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## **Inequities in Disaster Evacuations for Low-Income Families: A Policy Analysis**

### **Introduction**

Disaster experts have long tried to figure out the best method of convincing residents to leave their homes when an storm evacuation is called.<sup>1</sup> In October of 2012 Hurricane Sandy was barreling towards the Mid-Atlantic, the first major storm to hit the region in decades.<sup>2</sup> As the area prepared for the impact of the storm, local government officials and emergency managers attempted a large push to persuade residents to evacuate, and mandatory evacuations were issued throughout parts of the coast of New Jersey and sections of New York City. Despite the push, the evacuation warnings were met with resistance – in fact, a study would later find that in New York City only 24% of residents in the mandatory evacuation zone left before the storm.<sup>3</sup> Those residents who opted to stay were told by officials to write their Social Security numbers on their arms with permanent marker, so their bodies could be identified after the storm passed.<sup>4</sup> It has been a common tactic to use fear to entice people to evacuate; ahead of Hurricane Matthew in 2016, Florida Governor Rick Scott bluntly stated in a newscast, now somewhat infamously, “This storm will kill you.”<sup>5</sup> Similarly, before Hurricane Maria made landfall in Puerto Rico, Public Security Secretary Héctor Pesquera told residents of the island that they needed to abandon flood-prone areas, and “if not, you will die”.<sup>6</sup>

This aggressive approach often taken by emergency managers and government leaders is an attempt to plainly communicate how dangerous the situation is, with the hope of increasing the number of evacuations, thereby decreasing the number of storm-related deaths. For the most part these warnings are intended for one population of people: those who have the means to leave but aren't yet convinced. This type of rhetoric does little for low-income individuals and families who want to evacuate but simply cannot afford to do so. When a voluntary or mandatory evacuation is issued, there is not always a tremendous amount of time from when the evacuation is called to the projected landfall of the storm. Low-income individuals who lack access to transportation or the funds necessary to secure temporary accommodations can find themselves scrambling. As climate change continues

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<sup>1</sup> Borresen, Kelsey. (2019). How To Convince Your Family to Evacuate During Hurricane Florence. The Huffington Post.

<sup>2</sup> Martucci, Joe. (2020). The nine hurricanes and tropical storms to make landfall in South Jersey since 1900. The Atlantic City Press.

<sup>3</sup> Brown, S. et al. (2016). Evacuation during hurricane sandy: Data from a rapid community assessment. PLOS Current Disasters.

<sup>4</sup> Mele, Christopher. (2016). How to get people to evacuate? Try fear. The New York Times.

<sup>5</sup> Clark, Kristen. (2016). Gov. Rick Scott: ‘This storm will kill you’. Tampa Bay Times.

<sup>6</sup> Evacuation Orders Issues for Four Areas of Puerto Rico as Hurricane Maria Nears. (2017). ABC Radio.

to increase the severity and frequency of hurricanes,<sup>7</sup> more and more residents of the United States and its territories will find themselves facing the decision to evacuate. While rhetoric like that above may help to persuade some residents to leave when an evacuation order is called, without changes to current policy low-income families will continue to have very few options, and the rhetoric will have been nothing more than a grim promise.

The goal of this policy analysis is to identify issues of inequity in disaster evacuations and make the case for policy change by addressing possible solutions. This paper will consist of four main sections:

- **Evacuation Challenges**, where I'll address the costs associated with evacuations and some of the logistical challenges that make evacuations difficult.
- **Environmental Justice and Social Issues**, where I'll address the barriers that low-income individuals and families face, and how evacuation challenges highlight issues of inequity.
- **Current Policies and Gaps**, where I'll examine current federal evacuation policies and gaps.
- **Recommendations**, where I'll detail four recommendations based on the research.

### **Relevant terms and agencies**

*Federal Emergency Management Agency (FEMA):* FEMA was created in 1978, originally as an independent agency. Independent agencies are generally outside of Presidential control. The Agency was considered Cabinet level until 2003.

*Department of Homeland Security (DHS):* The Department of Homeland Security was created in 2003 by President Bush in response to 9/11. Following its creation, the Department absorbed FEMA, and FEMA was downgraded from an independent agency to a sub-department of DHS.

### **Evacuation Challenges**

There are a number of evacuation challenges that prevent residents from safely leaving their homes. These barriers can be especially tough for low-income families. This section will touch on some of the most prohibitive challenges, broken up into two subsections: costs and logistics.

#### *Cost*

While there are many published research studies on the behavioral science behind why people who can afford to evacuate choose to stay behind,<sup>8</sup> there is not much research focusing on low-income families who want to leave but cannot. There are even fewer published research studies on how much it actually costs to evacuate. The most recent study was published in 2003, using data from 1998's Hurricane Bonnie. This study found

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<sup>7</sup> Berardelli, Jeff. (2019). How climate change is making hurricanes more dangerous. Yale Climate Connections.

<sup>8</sup> Dennehy, Kevin. (2014). Storm Warning: Why Do So Many People Ignore Evacuation Orders? Yale University Press.

that the average direct costs associated with evacuating was \$500 in 1998.<sup>9</sup> There has not been another peer reviewed study of its kind since.

