytimes.com/www.nytimes.com/interactive/2012/11/17/nyregion/hurricane-sandy-map.html>.

⁸ Blake, *supra* note 6, at 18.

⁹ NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION, *A STRONGER, MORE RESILIENT NEW YORK: SANDY AND ITS IMPACTS* (Jun. 11, 2013), http://www.nyc.gov/html/sirr/downloads/pdf/final_report/Ch_1_SandyImpacts_FINAL_singles.pdf at 13.

¹⁰ FURMAN CENTER FOR REAL ESTATE & URBAN POLICY AND MOELIS INSTITUTE FOR AFFORDABLE HOUSING POLICY, *Fact Brief: Sandy’s Effects on Housing in New York City* (last visited Aug. 21, 2019), <http://furmancenter.org/files/publications/SandysEffectsOnHousingInNYC.pdf>.

¹¹ Blake, *supra* note 6.

Legal Services Program agreed to assist FEMA by providing legal assistance to low-income disaster survivors upon written request by FEMA.¹² Specifically, the YLD agreed to use its best efforts to coordinate delivery of legal services, including the use of established state and local bar telephone numbers for use as a hotline number staffed by volunteer attorneys who provide legal advice, information, and referrals where appropriate.¹³ As of December 2012, just two months after Sandy, the ABA's Sandy hotline had received over 2,500 calls.¹⁴

In addition to the ABA-YLD hotline, organizations often expand their organization's own intake hotline capacity to absorb the increased call volume from disaster survivors. The New York City Bar Association's City Bar Justice Center saw fit to expand its legal intake hotline hours from a part-time to a full-time weekly schedule to handle increased call volume post-Sandy.¹⁵ The New York Legal Assistance Group, despite being displaced from its own downtown Manhattan office during the weeks after the storm, very quickly created a dedicated Storm Response Unit to absorb the influx of clients

¹² Memorandum of Agreement Between the Federal Emergency Management Agency and the American Bar Association Regarding Disaster Legal Services (May 9, 2012) (No. 17003), https://www.disasterlegalaid.org/library/item.455414-MOU_between_ABA_YLD_and_FEMA_May_2012 (The most recent MOU is dated in 2017); see also Andrew Jack VanSingel, *45 Years of the ABA's Disaster Legal Services Program*, 35 TOURO L. REV. (forthcoming Sept. 2019) explaining that the first documented and organized legal response happened in 1969 after Hurricane Camille. The Mississippi Young Lawyers Section (MSYLS) created a Disaster Relief Committee and secured a \$25,000 grant from the Office of Emergency Preparedness (OEP) to set up three law offices along the Gulf Coast. The MSYLS also rented a van that doubled as a mobile law office. The ABA YLD took notice of the effort, and by 1972, created its own national program. On January 12, 1973, a Memorandum of Understanding was signed by the YLD Chair and the Director of the OEP. The OEP later evolved into the Federal Disaster Assistance Agency (FDAA) and then to what is now FEMA.

¹³ *Id.* *Disaster Legal Services Program*, AMERICAN BAR ASSOCIATION, (last visited July 11, 2019), https://www.americanbar.org/groups/young_lawyers/disaster_legal_services/ (Since 2007, the ABA's Disaster Legal Services Program, operated by the Young Lawyers Division, has staffed disaster-specific legal hotlines on an ongoing basis in response to over 175 disasters in the last 12 years.).

¹⁴ Richard Acello, *ABA Responds to Superstorm Sandy with a Reinforced Disaster Response Plan*, AMERICAN BAR ASSOCIATION JOURNAL (Mar. 1, 2013), http://www.abajournal.com/magazine/article/aba_reponds_to_superstorm_sandy_with_a_reinforced_disaster_response_plan.

¹⁵ CBJC Staff, *Superstorm Sandy: Lessons Learned for the Legal Profession*, CITY BAR JUSTICE CENTER NEWS, (May 14, 2013), <https://www.citybarjusticecenter.org/news/superstorm-sandy-lessons-learned-for-the-legal-profession/>.

with legal needs stemming from the storm, and set up a hotline for intake and referrals as an initial step in the creation of the new unit.¹⁶

B. Social Media

Another commonly used technological tool for the dissemination of legal information after Sandy was social media. LawHelpNY was particularly active on social media. In addition to utilizing Twitter and Facebook, LawHelpNY quickly launched a Disaster Assistance Blog in English and Spanish which provided a comprehensive online guide to disaster relief at the federal, state, local, and community levels.¹⁷

In the longer term, as free legal clinics proliferated in communities affected by Sandy, LawHelpNY also launched an online calendar of Free Disaster Legal Aid Clinics to allow individuals to connect with the many front-line legal aid organizations. These organizations established clinics to help survivors file for FEMA and Disaster Unemployment Assistance benefits, answer immigration status questions, assist with insurance claims, and with many other immediate legal needs.¹⁸ LawHelpNY reported that post-Sandy blog visits increased from about 50 per day to 1,000 per day immediately after the storm, then averaged around 600 per day in the longer term.¹⁹

With regard to social media, NYLAG noted that there was not necessarily an exact overlap between its client base and people who regularly use social media, and that setting up a Facebook page or equivalent social media account was not pursued especially given that power outages in several areas made social media communication difficult and not necessarily effective.²⁰ What NYLAG did find to be useful – in combination with traditional boots-on-the-ground outreach and lawyering – was the use of 15 data-enabled iPads funded through a grant from the Robin Hood Foundation, which NYLAG attorneys used to help people at shelters file for disaster assistance online at a

¹⁶ Interview with Ann Dibble, William Friedman, and Aaron Scheinwald - former directors and current director of NYLAG's Storm Response Unit, February 5th, 2019.

¹⁷ *Lessons from Sandy: Leveraging Social Media and SEO for Online Disaster Outreach*, LAWHELPNY, <https://www.lawhelpny.org/files/B23B29BF-0DED-F7B9-2149-1DB14E1A7DE5/attachments/BFB16ED9-A1B6-477B-8C79-C802684F26F3/disaster-relief-toolkit-final.pdf> (last visited Jul. 7, 2019).

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Supra* note 16.

time when internet service and physical travel were extremely difficult for survivors to do.²¹

C. Other Technology

There were several other unique technological tools and methods deployed by legal service providers and other nonprofit organizations to get legal information to those who needed it after Sandy. City Bar Justice Center and Pro Bono Net partnered to create an interactive online FEMA Appeals interview, powered by Pro Bono Net's LawHelp Interactive platform, that produces a FEMA appeals letter that a disaster survivor could then print and file with FEMA.²² This FEMA Appeals tool is still in operation and currently hosted by Pro Bono Net at femaappeals.org and is still being used widely by individuals in need of FEMA Appeals in response to disasters that have occurred subsequent to Sandy. To date, over 11,000 appeals have been generated with the FEMA Appeals interview tool.

Another example of how technology has been used to provide legal information to disaster survivors is the Center for New York City Neighborhoods' (CNYCN) FloodHelpNY.org. This was created as a platform for engaging and informing New York City homeowners about how they can protect their homes and finances from flooding that is expected to worsen with rising sea levels caused by climate change.²³ Residents can type in their address and get a flood insurance estimate, and qualified residents can get a free home resiliency assessment, an elevation certificate, and a customized home resiliency plan, which otherwise would cost around \$1,800.²⁴ CNYCN states that a primary goal of the site is to allow middle-income homeowners to make informed decisions about reducing their risk of future floods that will also help to lower their flood insurance rates.²⁵

Pro Bono Net also created a dedicated space for Sandy resources for the public on its National Disaster Legal Aid website,

²¹ *Id.*

²² LAWHELPNY, *supra* note 17.

²³ Center for NYC Neighborhoods, *About Us*, FLOODHELPNY, <https://www.floodhelpny.org/en/about> (last visited Jun. 9, 2019).

²⁴ Anna Sackel, *Flood assessments offered to residents*, QUEENS CHRONICLE (Jun. 28, 2018, 10:30 AM), http://www.qchron.com/editions/south/flood-assessments-offered-to-residents/article_777c6dfb-406f-5fd0-802c-e74e7c5a2c90.html.

²⁵ Center for NYC Neighborhoods, *supra* note 23.

disasterlegalaid.org.²⁶ The National Disaster Legal Aid (DLA) website remains responsive to recent disasters affecting the United States and its territories. DLA informs the public about how and where to apply for FEMA assistance and appeals, information about deadlines for FEMA applications specific to each recent disaster, phone numbers for hotlines responsive to specific disasters, etc.²⁷ Pro Bono Net and its partners working on the National Disaster Legal Aid website have remained dedicated to the proliferation of legal information to the public both immediately after recent disasters and in the long term.²⁸ Notably, Pro Bono Net hosted the NYC Pro Bono Center, which became the agreed-upon hub through which the major legal aid providers and pro bono organizations published information about trainings, recorded webinars, and pushed out information to volunteers.²⁹

D. Lessons Learned

In 2014, LawHelpNY published a report titled “Lessons from Sandy: Leveraging Social Media and SEO for Online Disaster Outreach” which included a set of 10 recommendations based on experiences and lessons learned during the community’s response to Sandy.³⁰ LawHelpNY’s recommendations were informed by three

²⁶ SAUNDRA BROWN ET AL., ABA/NLADA 2014 Equal Justice Conference (written materials for panel presentation), *Reaching Communities in Crisis: Online Strategies and Resources for Disaster Recovery*, https://www.americanbar.org/content/dam/aba/directories/pro_bono_clearinghouse/ejc_2014_101.pdf (last visited Jul. 9, 2019).

²⁷ Users can also access self-help legal information related to disaster relief and recovery.

²⁸ Pro Bono Net’s partners on National Disaster Legal Aid are: Lone Star Legal Aid, the Legal Services Corporation, the ABA, and the National Legal Aid and Defender Association. Organizations like Pro Bono Net, NYLAG, and CBJC have also used technology to get information to advocates and attorneys by hosting recorded trainings for pro bono attorneys and advocates. In November 2012, CBJC trained nearly 400 attorneys via live trainings made available online, and many more via trainings for volunteer opportunities at one of the many on-site clinics staffed by CBJC attorneys and volunteers. *See* CBJC Staff, *supra* note 16. The November trainings were hosted online by Pro Bono Net and approximately 700 attorneys downloaded the training materials to enable them to assist Sandy survivors. Likewise, NYLAG hosted two online trainings in November 2012, and over 800 people attended live - the recordings of these trainings were also made available online by Pro Bono Net for advocates to view at their convenience.

²⁹ Liz Keith, *New York’s Online Disaster and Recovery Resources*, MIE JOURNAL, Volume XXVI No. 4, Winter 2012, https://mielegalaid.org/sites/default/files/images/current_partial.pdf (last visited Aug. 21, 2019).

³⁰ LAWHELPNY, *supra* note 17.

observations: the uncoordinated and duplicative nature of efforts to provide information and assistance online, confusion caused by the abundance of information (not all of which was accurate), and the fact that resource and information needs followed a clear sequence from the beginning of a disaster through the post-recovery period.³¹ The recommendations include fact-checking, collaboration, and the use of personal stories, among others.³²

NYLAG, one of the premier front-line Sandy recovery legal service providers, noted that the legal community is still trying to identify a best practice for preserving the institutional knowledge gained by attorneys and advocates in the disaster recovery space who move on to other areas of practice given the temporary nature of disaster relief funding.³³ How can these practitioners' knowledge be shared with the public and other practitioners in their absence from the disaster recovery community? NYLAG also reminded us that using technology to communicate may not always be possible after a disaster and that nothing can replace the value of going in person to disaster-affected areas to perform needs assessments and effectively serve survivors.³⁴ Often, technology is a necessary tool to reinforce and sustain information initially provided in person by advocates to survivors.³⁵

III. HURRICANE HARVEY

Beginning August 25th and ending August 30th, 2017, Hurricane Harvey, a Category 4 hurricane, made landfall along the Southeast Coast of Texas.³⁶ Harvey dropped more than 60 inches of rain over southeastern Texas, caused catastrophic flooding, claimed 68 lives, and became the second most costly storm in United States history

³¹ *Id.*

³² *Id.*

³³ *Supra* note 16.

³⁴ *Id.*

³⁵ *Id.*

³⁶ Eric S. Blake & David A. Zelinsky, *National Hurricane Center Tropical Cyclone Report – Hurricane Harvey (AL092017), 17 August-1 September 2017*, National Hurricane Center (May 9, 2018) https://www.nhc.noaa.gov/data/tcr/AL092017_Harvey.pdf.

(behind Katrina).³⁷ Over 300,000 structures were flooded, and around 40,000 survivors were evacuated to shelters.³⁸

A. Hotlines

As is the case with most of the disasters we have studied for this article, the most commonly used technological tool for getting legal information to the public after Harvey was a hotline. Texas RioGrande Legal Aid (TRLA), the State Bar of Texas, the American Bar Association, and the Houston Immigration Legal Services Collaborative (HILSC) all set up hotlines for disaster survivors to connect survivors with legal advice and information and referrals to appropriate other resources.³⁹

The State Bar of Texas set up a hotline that operated in multiple languages to connect and direct people with the appropriate legal aid provider.⁴⁰ The State Bar of Texas noted that this effort was complicated by the fact that people were highly mobile after Harvey due to evacuations from hurricane-damaged areas, so identifying which legal service provider was appropriate based on an individual's post-Harvey location was not always straightforward.⁴¹

Regarding phone service more generally, the State Bar of Texas noted that landlines were mostly knocked out after the storm, but cell phone service was good, and the Department of Health and Human Services came to provide replacement phones to those who needed one, and to set up phone charging stations.⁴² The State Bar of Texas indicated that there could be a way to capitalize on the fact that many people were able to maintain a good cell phone connection despite the loss of landline capability.⁴³

The Houston Immigration Legal Services Collaborative combined its hotline with a phone bank staffed by HILSC's

³⁷ *Id.*

³⁸ *Id.* Hurricane Harvey was followed almost immediately by Hurricanes Irma and María, discussed later in this article.

³⁹ *Infra*, all interviews cited herein.

⁴⁰ Interview with Becky Moseley, Civil Justice Attorney, Legal Access Division, State Bar of Texas, February 13, 2019.