A 2018 Federal Reserve report on the economic well-being of U.S Households that found that almost 40% of Americans are unable to cover a \$400 emergency bill with cash.<sup>10</sup> With that in mind, low-income residents do not have many options once a mandatory evacuation is called. The lucky ones may have family or friends nearby, outside of the evacuation zone, with whom they can ride out the storm. For those that do not have friends or family nearby, the options are even more limited; residents can either ride out the storm in a nearby hotel or motel room, for an unknown amount of time, or they can seek out space in a designated storm shelter in or near their town. Additionally, depending on the strength of the storm, it is not always clear when residents will be able to return to their homes. This is particularly challenging for low-income families who do not have the means to rent out hotel rooms for an unknown amount of time.

While the most recent peer-reviewed study on evacuation costs is almost twenty years' old, more recently both the *New York Times*<sup>11</sup> and *The Huffington Post*<sup>12</sup> conducted less academic, informal studies surveying their readers on the cost of evacuation. The *New York Times* asked readers in 2018 how much they spent evacuating from Hurricane Michael that year, and *The Huffington Post* reporting on costs associated with Hurricane Irma the previous year. In 2018 parts of the Florida Panhandle only had 48 hours' notice to evacuate before Hurricane Michael, classified at the time as a Major Category 4 storm, made landfall. Readers evacuating the area told the *New York Times* that they had spent anywhere from \$500-\$1000 to evacuate, with the bulk of the expenses going towards hotel rooms, highlighting one of the main financial challenges of hurricane evacuations: access to affordable shelter.<sup>13</sup> An NPR article published in 2018 reported that a seven-day evacuation for a family of four could exceed \$2000.<sup>14</sup>

Access to shelter is not the only barrier preventing low-income families from evacuating; transportation out of the affected area also remains an issue. In 2017 a *Huffington Post* reader reported that she had planned to fly out of Florida to stay with family in Philadelphia in order to avoid Hurricane Irma, but that flights that normally cost around \$200, including last minute, were now over \$1000.<sup>15</sup> During the same storm, The Miami Herald reported last minute flights out of South Florida had skyrocketed to over \$3000 per

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<sup>9</sup> Whitehead, John. (2003). *One Million Dollars per Mile? The Opportunity Costs of Hurricane Evacuation*. Ocean and Coastal Management.

<sup>10</sup> Federal Reserve, (2018). *Report of the Economic Well-Being of U.S. Households in 2018*.

<sup>11</sup> Moore, Lela. (2018). The Price of Fleeing Hurricane Michael: 'We Are Going to Be Financially Devastated'. The New York Times.

<sup>12</sup> Goldberg, Eleanor. (2017). Why So Many People Don't 'Just Leave' When A Major Hurricane Hits. The Huffington Post.

<sup>13</sup> Moore, Lela. (2018). The Price of Fleeing Hurricane Michael: 'We Are Going to Be Financially Devastated'. The New York Times.

<sup>14</sup> Florido, Adrian. (2018). Why stay during a hurricane? Because it's not as simple as 'get out'. NPR.

<sup>15</sup> Goldberg, Eleanor. (2017). Why So Many People Don't 'Just Leave' When A Major Hurricane Hits. The Huffington Post.

person.<sup>16</sup> While it's illegal for airlines to price gouge during a declared state of emergency, the airlines in question claimed that they had not done so, that instead algorithms were to blame.

States and localities typically bear most of the evacuation costs, and there is little research on what those costs are. Just as the 2003 study on the costs associated with Hurricane Bonnie was the most recent peer-reviewed article to address individual's evacuation costs, it's the most recent to publicize the cost to states and localities as well. The study, which researched costs for the coast of North Carolina, found that the hurricane evacuation costs for counties in North Carolina ranged from \$1 million to \$50 million depending on storm intensity, and that "in the event of a mandatory evacuation order a breakeven analysis of the number of statistical lives saved found a mandatory evacuation was an efficient policy since the breakeven number of lives saved appeared to be low."<sup>17</sup> The study noted, however, that the breakeven analysis was speculation, because "little data exists to suggest how many lives would be lost without mandatory evacuation orders." This study was published just two years before Hurricane Katrina would claim 1,833 lives.

### *Logistics*

In addition to costs, part of what makes storm evacuations so challenging is the often large-scale logistics required to conduct a safe, effective evacuation. It's not easy to mobilize a group of people and force them to leave their homes, and poor evacuation plans themselves can be deadly. In 2005, just one month after Katrina, millions of Texans evacuated Hurricane Rita during an excessive heat wave. Of Hurricane Rita's 119 total deaths, an estimated 100 of them were due to the evacuation itself, due to the severe heat and excessive gridlock.<sup>18</sup> This was cited as the reason, ten years later, that Houston officials chose not to evacuate before Hurricane Harvey made landfall. As a result, there were an estimated 1500-2000 water rescues after Harvey passed through Houston. Despite the devastating statistics associated with Hurricane Rita, the question became why evacuation plans were not improved in the ten years since Harvey. City planning, behavioral science, and risk management research suggest it's just not that simple.