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.*

community partners, which aired live on Univision.⁴⁴ HILSC and its partners answered almost 1,400 phone calls between August 30, 2017 and September 1, 2017, providing multilingual answers to questions about immigration and disaster response and recovery from immigrants affected by Harvey.⁴⁵

B. Social Media

Another very common mechanism used by legal service providers and community organizations to get legal information into the hands of the public both immediately after Harvey and on an ongoing basis was social media. Lone Star Legal Aid (LSLA), despite having severely reduced capacity given the destruction of its office caused by an electrical fire during Harvey, used social media to share updates, informational flyers, and updates from FEMA and other agencies providing relief to survivors.⁴⁶ Some of the most liked/shared posts on social media were LSLA's informational flyers – this has heavily informed LSLA's forward-looking strategy which will include continuing to post educational/informational materials on social media so that people are able to utilize them as a tool for navigating disaster recovery processes they will almost certainly encounter.⁴⁷ LSLA attorneys also provided critical advice to survivors via two different Facebook live broadcasts.⁴⁸

TRLA used Facebook and Twitter to publicize its hotline number and posted every few days for several weeks after Harvey.⁴⁹ TRLA also created a separate Facebook page about Harvey and used its organization-specific Facebook page to circulate schedules showing when its staff attorneys would be present at the various Disaster Recovery Centers to provide legal aid to survivors.⁵⁰

⁴⁴ Interview with Katy Atkiss, Harvey Systems Project Manager, Houston Immigration Legal Services Collaborative, February 5, 2019.

⁴⁵ *Id.*

⁴⁶ Email from Clarissa Ayala, Communications Director, Lone Star Legal Aid, February 11, 2019.

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ Email from Nancy Nusser, Communications Director, Texas RioGrande Legal Assistance, February 11, 2019.

⁵⁰ TRLA noted that this was “fairly successful” given that the Harvey-specific Facebook page received several hundred likes within a month, and posts “reached” several thousand people, though TRLA notes that it is unclear how “reach” is measured by Facebook in this case.

The American Bar Association also used social media to publicize its disaster hotlines and conduct general outreach to disaster survivors.⁵¹ The State Bar of Texas noted that probonotexas.org – operated by the State Bar of Texas’s Legal Access Division – was prolific on Facebook with disaster-related posts and information for the public.⁵²

C. Dedicated Webpages

The legal community has also seen much value in creating webpages dedicated to the dissemination of legal information to the public after certain disasters. The State Bar of Texas created a site for the public with resources in English and Spanish and also posted information on texaslawhelp.org.⁵³ Lone Star Legal Aid created a disaster recovery page on its website to house flyers with information and answers related to critical legal questions for survivors of a natural disaster.⁵⁴ Texas RioGrande Legal Aid also created a dedicated space on the existing website that hosted disaster-recovery resources for the public.⁵⁵

The ABA, working with the State Bar of Texas, adapted its Texas Free Legal Answers platform after Harvey. It did this by increasing the income/asset caps to allow impacted residents to access civil legal advice, allowing for out-of-state attorney registrations to offer pro bono legal advice per Supreme Court orders, and adding Harvey specific question categories to channel disaster-adjacent legal questions to volunteer attorneys with expertise in disaster recovery.⁵⁶ Texas residents, including many Harvey survivors, asked approximately 5,600 questions in one year, and 326 attorneys from out-of-state were permitted to volunteer to answer hurricane-related questions.⁵⁷ The State Bar of Texas noted that there were more out-

⁵¹ Email from Tali K. Albuquerk, National Administrator, ABA Free Legal Answers, February 12, 2019.

⁵² *Supra* note 40.

⁵³ The State Bar of Texas also created a separate site for attorneys. *See also supra* note 40.

⁵⁴ *Supra* note 46. LSLA also created two disaster pro bono attorney portals - one with training materials and the other with template documents for attorneys to use in direct representation.

⁵⁵ *Supra* note 49.

⁵⁶ *Supra* note 51. ABA FLA also notes that these methods are offered to FLA host sites after every disaster, not just Harvey, to operate FLA.

⁵⁷ *Id.* The practice of law by out-of-state attorneys post-disaster is sanctioned on a case by case basis following the American Bar Association’s 2007 adoption of a Model Court Rule on

of-state attorneys than in-state attorneys volunteering to answer questions via the Texas Free Legal Answers site. This influx of out-of-state attorneys could help in the future not only with disaster-related issues but other types of issues as well to take some of the burdens from Texas attorneys overloaded with disaster-related cases.⁵⁸ Additionally, the State Bar of Texas' Legal Access Division via probonotexas.org posted several disaster-related resources, including informational/know-your-rights materials for attorneys to give to clients.

The National Disaster Legal Aid Resource Center made Harvey-specific disaster recovery resources available to both the public and attorneys and other advocates online at disasterlegalaid.org/txhurricaneharvey. This page contained information urgently needed in the immediate aftermath of Harvey: ABA hotline information, important FEMA deadlines, information about texaslegalanswers.org, contact information for legal clinics serving Harvey survivors, and links to numerous other resources for the public like government offices, flood insurance bulletins, loan application information, and more.⁵⁹

D. Other Dissemination of Tech-Created Resources

Several of the legal service providers interviewed for this article reiterated the importance of hand-delivering resources – created using tech-tools – to disaster survivors at various stages throughout the recovery process. For example, much like NYLAG's on-the-ground work after Sandy, discussed above, Lone Star Legal Aid staff distributed resources (created using tech-tools like Canva) created in four different languages to shelters, disaster recovery centers, and clinics where LSLA staff were stationed regularly.⁶⁰ LSLA noted that

the Provision of Legal Services Following Determination of Major Disaster, which allows out-of-state lawyers to provide pro bono services to disaster survivors in states in which these lawyers are not otherwise authorized to practice law.

⁵⁸ *Supra* note 40. SBT did note that there are far more questions than answerers and that nothing eclipsed the number of family-law related questions after Harvey, an indication that the chaos of storm recovery presented an opportunity for many individuals to flee violent partners/caretakers.

⁵⁹ National Disaster Legal Aid also contains a portal for attorneys at www.disasterlegalaid.org/advocates and hosts training resources for attorneys online. Likewise, Lone Star Legal Aid and the State Bar of Texas also host attorney portals with online training materials for advocates and attorneys.

⁶⁰ *Supra* note 46.

disaster survivors often forgo applying for disaster recovery benefits and live in unsafe conditions to avoid dealing with the frustration of trying to obtain benefits from disaster relief agencies and insurance companies.⁶¹ LSLA deployed this strategy especially to reach communities outside of the urban Houston area, setting up pop-up clinics for those who could not reach disaster recovery centers due to proximity or lack of transportation.⁶² HILSC also deployed immigration attorneys to give consultations and provide written resources to the two largest post-Harvey emergency shelters and noted that many of the individuals they served had questions and concerns about exposing themselves to deportation if they sought long-term relief.⁶³

E. Recommendations

As with any disaster, we have much to learn from Harvey to apply to future disasters. Observing the ease with which people used cell phones after Harvey in the absence of landlines, the State Bar of Texas stated that it could be very beneficial to create short videos providing important legal information and resources that survivors could watch on their smartphones.⁶⁴ Similarly, Lone Star Legal Aid suggested that creating interactive educational videos to empower survivors with legal information utilizing a learning management system would be a worthwhile effort.⁶⁵

One very commonly echoed recommendation based on lessons learned from disasters discussed in this article was for the legal community to better coordinate its efforts, both generally and with respect to outreach strategy. For example, the State Bar of Texas identified a need for coordination of social media posts across

⁶¹ *Id.*

⁶² *Id.*

⁶³ *Supra* note 44. Although not specifically created for dissemination to the public, HILSC also provides a unique example of tech-created resources used to indirectly provide information to the public - through HILSC's listserv, a list of FAQs was compiled and circulated via the listserv to advocates to enable them to provide advice both in person and over the phone via hotlines.

⁶⁴ *Supra* note 40.