Even without the financial barriers of evacuations, it can be difficult to get people to heed mandatory evacuation orders, even if they physically and financially can afford to go. Meteorological science has not advanced enough to be able to accurately predict the path of a storm 100% of the time, and without increased funding it seems unlikely to do so anytime soon. Despite utilizing the most up-to-date technology to track a hurricane, in some cases the storm's predicted cone of landfall is so large, and the storm's track so uncertain, that populations "in danger" can shift rapidly over the span of days or even hours, making it difficult for residents to know when to take the storm seriously. This can lead to a general

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<sup>16</sup> Herrera, Chabeli. (2017). Got \$3000? That's what some airlines are charging to fly last-minute ahead of Irma. The Miami Herald.

<sup>17</sup> Whitehead, John. (2003). *One Million Dollars per Mile? The Opportunity Costs of Hurricane Evacuation*. Ocean and Coastal Management.

<sup>18</sup> Baker, Karen. (2017). Reflection on Lessons Learned: An Analysis of the Adverse Outcomes Observed During the Hurricane Rita Evacuation. *Disaster Medicine and Public Health Preparedness*. Cambridge University Press.

distrust of meteorologists and forecasted tracks, informing residents' weather-related decisions.<sup>19</sup>

Another logistical challenge is residents' "short-term memory," a risk management phrase used to describe residents' relaxed behavior when there has been a long span of time in between storms.<sup>20</sup> Hurricane Matthew formed off the coast of Africa in late September of 2016, and it quickly grew into a monstrous Category 5 hurricane with sustained winds of 165 mph. The storm tore through Haiti, which was still recovering from the catastrophic earthquake that had occurred six years prior. The storm was downgraded to a Category 3 – still considered a Major storm – before it clipped parts of Florida and hit the Carolinas.<sup>21</sup> And yet, despite the evacuation orders in the Carolinas, reports indicated that roughly 35% residents under evacuation orders in South Carolina left their homes, with that number rising to about 50% in areas along the coast such as Charleston.<sup>22</sup> In this case, it wasn't evacuation fatigue that was at play here, but short-term memory; it had been nearly ten years since a significant storm had impacted the East Coast of the Florida and the Carolinas.

However, evacuation fatigue is still another logistical challenge that can prevent residents from heeding evacuation warnings. After Matthew in 2016, South Carolina was faced with Irma in 2017, Florence in 2018, and Dorian in 2019, marking the fourth year in a row that residents in areas like Charleston found themselves in the position of boarding and packing up their homes to flee to safety. After a while, residents get tired of going through the motions, especially when a storm changes course, or when residents decide it wasn't as bad as expected or predicted.<sup>23</sup>

Stronger storms and heavier rainfall as a result of climate change are making matters worse. While the bigger question among risk management scientists has always been whether or not it makes sense to have populations of people living in areas where evacuations are frequent, the reality is that in some cases these are areas that did not previously find themselves in these situations. New research is suggesting that "100-year floods," severe flooding that historically happens once every hundred years, are occurring more frequently, with data suggesting "once a century" flooding could occur as often as once every thirty years in the Gulf of Mexico and Southeast regions, and as often as annually in the mid-Atlantic and New England.<sup>24</sup> Additionally, a *Wall Street Journal* article published this year detailed the findings of First Street Foundation, a non-profit organization. They reported that nearly six million homes in the country are at a

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<sup>19</sup> Joslyn, S. & Jared LeClerc. Uncertainty Forecasts Improve Weather-Related Decisions and Attenuate the Effects of Forecast Error. *Journal of Experimental Psychology: Applied*. American Psychological Association.

<sup>20</sup> Henderson, Bonnie. (2014). *The Next Tsunami: Living on a Restless Coast*. Oregon State University Press.

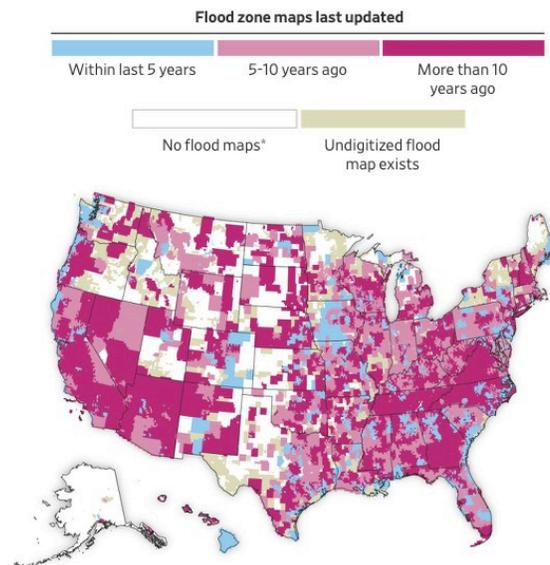
<sup>21</sup> Stewart, Stacy R. (2017). Hurricane Matthew. National Hurricane Center Tropical Cyclone Report. National Weather Service.

<sup>22</sup> Marchant, B. & Cassie Cope. (2016). Haley says 175,000 in SC have evacuated: 'That's not enough'. *The State*.

<sup>23</sup> Connor, Eric et al. (2019). As Hurricane Dorian looms, 'evacuation fatigue' hits Charleston and SC coast. *Greenville News*.

<sup>24</sup> Marsooli, R. et al. (2019). Climate change exacerbates hurricane flood hazards along US Atlantic and Gulf Coasts in spatially varying patterns. *Nature Communications*.

substantial risk of flooding not disclosed by federal flood maps.<sup>25</sup> The article reported that while FEMA found 1% of homes at risk, First Street found roughly 10% of homes were in danger of flooding. The discrepancy is the result of First Street utilizing more resources and information. The foundation incorporated climate data, took into account rainfall-related flooding, and mapped areas that FEMA has yet to map. The figure below highlights how out of date and ineffective some FEMA maps are currently.



Source: Wall Street Journal

The existence of this research and other research like it highlights how important it is that state and local governments take this time to ensure that they have evacuation logistics fine-tuned. In many cases, there is not a need to reinvent the wheel. A report<sup>26</sup> to Congress written by researchers from the Government Accountability Office (GAO) in 2006 after Hurricane Katrina found that some cities fared better than others when they implemented certain evacuation procedures, with steps varying depending on whether the evacuation could be categorized as small-scale or large-scale. Small-scale evacuations are usually handled at the local level.<sup>27</sup> In these cases, GAO determined evacuations were most effective in cases where towns implemented the following procedures: making sure citizens are aware of evacuation routes and shelters ahead of time; ensuring gas, water, and portable restrooms are available along the evacuation route; and keeping tow trucks on standby to keep the route clear if necessary. In large-scale evacuations, two additional factors were key: utilizing contraflow - the process of reversing the typical flow of traffic - and timing.

<sup>25</sup> Friedman, Nicole. (2020). Millions of American Homes at Greater Flood Risk Than Government Estimates, New Study Says. The Wall Street Journal.

<sup>26</sup> Lindsay, Bruce R. (2011). Federal Evacuation Policy: Issues for Congress. Congressional Research Service.

<sup>27</sup> Ibid.

These procedures again highlight some of the dangers of living in an area where evacuations are not the norm. For example, residents in a beach town with many posted evacuation route signs may find evacuating easier than those in an inland town with no signs that does not typically evacuate. Additionally, GAO also found that in some cases, Emergency Management officials did not have an accurate understanding of the size and composition of their communities, making it hard to predict what exactly it would take to get everyone out safely, and which individuals would need more help than others. Education, both in the case of emergency management officials and the public, is key to ensuring a successful evacuation. Emergency management officials should be required to know the demographics of the town they're serving. Additionally, there should be a greater push to increase public awareness of evacuation procedures, from the existence of evacuation routes to designated disaster transportation pick-up locations.

Costs and logistics continue to be two of the biggest hurdles of successful evacuations. Low-income residents struggle with the high costs and may opt to stay behind, and government officials and emergency managers struggle with developing and enforcing safe and efficient evacuation plans.

### **Environmental Justice and Social Issues**

Low-income families face disproportionate challenges during disasters due to issues of environmental justice and social inequities. This section will address those challenges, and provide some brief history that will be helpful to understand why low-income evacuations are especially challenging.

#### *Environmental Justice*

In 1994 President Clinton signed an Executive Order meant to address issues of environmental justice in low-income and minority populations. This Executive Order was the first instance of the federal government acknowledging environmental justice. The Order required federal agencies to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”<sup>28</sup> The Environmental Protection Agency currently defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”<sup>29</sup> The phrase “fair treatment” is the key to that definition, as it means that “no group of people should bear a disproportionate share of...negative environmental consequences”.<sup>30</sup> But despite the Executive Order, the fair treatment promised has yet to become standard practice.

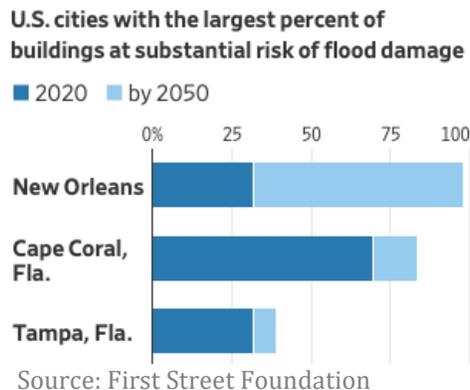
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<sup>28</sup> Executive Order. (1994). Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.

<sup>29</sup> EPA.gov

<sup>30</sup> Ibid.

Low-income individuals often tend to live in flood-prone areas, as those tend to be historically cheaper to build on, leaving them especially vulnerable to the devastating results of a storm.<sup>31</sup> Further, a 2017 report released by the NYU Furman Center found that there are about 450,000 government-subsidized households in flood plains, and it's believed that the actual number may be higher, as the current number was calculated using out of date federal government risk assessment maps and not the current maps published by First Street.<sup>32</sup> The figure below from First Street identifies the three U.S. cities at greatest risk of substantial flood damage in the next thirty years.