⁶⁵ *Supra* note 46.

organizations to ensure that uniform and correct information is being provided to survivors.⁶⁶

Similarly, HILSC observed that coordination issues present a unique barrier to immigrants trying to recover, including the fact that the region's current centralized referral system is not nuanced enough to serve specific populations, and often refers individuals to services that can be obtained only if that individual has a social security number (and the referral information provided is often out of date).⁶⁷ To address the lack of resources, services, and referrals for these individuals, HILSC worked with a technology firm to develop NeedHOU, a web-based social services referral system for providers that includes a website and database editing tool to improve access to social services for immigrants throughout Houston by identifying appropriate resources.⁶⁸ The system is still in development.⁶⁹ When it launches, it will rely on crowdsourced updates for quality information.⁷⁰

In March 2019, HILSC published a Humanitarian Action Plan containing 34 recommendations for building immigrant resiliency to disasters. Three primary themes emerged among these recommendations:

- Inclusive communication: Accurate, timely, and actionable information must be provided to immigrants in accessible language to increase the efficiency of response and recovery, reduce rumors, and help them connect with resources;
- Accessible resources: Preparedness, response, and recovery assistance – particularly privately-funded aid – must be available, accessible, and understandable to all immigrants; and
- Culturally-competent approaches: All who play a role in emergency management must understand and address the core needs of immigrants and strategically design policies, services, and materials to meet those needs.⁷¹

⁶⁶ *Supra* note 40.

⁶⁷ *Supra* note 44.

⁶⁸ Email from Katy Atkiss, Harvey Systems Project Manager, Houston Immigration Legal Services Collaborative March 6th, 2019.

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Supra* note 44; *see also* <https://hap.houstonimmigration.org/recommendations.html>.

IV. HURRICANES IRMA, MARÍA, FLORENCE, AND MICHAEL

On September 6, 2017 – less than a week after Hurricane Harvey dissipated over Texas – Hurricane Irma made landfall in the Caribbean.⁷² By September 10th, it had become a Category 4 storm and connected with the Florida Keys and Southeast Florida.⁷³ Irma caused floodwaters to rise to up to six feet above ground level in Florida and created a storm surge and tide that caused severe flooding in Georgia and South Carolina.⁷⁴ Forty-seven lives were lost.⁷⁵

Nine days later on September 19th, Hurricane María – a Category 5 storm – hit Dominica, and then hit Puerto Rico a day later.⁷⁶ María battered Dominica and Puerto Rico with furious winds and rainfall of up to 38 inches, which led to severe flooding and mudslides. Other islands in the Caribbean were also affected.

The damage was so widespread that federal disaster benefits for individuals were approved for all of Puerto Rico's 78 municipalities and the USVI's three islands.⁷⁷ María then made landfall as a Category 4 Hurricane striking the Florida Keys and struck as a Category 3 storm in Southwest Florida.⁷⁸ According to the National Hurricane Center, María is the third costliest hurricane in United States history.⁷⁹

Death count estimates vary – in the most recent study commissioned by the Governor of Puerto Rico, the excess death toll from María in Puerto Rico was estimated to be 2,975.⁸⁰ The force of

⁷² John P. Cangialosi et al., *Hurricane Center Tropical Cyclone Report – Hurricane Irma (AL112017) – 30 August-12 September 2017*, NATIONAL HURRICANE CENTER (June 30, 2018), https://www.nhc.noaa.gov/data/tcr/AL112017_Irma.pdf.

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ Richard J. Pasch et al., *National Hurricane Center Tropical Cyclone Report – Hurricane María (AL152017) – 16-30 September 2017*, NATIONAL HURRICANE CENTER, (Feb. 14, 2019) https://www.nhc.noaa.gov/data/tcr/AL152017_Maria.pdf.

⁷⁷ Puerto Rico Hurricane María (DR-4399), FEMA, <https://www.fema.gov/disaster/4339> (last visited Aug. 21, 2019); *Virgin Islands Hurricane María* (DR-4340), FEMA, <https://www.fema.gov/disaster/4340> (last visited Aug. 21, 2019).

⁷⁸ *Supra*, note 77.

⁷⁹ *Id.*

⁸⁰ Milken Institute School of Public Health, *Ascertainment of the Estimated Excess Mortality from Hurricane María in Puerto Rico*, GEORGE WASHINGTON UNIVERSITY, <https://drive.google.com/file/d/16X9qtnPaD—2dPhpcwu7S53esafH59i9/preview> (last visited Aug. 21, 2019); *see also* The New England Journal of Medicine, *Mortality in Puerto Rico after*

Hurricane María destroyed Puerto Rico's power grid and left the whole island without power for months to come. Power was slowly restored first in urban areas - many rural communities waited close to one year to have their power restored.⁸¹ Puerto Rico's blackout is now the largest blackout in U.S. history.⁸²

Hurricanes María and Irma were so destructive that their names were officially removed from the World Meteorological Organization's Atlantic hurricane name list, never to be used again.⁸³ Both disasters made the list of the top five costliest tropical cyclones to hit the United States.⁸⁴ Hurricanes Irma's and María's estimated damage is \$50 and \$90 billion, respectively.⁸⁵

Hurricane Florence, a Category 1 hurricane when it made landfall, affected North Carolina, South Carolina, Virginia, and Georgia less than one year after María between September 12-15, 2018.⁸⁶ FEMA individual assistance benefits were approved for over 40 counties across the Carolinas.⁸⁷ Over 40 fatalities were recorded as storm-related deaths.⁸⁸ Property damage from Hurricane Florence is

Hurricane María, (Jul. 12, 2018), <https://www.nejm.org/doi/full/10.1056/NEJMsa1803972>; Frances Robles, Kenan Davies, Sheri Fink, and Sarah Almukhtar, *Official Toll in Puerto Rico: 64. Actual Deaths May Be 1,052*, N.Y. TIMES, (Dec. 9, 2017), <https://www.nytimes.com/interactive/2017/12/08/us/puerto-rico-hurricane-maria-death-toll.html>.

⁸¹ Frances Robles, *Puerto Rico Spent 11 Months Turning the Power Back On. They Finally Got to Her*, N.Y. TIMES, (Aug. 14, 2018), <https://www.nytimes.com/2018/08/14/us/puerto-rico-electricity-power.html>.

⁸² Brian Donegan, *Puerto Rico is Now Largest Blackout in US History*, WEATHER, (Oct. 26, 2017), <https://weather.com/news/news/2017-10-26-puerto-rico-day-36-largest-blackout-united-states-history>.

⁸³ Dennis Feltgen, *Harvey, Irma, María and Nate retired by the World Meteorological Organization*, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA), (Apr. 12, 2018), <https://www.noaa.gov/media-release/harvey-irma-María-and-nate-retired-by-world-meteorological-organization>.

⁸⁴ *Costliest U.S. tropical cyclones tables updated*, NOAA, (Jan. 26, 2018), <https://www.nhc.noaa.gov/news/UpdatedCostliest.pdf>.

⁸⁵ *New List of the Costliest U.S. Hurricanes Includes 2017's Harvey, Irma, María*, THE WEATHER CHANNEL: HURRICANE CENTRAL, (Jan. 29, 2018, 2:45 PM), <https://weather.com/storms/hurricane/news/2018-01-29-americas-costliest-hurricanes>.

⁸⁶ *National Weather Service Historical Hurricane Florence*, September 12-15, 2018, NATIONAL WEATHER SERVICE, <https://www.weather.gov/mhx/Florence2018> (last visited Aug. 21, 2019).