New Orleans' poverty rate is 25.4%, and Tampa's poverty rate is 20%.<sup>33</sup> This is significant because this graph shows an increase in homes at risk in cities with high poverty rates.

The National Hurricane Center reports that nearly 88% of all deaths in the United States from hurricanes, tropical storms, or tropical depressions are water-related.<sup>34</sup> It was no surprise, then, that a research study conducted to measure Katrina-related mortalities in Louisiana found that of the 971 victims in the study, drowning accounted for 40% of deaths. But in addition to the cause of death of the victims, the study found significant findings of race and vulnerability, reporting that that 51% of the victims were black, and in Orleans Parish the mortality rate among black residents was up to 4 times higher than that of white residents.<sup>35</sup>

Race and inequity have been intertwined since this country was founded. Racist practices during city planning including pushing black residents into "undesirable" and unwanted

<sup>31</sup> Mervosh, Sarah (2019). *Unsafe to Stay, Unable to Go: Half a Million Face Flooding Risk in Government Homes*. The New York Times.

<sup>32</sup> Ibid.

<sup>33</sup> Datausa.io

<sup>34</sup> Erdman, Jonathan. (2019). 88% of U.S. Deaths From Hurricanes, Tropical Storms Are From Water, Not Wind. Hurricane Safety and Preparedness.

<sup>35</sup> Brunkard et al. (2008). Hurricane Katrina Deaths, Louisiana, 2005. Disaster Medicine and Public Health Preparedness. American Medical Association.

environmental areas ensure that the risk faced during a disaster is never exactly equal.<sup>36</sup> Environmental disasters do not exist in a world devoid of racism. Rather, racial, political, social, and environmental conditions shape a population's ability to prepare, respond, and recover from a disaster.<sup>37</sup> During Hurricane Katrina, the Lower Ninth Ward – a largely African American neighborhood – suffered some of the worst flooding during the storm. The damage to homes in the neighborhood was largely due to storm surge, with surge flooding reaching up to 28 feet in some areas. Buildings in the Lower Ninth were so severely damaged as a result of the force of the surge that in some cases entire homes were wiped from their foundations, leaving nothing left to rebuild. After time, more than half of the neighborhoods in New Orleans saw a 90% return rate of its residents; the return rate for the Lower 9<sup>th</sup> Ward was just 37%.<sup>38</sup> Hurricanes are not equal opportunity storms. Researcher Enrico Quarantelli said of disasters that, “there can never be a natural disaster; at most there is a conjecture of certain physical happenings and certain social happenings.”<sup>39</sup>

### *Social Issues*

Classism and the media often feed into inaccurate stereotypes during disasters. A 2010 Northwestern University study set out to gauge the public's perspectives on residents who did not evacuate during Hurricane Katrina, and illustrates some of the class issues that are always at play during natural disasters. Unsurprisingly, the study found respondents believed Katrina victims who evacuated were “hardworking and self-reliant,” while they believed that those who stayed behind were “lazy and negligent.” Even then-secretary of Homeland Security Michael Chertoff said those who stayed behind had made a “mistake.”<sup>40</sup> A study of New Orleans residents rescued from the storm and brought to Houston paints a very different picture:

- 55% did not have a car or a way to evacuate
- 68% had neither money in the bank nor a usable credit card
- 57% had a total household income of less than \$20,000 in the prior year
- 14% were physically disabled
- 23% stayed in New Orleans to care for a physically disabled person<sup>41</sup>

Reading these numbers, it's obvious that residents didn't leave because they simply couldn't. The poorest are usually hit the hardest, because they struggled the most to begin with. The current poverty threshold for a family of four is \$26,200, with many social

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<sup>36</sup> Bolin B. (2007). Race, Class, Ethnicity, and Disaster Vulnerability. In: Handbook of Disaster Research. Handbooks of Sociology and Social Research. Springer, New York, NY

<sup>37</sup> Cannon, Terry. (1994). Vulnerability Analysis and The Explanation Of 'Natural' Disasters. Disasters, Development and Environment.

<sup>38</sup> Layzer, A. Judith & Sara R. Rinfret. (2020). The Environmental Case: Translating Values into Policy, 5<sup>th</sup> ed. Sage Publishing.

<sup>39</sup> Quarantelli, E. (1990). Similarities and Differences in Institutional Responses to Natural and Technological Disasters. Disaster Research Center.

<sup>40</sup> Stephens et al. (2010). Why Did They Stay?: Perspective on survivors “choice” to stand their ground or evacuate. Northwestern University.

<sup>41</sup> Wade, Lisa. (2015). Who didn't evacuate for Hurricane Katrina? Pacific Standard.

scientists agreeing that the “bare self-sufficiency” figure should be at least 200% of the current poverty figures. Additionally, with absolute poverty, a “condition where a person does not have the minimum amount of income needed to meet the minimum requirements for one or more basic living needs over an extended period of time,” earning just \$1 over the poverty threshold can make a family ineligible for social and safety net programs.<sup>42</sup> The metric used to determine the poverty threshold was established in the 1960s, using data from a survey in 1955 determining how much of their income American families spend on food. While adjustments have been made over time for inflation, alarmingly the measure has not changed.<sup>43</sup> It’s also important to note that the amount noted is before taxes, meaning the net pay that is currently accepted as the poverty threshold in the United States is less than \$26,000 for a family of four people. With these measures in place, it’s no surprise that as mentioned earlier 40% of Americans reported that they could not cover an emergency bill of \$400 with liquid assets. Help is needed to ensure that some of the country’s most vulnerable populations are not forced to risk their lives just because they cannot afford to leave.

Low-income Americans are fighting a losing battle. Classism, racism, and outdated social welfare systems and metrics make it extremely difficult to escape the realities of poverty. For these reasons, when a disaster hits, it can be devastating for low-income residents, and can make the possibility of a safe evacuation seem out of reach. With little evidence to suggest that these systemic problems will change anytime soon, policies are needed to support low-income families during disasters.

### **Current Policies and Gaps**

The federal government defers largely to state governments to implement their own policies regarding residents and disasters, and while in general the federal government does not take the lead on evacuation policy, there are some current federal policies in place that briefly touch on evacuations. This section will cover The Stafford Act, the leading federal policy on disasters mitigation, relief, and recovery.

#### *The Stafford Act*

Issued in 1988, The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) was designed to bring an “orderly and systemic means of federal natural disaster assistance for state and local governments in carrying out their responsibilities to aid citizens.”<sup>44</sup> When it was passed, the Stafford Act had seven titles, though I’ll only focus on evacuations and other pre-disaster mitigation. The Stafford Act:<sup>45</sup>

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<sup>42</sup> Iverson, Roberta & Annie Armstrong. (2006). *Jobs Aren’t Enough: Toward a New Economic Mobility for Low-income Families*. Temple University Press.

<sup>43</sup> Fremstad, Shawn. (2019). The official U.S. poverty rate is based on a hopelessly out-of-date metric. *The Washington Post*.

<sup>44</sup> Federal Emergency Management Agency. (2019). *Stafford Act, as amended, and Related Authorities*. Retrieved March 23, 2020.

<sup>45</sup> *Ibid.*

- Authorizes the President the ability to declare a disaster before the incident to allow for precautionary evacuations
- Authorizes the President to administer grants to states to aid in the preparation and improvement of emergency plans
- Authorizes the creation of a disaster warning system
- Authorizes the President to utilize other federal agencies in disaster management
- Authorizes the creation of hazard maps

However, as the response to Hurricane Katrina later demonstrated, the Stafford Act as it was then was not detailed enough, and the law as it was passed in 1988 failed to address any specific challenges vulnerable populations may face in evacuations. Instead, the Act included the line that assistance be provided “without discrimination on the grounds of ... economic status.”<sup>46</sup> It failed to provide any other detail or dig deeper into providing assistance and protection from any specific barriers faced by vulnerable populations.

#### *Post-Katrina Stafford Act*

The Stafford Act was amended by the Post Katrina Emergency Management Reform Act of 2006. This amendment included the addition of the following:<sup>47</sup>

- Authorizes the President to provide transportation assistance
- Authorizes the FEMA Administrator to establish evacuation standards
- Includes the authorization of the Pets Evacuation and Transportation Standards Act (PETS Act), which requires FEMA to ensure states take into account the needs of individuals evacuating with pets

The amendment does not include enough policy change to truly address evacuation challenges. After the Stafford Act was amended, FEMA released a 61-page document detailing Post-Katrina policy changes, and notably, there are just two short paragraphs on evacuations. While FEMA acknowledges in the document that evacuations are an important part of national preparedness, they note that “evacuation planning and exercises are not specifically identified as National Preparedness System components,”<sup>48</sup> and while FEMA Administrators are authorized to establish evacuation standards, states are not required to submit evacuation plans to FEMA. The authorization of transportation is one of the most important elements of the amendment, but without also adding housing and shelter policy changes, it only addresses half the problem. Additionally, the PETS Act is misleading. While the PETS Act mandates that states are required to consider the needs of pet owners when creating emergency plans, it does not require hotels or shelters to accept pets.<sup>49</sup>

In September 2005, just one month after Hurricane Katrina, then-Senator Obama introduced a bill to Congress to “ensure the evacuation of individuals with special needs in

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<sup>46</sup> Federal Emergency Management Agency. (2019). *Stafford Act, as amended, and Related Authorities*. Retrieved March 23, 2020.

<sup>47</sup> <https://training.fema.gov/hiedu/docs/federal%20em%20policy%20changes%20after%20katrina.pdf>

<sup>48</sup> Ibid.

<sup>49</sup> Federal Emergency Management Agency. (2019). *Stafford Act, as amended, and Related Authorities*. Retrieved March 23, 2020.

times of emergency.”<sup>50</sup> This bill would have required states to submit evacuation plans to the Department of Homeland Security for review, demonstrating how states intended to evacuate vulnerable populations including the homeless, those who do not speak English, and low-income individuals and families. In addition to addressing the needs of the elderly and those with disabilities, the bill also detailed the challenges evacuees faced, including that many did not have the funding to leave, access to transportation, or the ability to secure temporary shelter. Despite how clearly Hurricane Katrina highlighted the need to address these challenges, the bill was never voted on.