⁸⁷ *South Carolina Hurricane Florence (DR-4394)*, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), <https://www.fema.gov/disaster/4394> (last visited Aug. 21, 2019); *North Carolina Hurricane Florence (DR-4393)*, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), <https://www.fema.gov/disaster/4393> (last visited Sep. 1, 2019).

⁸⁸ Richard Stradling, *The death toll from Hurricane Florence has risen again, four months after the storm*, THE CHARLOTTE OBSERVER, (Jan. 28, 2019, 9:52 AM),

estimated to be between \$17 and \$22 billion.⁸⁹ Less than a month later, Hurricane Michael hit the Florida Panhandle as a Category 5 hurricane - the strongest hurricane on record to affect the area.⁹⁰ Estimates vary, but at least 45 deaths have been reported due to Hurricane Michael.⁹¹ Hurricanes Florence and Michael caused \$24 billion and \$25 billion in damages, respectively.⁹²

A. Hotlines

The setup of hotlines is usually the result of a collaboration between multiple key stakeholders in the legal community, such as bar associations and local legal aid offices, responding to a disaster.⁹³ Just as they did in the aftermath of Harvey, FEMA partnered with the ABA Young Lawyers Division following Irma, María, Florence, and Michael, to provide pro bono legal help to survivors via a toll-free helpline; this was the result of a memorandum of agreement between the two agencies.⁹⁴

Legal Aid North Carolina (LANC) modified its phone intake process immediately after Florence. They created what they called “fast lanes” for Florence survivors calling into both LANC’s helpline and the Disaster Legal Services hotline, which was set up in

<https://www.charlotteobserver.com/news/state/north-carolina/article225082775.html>; STORM STATISTICS, HURRICANE FLORENCE, NORTH CAROLINA DEP’T OF PUB. SAFETY (NC DPS), <https://www.ncdps.gov/our-organization/emergency-management/past-disasters/hurricane-florence-2018/storm-statistics> (last visited Aug. 21, 2019).

⁸⁹ Patti Domm, *Hurricane Florence damage estimated at \$17 billion to \$22 billion and could go higher — Moody’s Analytics*, CNBC: MARKET INSIDER, (Sept. 17, 2018, 4:40 PM), <https://www.cnbc.com/2018/09/17/moodys-hurricane-florence-damage-estimated-at-17-to-22-billion.html> (last visited Aug. 21, 2019).

⁹⁰ *Facts + Statistics: Hurricanes*, INSURANCE INFORMATION INSTITUTE, <https://www.iii.org/fact-statistic/facts-statistics-hurricanes> (last visited Aug. 21, 2019).

⁹¹ *Hurricane Michael Death Toll Now at 35 in Florida, 45 Total*, INSURANCE JOURNAL, (Oct. 30, 2018), <https://www.insurancejournal.com/news/southeast/2018/10/30/505982.htm>.

⁹² *Assessing the U.S. Climate in 2018: Warm temperatures and significant precipitation round out 2018*, NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION, (Feb. 6, 2019), <https://www.ncei.noaa.gov/news/national-climate-201812>.

⁹³ See William Jones, *Disaster Response and Legal Technology*, AMERICAN BAR ASSOCIATION: GPSOLO MAGAZINE, (Jan. 1, 2012) available at <http://bit.ly/2GFoMDh>; Lonnie Powers and Jacquelynne Bowman, *Ministering To Puerto Rico’s Pain: Civil Legal Aid Lawyers Assisting Those Seeking Mass. Refuge*, WGBH NEWS, (Feb. 5, 2018), <https://www.wgbh.org/news/2018/02/05/local-news/ministering-puerto-ricos-pain-civil-legal-aid-lawyers-assisting-those-seeking>.

⁹⁴ *Supra* note 12.

collaboration with the ABA and the North Carolina Bar Association.⁹⁵ LANC set up a “priority queue” that prioritized callers that identified as Florence survivors. This filter allowed staff to answer callers affected by Florence first, even if another caller in another queue had been waiting longer.⁹⁶ On the other hand, the Disaster Legal Services hotline was set up specifically to address legal questions only from callers directly impacted by Florence.⁹⁷

Other agencies also set up their hotlines. For example, the Partnership for Inclusive Disaster Strategies set up a hotline to address concerns from people with accessibility issues and functional needs affected by Hurricanes Harvey, Irma, María, and the California wildfires.⁹⁸ By May 2018, the hotline had received over 3,200 calls.⁹⁹ After Irma, The Florida Bar Foundation and the Florida Department of Elder Affairs set up a senior legal helpline to help the elderly plan and recover from natural disasters. Through the helpline, callers could schedule an appointment for free legal advice.¹⁰⁰ Likewise, Community Legal Services Mid-Florida (CLSMF) created a mobile helpline wherein private attorneys could take live calls from CLSMF’s “HELpline,” and also connected pro bono attorneys to the helpline through Skype for Business during Ask-a-Lawyer events hosted in the community after Irma.¹⁰¹ Furthermore, the University of Puerto Rico School of Law established a special hotline for the elderly that needed emergency legal services after Hurricane María.¹⁰² Legal Services of

⁹⁵ Email from Lesley Albritton, Directing Attorney of Disaster Recovery, Legal Aid North Carolina, March 1, 2019.

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ Marcie Roth, June Isaacson Kailes, and Melissa Marshall, *Getting It Wrong: An Indictment with a Blueprint for Getting It Right*, THE PARTNERSHIP FOR INCLUSIVE DISASTER STRATEGIES: EDITION 1 at 16, (2018), http://disasterstrategies.org/application/files/3615/2718/6466/5-23-18_After_Action_Report_-_May_2018.compressed.pdf (last visited Aug. 21, 2019).

⁹⁹ *Id.*

¹⁰⁰ *Bay Area Legal Aid: Services for Individuals and Families Impacted by the Fires in Northern California*, BAY AREA LEGAL AID (Oct.13, 2017), <https://baylegal.org/wp-content/uploads/2017/10/Fire-Relief-Services-flyer-English.pdf>.

¹⁰¹ Email from Kimberly Amiro, Supervisor of Marketing and Communications, Community Legal Services Mid-Florida.

¹⁰² *Alianza de Asistencia Legal para Adultos 50+ afectados por el huracán María*, ESCUELA DE DERECHO: UNIVERSIDAD DE PUERTO RICO RECINTO DE RÍO PIEDRAS, (Dec. 4, 2018), <http://derecho.uprrp.edu/alianza-de-asistencia-legal-para-adultos-50-afectados-por-el-huracan-/>.

Puerto Rico had over 50 lawyers staff its Tele-Lawyers program to assist people over the phone with their legal questions post-María.¹⁰³

B. Social Media

Not surprisingly, social media has become an extremely effective outreach tool to disseminate timely information on disaster relief benefits, available legal help, and other legal information resources after a disaster. Prior to Irma's landfall, The Florida Bar, Florida Young Lawyers Division, and ABA Young Lawyers division published the ABA's hotline information on social media, and various media outlets disseminated hotline press releases via local radio and other media.¹⁰⁴

CLSMF disseminated a resource guide they created after Irma through social media, among other channels.¹⁰⁵ CLSMF noted that its staff maintained an effort to keep a finger on the pulse of social media and widely shared both CLSMF posts and posts from partner organizations on Facebook, Twitter, and LinkedIn.¹⁰⁶ Bay Area Legal Services, Inc. (Bay Area Legal) posted links to its site on the Hillsborough County Public Library homepage and its "Law and Crime" resource webpage.¹⁰⁷ Ayuda Legal Puerto Rico used its online platform and Facebook pages to disseminate information about "legal brigades" of attorneys visiting rural and disaster-impacted communities.¹⁰⁸ Disability Rights North Carolina also used its

¹⁰³ Servicios Legales de Puerto Rico, *Tesón y Resiliencia* (2018), <https://indd.adobe.com/view/b1afdcb1-f0c1-4ca7-8983-49fe82b45ad5> (last visited Aug. 21, 2019).