American federal disaster recovery would effectively be non-existent without the Stafford Act and the Post-Katrina amendment, but there are a number of limitations to current federal disaster policy. The table below is a short synthesis of some of the highlights and shortcomings of both Acts.

<b>Policy</b>	<b>Strength</b>	<b>Limitations</b>
The Stafford Act	Allows the authorization of emergency disaster relief funds to states and cities	State government must first ask for help, potentially leading to inefficient practices: during Hurricane Katrina, a miscommunication between President Bush and Louisiana’s Governor Blanco delayed authorization of federal disaster aid
The Stafford Act	Authorizes the creation of hazard maps	Maps are not consistently maintained or updated
Post-Katrina amendment	Authorizes transportation assistance	Fails to address housing needs
Post-Katrina amendment	Establishes evacuation standards	Fails to address larger low-income disaster challenges

The Stafford Act and the Post-Katrina amendment have provided support to disaster victims throughout the country for years, but both fail to address in any great detail the particular challenges that low-income families face. The authorization of transportation through the Post-Katrina amendment is a victory for low-income families, but with the bulk of evacuation expenses going towards shelter, federal policy does not adequately address the needs of vulnerable populations.

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<sup>50</sup> S. 1685 A bill to ensure the evacuation of individuals with special needs in times of emergency. Congress.gov

## Recommendations

**Recommendation #1: State government agencies should integrate emergency management planning into social services.** Low-income families in hurricane-prone areas should have the option of indicating on government social service forms if they would require evacuation assistance of any kind if a mandatory or voluntary evacuation is called. To do so effectively, state emergency management offices should work with social service program offices to integrate questions about assistance into some of the social service paperwork that already exists. The Florida Office of Emergency Management already provides a similar type of service for disabled residents. They, and other states, should extend the assistance to low-income families and individuals who cannot afford to evacuate on their own.

Some states have created a statewide voluntary registry to allow residents with special needs to register in the event that a disaster is called and they need special assistance evacuating their homes. In nearly all cases, the registration is not extended to low-income individuals and families. Below is an example of a section of a Disaster Assistance Voluntary Registration Form for Dane County, Wisconsin:

<b>Evacuation Information</b> (Check all that apply)	
I require assistance with the following: <input type="checkbox"/> Getting out of bed <input type="checkbox"/> Getting around inside your home <input type="checkbox"/> Lifting or moving life-sustaining equipment <input type="checkbox"/> Gathering clothing, medications, identification, or other essential items in an evacuation <input type="checkbox"/> Getting down stairs if the elevator is not working	<input type="checkbox"/> I cannot independently exit my home  <input type="checkbox"/> I can independently leave my home, but would need transportation to a shelter
<b>Transportation</b> (Check all that apply)	
<input type="checkbox"/> I am ambulatory with assistance (walker/cane) <input type="checkbox"/> I require a wheelchair to evacuate <input type="checkbox"/> I require a wheelchair lift equipped vehicle <input type="checkbox"/> I require stretcher transport	<input type="checkbox"/> I require hospital bed transport <input type="checkbox"/> I require assistance with transferring from a wheelchair to a bus or van/car seat
<b>Transportation Resources:</b> (Check all that apply)	
<input type="checkbox"/> I can provide my own vehicle for emergency transportation <input type="checkbox"/> I have a wheelchair: <input type="checkbox"/> motorized <input type="checkbox"/> non-motorized	<input type="checkbox"/> I have a non-standard size wheelchair; widest part measures: <input type="text"/> wheelchair weight: <input type="text"/> <input type="checkbox"/> I can independently transfer from a wheelchair to a seat

Voluntary registration forms like this one for individuals with special needs requiring assistance evacuating their homes are common across the country; voluntary registration forms for low-income individuals needing financial assistance to evacuate their homes are virtually nonexistent. These forms should be extended to low-income families and individuals. By providing this access to disabled evacuees it seems as if the government has decided that they are deserving of this type of government assistance while low-income families are not. This should not be the case. Integrating emergency management and social

services would allow a form like this to be completed in a social services office, or through a social services site that the low-income resident in need may already utilize or be familiar with. This may seem like quite a challenge, as all government agencies and programs operate differently, sometimes creating a barrier for cohesive collaboration, but as the Stafford Act authorizes interagency collaboration in disaster management, *not* integrating emergency planning into social service programs seems like a missed opportunity that has the chance to provide real relief to low-income families.