¹⁰⁴ Disaster Legal Services Report to Director DR-4337-FL Anthony J. Palermo, citing media posts by the Tampa Bay Times, SunSentinel, and Orlando Sentinel.

¹⁰⁵ *Supra*, note 101.

¹⁰⁶ *Id.*

¹⁰⁷ Email from Linda Anderson Stanley, Attorney at Law, , Bay Area Legal Services, Inc., February 12, 2019. Bay Area Legal also noted that that they used social media more prolifically in its efforts to recruit pro bono attorneys and provide training materials but that the use of social media to disseminate info to the public is an area they would like to explore more in the future. The Florida Justice Technology Center also noted that Facebook and Twitter may be more likely to engage the public than posts to its website. They are currently using Google Analytics to analyze visits to its sites after recent disasters.

¹⁰⁸ See Ariadna Godreau-Aubert et al., *Resilient & Ready: Transforming Disaster Response through Technology and Network Building*, LEGAL SERVICES CORPORATION, (Jan. 9, 2019) [https://www.disasterlegalaid.org/library/item.698163-](https://www.disasterlegalaid.org/library/item.698163-Resilient_Ready_Transforming_Disaster_Response_Through_Technology_and_Netw)

[Resilient_Ready_Transforming_Disaster_Response_Through_Technology_and_Netw](https://www.disasterlegalaid.org/library/item.698163-Resilient_Ready_Transforming_Disaster_Response_Through_Technology_and_Netw) (describing how Ayuda Legal Puerto Rico deployed "brigades" of pro bono attorneys and law students to remote communities to help people complete FEMA applications by hand.)

Facebook page to send and receive information to and from its constituency during and after Florence.¹⁰⁹ Similarly, LANC used YouTube to host a series of legal education and self-help videos in English and Spanish that covered topics such as Disaster Unemployment Assistance, insurance claims, tenant rights, and the Disaster Supplemental Nutrition Assistance Program.¹¹⁰ Videos were also cross-linked on the organization's website, Facebook, and Twitter pages.¹¹¹

LANC utilized Facebook to conduct outreach and noted its usefulness for disseminating critical information.¹¹² Over 11,400 unique Facebook users viewed one of LANC's disaster relief videos – LANC staff noted their surprise that more people viewed this video on Facebook than on YouTube.¹¹³ LANC also used social media to publicize a series of FEMA appeals clinics organized in collaboration with the North Carolina Pro Bono Resource Center.¹¹⁴ Going forward, LANC will continue and improve upon its strategy for using social media in promoting disaster-specific videos to the community.¹¹⁵

C. Dedicated Webpages

In Florida, FloridaLawHelp.org is a public-facing legal information website operated by the Florida Justice Technology Center (FJTC), which FJTC used to publicize information after Hurricanes María, Irma, and especially Michael.¹¹⁶ After these disasters, FJTC updated the site with disaster-specific information and resources for the public.¹¹⁷ FJTC noted that website visits went up nearly 30% in the week prior to Michael's landfall, and nearly 60% on the day of

¹⁰⁹ *The Storm after the Storm- Disaster, Displacement and Disability Following Hurricane Florence*, DISABILITY RIGHTS NORTH CAROLINA, https://disabilityrightsncc.org/wp-content/uploads/2019/02/DRNC-Report_The-Storm-after-the-Storm-2.5.19.pdf (last visited February 4, 2019).

¹¹⁰ *See Self Help Videos*, LEGAL AID OF NORTH CAROLINA, <http://www.legalaidnc.org/get-help/self-help-library/self-help-videos> (last visited Aug. 21, 2019).

¹¹¹ *Supra* note 95.

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ Email from Alison DeBelder, Advocate Community Engagement Manager, Florida Justice Technology Center, March 1st, 2019; *see also Emergency Info on Hurricane Michael from Florida's Division of Emergency Management*, FLORIDA LAW HELP, <https://www.floridalawhelp.org/node/568> (last visited Aug. 21, 2019).

¹¹⁷ *Id.*

Michael's landfall.¹¹⁸ Other organizations posted disaster recovery information and resource materials for the public on their websites.

The American Bar Association's Free Legal Answers program, a virtual pro bono legal advice clinic, adapted its platform to assist clients and attorneys in submitting and answering hurricane-related questions by adding hurricane-specific categories for Florence and Michael.¹¹⁹ Site outreach and update methods were the same as those pursued after Harvey in Texas (discussed above). The ABA noted that increasing the income/asset caps after Florence resulted in the submission of over 1,600 additional questions on the North Carolina, South Carolina, and Virginia sites combined. A North Carolina Supreme Court order permitted out-of-state lawyers to assist Florence survivors – as a result, 41 out-of-state attorneys registered to provide legal advice to North Carolinian disaster survivors through the Free Legal Answers program.¹²⁰ After adapting the Florida Free Legal Answers site post-Michael, volunteer attorneys answered over 380 questions, many from survivors.¹²¹

After Irma, Bay Area Legal created a disaster resource page on its website that included its brochures.¹²² Likewise, after María, Bay Area Legal created flyers and an announcement of services about its No Place Like Home project, which provided pro bono services in clearing titles to real property to avoid issues with FEMA benefits.¹²³ These flyers were posted on Bay Area Legal Services' website and distributed via email to community agency partners.¹²⁴ Bay Area Legal also distributed informational brochures to hand out to disaster survivors at disaster recovery centers and posted them to a Disaster Resource page on their website.¹²⁵

¹¹⁸ *Id.*

¹¹⁹ *Supra* note 51; see also *Free Legal Answers, SOUTH CAROLINA, <https://sc.freelegalanswers.org/>; Resources for Hurricane Florence Survivors, SOUTH CAROLINA BAR, <https://www.scbars.org/bar-news/article/resources-hurricane-florence-victims/>* (last visited Aug. 21, 2019).

¹²⁰ *Id.*

¹²¹ *Id.*

¹²² *Supra* note 107.

¹²³ *Id.*

¹²⁴ *Id.*

¹²⁵ *Id.* Although not within the scope of our article, it is important to note that several organizations also used web-based technology to coordinate delivery of legal services, recruit and train volunteers, and create resources for attorneys. FJTC updated its library of resources for attorneys and noted that its Disaster Practice Area was one of the most visited of 13 practice areas. (See *supra*, note 122). The Partnership for Inclusive Disaster Strategies highlights some

After Florence, Disability Rights North Carolina (DRNC) updated the American Red Cross and the North Carolina Department of Public Safety's websites to reflect which shelters were open and the number of survivors staying at each one. The websites helped inform DRNC's work in monitoring shelters' compliance with the Americans with Disabilities Act (ADA) and allowed them to communicate directly with over 300 displaced individuals.¹²⁶ Legal Aid North Carolina created a disaster relief section on its site to amplify legal education materials with specific disaster information and resources, which included survivor-focused news and links to federal and state agencies and nonprofits.¹²⁷ LANC noted its phone intake process and "fast lane" approach was the most effective use of technology during the response to Hurricane Florence, except in the context of reaching people in rural areas where there are poor broadband and cell service, even in normal conditions.¹²⁸ As other organizations responding to disasters have observed, traditional methods of outreach like face-to-face communication are the preferred outreach mechanism when addressing the needs of rural communities.

Finally, the National Disaster Legal Aid Website was updated to provide information urgently needed in the immediate aftermath of the disasters: ABA hotline information, important FEMA deadlines, information about benefits, and contact information for legal aid offices and other local nonprofits serving survivors.

of the technology used to coordinate delivery of legal services, like GoToMeeting, Zoom, etc., in its report http://disasterstrategies.org/application/files/3615/2718/6466/5-23-18_After_Action_Report_-_May_2018.compressed.pdf. Legal Aid of Broward County also notes its use of Doodle Polls, Google Drive, SharePoint, Slack in <http://www.browardlegalaid.org/5462> (Jul.24, 2018). For volunteer recruitment after María, over 700 law school students nationwide signed up to volunteer via a simple Google form: <https://docs.google.com/forms/d/e/1FAIpQLSe2nQRpUk9Sc5u78Ig-IRBO2S0jyjCCoNsREEcd7gpwZ1BQA/viewform>. Legal aid and pro bono attorneys in Florida were directed to FLA Advocate.org, an online practice area operated by the Florida Justice Technology Center and the Florida Bar Foundation that includes a listserv, a library with curated resources, a calendar, and a roster of members. Attorneys at Ayuda Legal Puerto Rico, a digital platform that provides free legal information to Puerto Ricans since 2015, quickly mobilized to create Ayuda Legal Huracán María (Hurricane María Legal Help). The group's latest tech solution includes a guided online interactive interview to allow people to complete a sworn statement as alternative proof of ownership to present to FEMA.

¹²⁶ *Supra* note 109.

¹²⁷ *Supra* note 95.

¹²⁸ *Id.*

D. Other Technology

The Florida Justice Technology Center noted the use of a listserv was probably its most effective means of coordinating legal resources and information to share with the public – indeed, there was a 47% increase in listserv activity the day after landfall.¹²⁹ Additionally, Legal Aid North Carolina used Google Forms to input information from the Disaster Legal Services hotline callers. The information was then forwarded to LANC Helpline staff, who then contacted callers.¹³⁰

The use of existing demographic data and geographic information systems (GIS) technology was used to create a series of interactive story maps that helped legal aid organizations identify vulnerable communities across Florida, North Carolina, and South Carolina after Hurricanes Irma and Florence.¹³¹ The Self-Represented Litigation Network (SRLN) created the maps with the goal of identifying populations that were most likely to need civil legal help post-disaster, such as seniors, people with disabilities, veterans, renters, people with limited English proficiency, and people without health insurance. The maps use the Center for Disease Control’s Social Vulnerability Index, which “uses U.S. census variables at the tract level to determine the degree to which a community exhibits certain social conditions that may affect its residents’ ability to prepare for and respond to a hazardous event.”¹³² For example, according to the maps, 3,661,287 North Carolinians live in the disaster area and out of that number, 889,676 of them qualify for civil legal aid.¹³³ Similarly, 1,307,306 people affected by disabilities live in North Carolina, and out of that number, 510,767 live in the disaster area.¹³⁴

¹²⁹ *Supra* note 116.

¹³⁰ *Supra* note 95.

¹³¹ *Stronger than the Storm, How Civil Legal Help Is Vital to Recovery from Hurricane Florence*, SELF-REPRESENTED LITIGATION NETWORK, <https://srln.maps.arcgis.com/apps/Cascade/index.html?appid=138b6402721a4acc9fefa5bb338b95e0> (last visited Aug. 21, 2019); *The Critical Second Responders Helping Floridians Recover from Hurricane Irma*, FLORIDA CIVIL LEGAL AID, <https://srln.maps.arcgis.com/apps/Cascade/index.html?appid=5463de01fbca4c96a3dd456616db596e> (last visited Aug. 21, 2019).

¹³² *North Carolina After Florence: Who’s Most Impacted?*, SELF-REPRESENTED LITIGATION NETWORK, <https://srln.maps.arcgis.com/apps/MapJournal/index.html?appid=d0bfd43ff1b4d6192404776801d086e> (last visited Aug. 21, 2019).

¹³³ *Id.*

¹³⁴ *Id.*

Staff at Legal Aid North Carolina used mobile devices like iPads and laptops to conduct intake and provide resources to survivors on-site at FEMA's Disaster Recovery Centers.¹³⁵ In its efforts to protect the rights of people with disabilities, Disability Rights North Carolina used daily phone conferences, interactive maps and daily updates on the Department of Public Safety website and interacted with 2-1-1 staff to identify needs from callers post-Florence.¹³⁶

Mobile applications, like FloodProof, present another means of leveraging technology as a tool for social justice post-disaster.¹³⁷ Additional means of connecting people with attorneys included online applications for legal services, such as Three Rivers Legal Services' online intake form available to Floridians affected by Irma and Michael¹³⁸ and online lawyer referral services.¹³⁹ Bay Area Legal also updated its case management system to prompt its screeners to ask potential clients whether they were affected by Hurricanes Irma or María.¹⁴⁰ The prompt allowed them to screen for potential survivors even if they were calling in for a different legal problem. By filtering individuals who answered "yes," Bay Area Legal then contacted them and offered a separate appointment for their disaster-related legal needs.¹⁴¹

E. Recommendations

The Florida Justice Technology Center has suggested that disaster survivors could benefit from the use of short message service (SMS) to alert communities to risks, resources, and updates.¹⁴² Bay Area Legal reiterated the powerful use of social media and as a quick

¹³⁵ *Supra* note 95.

¹³⁶ *Supra* note 109.

¹³⁷ *Flood Proof: Post-Disaster Relief Legal Help App*, STANFORD LEGAL DESIGN LAB, <http://www.legaltechdesign.com/flood-proof-post-disaster-relief-legal-help-app/> (last visited July 6, 2019).

¹³⁸ *Hurricane/Natural Disaster Assistance*, THREE RIVERS LEGAL SERVICES, <https://www.trls.org/disaster-relief/> (last visited July 6, 2019); *Online Application for Legal Services*, FLORIDA ONLINE INTAKE, https://foi.legalserver.org/modules/matter/extern_intake.php?pid=38&h=757e8c, (last visited July 6, 2019).

¹³⁹ *See, e.g., Find a Lawyer*, SOUTH CAROLINA BAR, <https://www.scbar.org/public/get-legal-help/find-lawyer-or-mediator/find-a-lawyer/>, (last visited July 6, 2019).

¹⁴⁰ *Supra* note 107.

¹⁴¹ *Id.*

¹⁴² *Supra* note 116.

and efficient way to reach people with information and noted its intention to better strategize the use of social media in future emergency situations.¹⁴³ Legal Aid of North Carolina identified the creation of a disaster relief mobile application for survivors as another way to enhance services via technology.¹⁴⁴ An application like this could help collect contact information, share alerts and updates, and serve clients when offices are inaccessible, and an online connection is not possible due to power outages or remote locations.¹⁴⁵ This suggestion is similar to Iowa Legal Aid's disaster legal assistance mobile application, designed to help people by providing tools to prepare in advance for a disaster and for people who are experiencing the effects of a disaster.¹⁴⁶ Like NYLAG after Sandy and Lone Star Legal Aid after Harvey, the ABA-YLD noted that technology is not a panacea that can fully address the immediate legal needs of disaster survivors and that there is always a need for person-to-person contact in the disaster recovery process.¹⁴⁷

V. THE FUTURE OF TECH FOR DISASTER LEGAL AID

In 2018, Congress passed a supplemental appropriations law that included \$15 million for the Legal Services Corporation (LSC) to support projects responding to the 2017 major disasters.¹⁴⁸ Grantees will use this funding to enhance online resources for survivors and improve communication and cooperation among legal aid clients, pro bono attorneys, and partner organizations with technology as a central component of it.¹⁴⁹ Projects include redesigning and improving UX of websites, integrating live chats to website portals, and using chatbots

¹⁴³ *Supra* note 107.

¹⁴⁴ *Supra* note 95.

¹⁴⁵ *Id.*

¹⁴⁶ *Iowa Legal Aid Disaster Legal Assistance Mobile App*, IOWA LEGAL AID, (Sep. 8, 2016), <https://www.iowalegalaid.org/resource/iowa-legal-aid-disaster-app?ref=Szl7R>. *But see* Elizabeth Chambliss, *Marketing Legal Assistance*, DÆDALUS (Am. Acad. of Arts & Sci., Cambridge, Mass.) (“People’s lack of awareness and engagement with potential legal resources is compounded by the enormous variety of small-scale models for legal assistance in different locations . . . [W]hile mobile technology has enormous potential to increase access to legal assistance, efforts to market access-to-justice apps are underdeveloped.”).

¹⁴⁷ Email from Amanda Leigh Brown, ABA-YLD Disaster Legal Services, February 20, 2019.

¹⁴⁸ *LSC Awards More than \$14 Million in Disaster Relief Grants to Legal Aid Organizations*, LEGAL SERVICES CORPORATION (Oct. 11, 2018), <http://bit.ly/2GGEdLw>.

¹⁴⁹ *Id.*

and emails to keep people updated on project developments and important news.¹⁵⁰

As part of a broader effort to better prepare and attend to survivors' legal needs in the future, and also to learn from the lessons of Hurricanes Harvey, Irma, and María, LSC launched its Disaster Task Force, composed of LSC grantees, emergency management experts, and other stakeholders.¹⁵¹ The task force's goals include identifying and communicating best practices of legal services providers who have responded to disasters and developing an organized infrastructure of emergency managers, first responders, businesses, and pro bono and legal services communities.¹⁵²

Bay Area Legal will be redesigning and enhancing its current website.¹⁵³ The new website design and access-driven enhancements will make all of Bay Area Legal's content, including direct assistance and resources for disaster relief, easy to understand and navigate for all users from clients and staff to volunteer attorneys, partner agencies, funders, and others seeking disaster relief information and assistance.¹⁵⁴

The ABA Free Legal Answers partnered with Stanford Law School's Legal Design Lab to analyze the data from tens of thousands of legal questions posted on its platform.¹⁵⁵ The results of this predictive analysis, which include data on demographics, locations, and seasonality of individual legal needs, will be used to inform the legal community of outreach strategies that may ultimately prevent the development of larger legal issues following disasters.¹⁵⁶ ABA Free Legal Answers is also considering adding online dispute resolution portal links and legal wellness checkup tools to its platform.¹⁵⁷

Ayuda Legal Puerto Rico's plans include conducting a data and needs assessment, developing a statewide website and an "advocacy

¹⁵⁰ *Id.*

¹⁵¹ *Proposal for Disaster Taskforce*, LEGAL SERVICES CORPORATION, <https://lsc-live.app.box.com/s/q0bb1t8zg3dudxthh2klnszbfydsudrr> (last visited July 14, 2019).

¹⁵² *Id.*

¹⁵³ *Supra* note 107.

¹⁵⁴ *Id.* The new website will be built on a platform that is designed to optimize the ability for potential clients to find the information they need quickly and easily. A Disaster Resources section will be included on the new site to provide survivors in the firm's service area with the most up-to-date information about the availability of emergency legal services after a hurricane or natural disaster has occurred.

¹⁵⁵ *Supra* note 51.

¹⁵⁶ *Id.*

¹⁵⁷ *Id.*

hub” for attorneys, and a Movement Lawyer Training Center.¹⁵⁸ Legal Aid North Carolina is considering funding opportunities to enable communication via a multimedia text service or an online chat service. This would give them the ability to send alerts and messages to mobilize staff in affected areas, communicate with clients, and facilitate the application process. The Disaster Legal Assistance Collaborative in Northern California, formerly known as the Bay Area Resilience Collaborative, recently launched a FAQs on housing, insurance, etc., which contains trainings and resources for advocates and attorneys.¹⁵⁹ This group is also contemplating a mobile application for its regional and statewide sites that can be downloaded in advance and used without an internet connection.¹⁶⁰

VI. CONCLUSION

Unequivocally, hotlines and social media were identified as the most common means of getting legal information to survivors after each of the disasters discussed in this article, both in the short and long term after a disaster. Several organizations identified a need for better coordination of social media outreach strategies across organizations and better coordination of content of resources provided through social media outreach. Another, albeit less common method, has been posting resources on previously existing webpages, or creating dedicated webpages and platforms to host information for survivors, which became popular after Hurricane Harvey and subsequent disasters.

Several tools have been developed for specific contexts after certain disasters, like the interactive FEMA appeals tool, interactive maps showing flood zones and areas populated by vulnerable communities, online intake forms, and disaster-specific listservs. The development of additional tools, like smartphone-enabled videos and other interactive videos, has been suggested to be beneficial, as have tools that would facilitate the preservation of institutional knowledge about the practice of disaster legal aid.

The main recommendation echoed by legal service providers and organizations with reference to all disasters discussed in this article

¹⁵⁸ *Supra* note 108.

¹⁵⁹ *Disaster Legal Assistance Collaborative*, <https://www.acbanet.org/volunteer-legal-services/disaster-legal-assistance> (last visited Aug. 21, 2019).

¹⁶⁰ Email from Elizabeth Hom, State Bar of California, March 7, 2019.

was for the legal community not to discount the importance of in-person contact with survivors post-disaster, especially in light of the fact that disasters often wipe out otherwise reliable methods of communication and transportation. Other common recommendations include better collection and analysis of the outcomes of various methods of outreach about legal services and legal information.

Funding for disaster legal aid is more robust than ever, as demonstrated by recent grants for disaster legal aid work funded by the Legal Services Corporation. The community is turning to the collection and analysis of data to inform future disaster relief strategies. That being said, we would like to close this article by recommending that the legal aid community engage in collaboration around campaigning for the necessity of ongoing funding to support disaster preparedness and mitigation programs in low-income and other vulnerable communities. With sustained funding, especially for programs that utilize technological tools, we ensure that we are as prepared as possible for the next disasters and that we are prepared to provide disaster legal aid in the long term given that the needs of survivors grow and change over time. This is an important step towards institutionalizing lessons learned by the legal aid community.

Moreover, it seems likely that with sustained funding, we can address some of the other issues identified in this article, like cross-organization coordination issues, and development of tools that can be used in multiple disaster contexts. The methods and legal service providers discussed in this article are merely a snapshot of the work that the disaster legal aid community has done in approximately the last seven years. The disaster legal aid community is rife with the hindsight of experience and ideas for best practices going forward. We echo our community partners' identification of more organized collaboration across agencies and laud the efforts that the entire community has made to serve disaster survivors. Through more collaboration, better tech tools, and sustained funding for disaster legal aid, we can get that much closer to closing the gap that exists for low-income disaster survivors.