**Recommendation #2: States should be required to submit plans for the safe evacuation of vulnerable populations to The Department of Homeland Security.** The evacuation needs of a small town in Florida may vary greatly from those of a larger city, like Houston. For this reason, it makes sense that the federal government defers to the states to create and maintain their own evacuation plans. However, this can lead to inconsistencies and inefficient procedures. Furthermore, it's not guaranteed that emergency management officials at the local level are aware of the demographics and needs of their communities. In fact, a report<sup>51</sup> to congress written by the Government Accountability Office reported that some emergency management officials "did not have a good understanding of the size, location, and composition" of their community. This oversight can pose a massive problem for a city trying to evacuate its residents. Three days after Hurricane Katrina made landfall in New Orleans there were roughly 50,000 survivors stranded in shelters, or worse, their rooftops in a last-ditch effort to avoid the floodwaters, desperately waiting for rescue. And yet, three whole days after the storm hit, state officials were only able to come up with ten buses to transport evacuees to the safety of Houston.<sup>52</sup> Government officials severely underestimated how many residents were financially or physically incapable of evacuating the city, and were grossly unprepared to transport those survivors after the fact. Requiring states to submit evacuation plans to the federal government can ensure that local governments are meeting requirements and properly planning with their community's needs in mind.

**Recommendation #3: The Stafford Act should be amended to include evacuation housing assistance.** Shelter is one of the most important variables in a storm evacuation. With short-term evacuation costs ranging anywhere from \$500-\$1000, access to shelter is a critical piece of successful disaster evacuation. Current policy allows the federal government to aid individuals with finding shelter, but it is not specifically required to do so as the current policy is written. The amended policy focuses on transportation barriers, only touching on part of the problem. Lack of affordable shelters is often cited as one of the primary reasons residents who want to evacuate choose instead to stay behind.<sup>53</sup> Based on this information, providing low-income residents with access to temporary accommodations may greatly increase the number of evacuations, which may contribute to a decrease in the number of first responder calls during the storm, and subsequently storm-related deaths. FEMA could require states to set aside a certain percentage of hotel

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<sup>51</sup> Lindsay, Bruce R. (2011). Federal Evacuation Policy: Issues for Congress. Congressional Research Service.

<sup>52</sup> Layzer, Judith. & Sara Rinfret. (2020). The Environmental Case: Translating Values into Policy. Sage Publishing.

<sup>53</sup> Florido, Adrian. (2018). Why stay during a hurricane? Because it's not as simple as 'get out'. NPR.

or motel rooms for low-income families in a nearby area. If the integration of emergency management planning into social service programs takes place, states could determine the number of rooms needed based off of voluntary assistant registrations. If the Department of Homeland Security was required to review evacuation plans (Recommendation #2), DHS could ensure that states have properly addresses the housing needs of vulnerable populations in their communities. As housing tends to be the largest expense, it's not surprising that this has not yet occurred, but as storms continue to grow in frequency and severity, it's imperative to reevaluate the needs of at-risk communities, and increase funding to the disaster relief budget to allow for the addition of housing assistance.

**Recommendation #4: *Government agencies and communities should work to make evacuation funds available for low-income residents.*** This could be accomplished one of two ways. First, FEMA should create an evacuation insurance program similar to the National Flood Insurance Program. The National Flood Insurance Program, run through the Federal Emergency Management Agency, aims to reduce the impact of flooding on private and public structures by providing affordable insurance to homeowners, renters, and businesses.<sup>54</sup> FEMA should consider the creation of a similar program, or extend the current flood insurance program to provide evacuation insurance for low-income families and individuals who need assistance. The program could be run through FEMA or through state governments, and funds could be paid out once a trigger is hit, (i.e. a hurricane reaches Major status (Category 3+)). Employers in high-risk areas could offer the program as an incentive to attract new employees. Now, it can be difficult to convince residents to purchase flood insurance, which is one of the larger issues facing the National Flood Insurance Program; however, if you can reach even a small percentage of the population with an evacuation insurance program it may be enough to yield a small increase in evacuations.

Additionally, another option is the creation of community trust, particularly in areas with high numbers of low-income families in at-risk areas. Donors could be made up of local residents, employers, or other individuals and could provide funds to the trust. The funds could then be managed by local government or local nonprofits. In the event of a voluntary or mandatory evacuation, these funds could be used to pay out evacuation grants to low-income residents to help ease the immediate costs of evacuating. It could be managed by an app that allows for the quick deposit of funds directly into a bank account, PayPal account, or similar platform.

## **Conclusion**

As storms continue to increase in both severity and frequency, it is important now more than ever for policies and procedures to address the issues of inequity in disaster evacuations. With the average cost of evacuation landing somewhere between \$500-\$1000<sup>55</sup>, and an extended evacuation exceeding \$2000<sup>56</sup>, low-income families cannot avoid

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<sup>54</sup> Federal Emergency Management Agency. The National Flood Insurance Program. Fema.gov

<sup>55</sup> Moore, Lela. (2018). The Price of Fleeing Hurricane Michael: 'We Are Going to Be Financially Devastated'. The New York Times.

<sup>56</sup> Florido, Adrian. (2018). Why stay during a hurricane? Because it's not as simple as 'get out'. NPR.

danger on their own. If government officials want to avoid a repeat of the loss of life from storms like Katrina or Rita they must act now to mitigate these potential losses. Focusing and addressing the inequities low-income families face in storm evacuations has the potential to increase the number of successful evacuations. Of course, violent storms present but one of many life-threatening challenges to disenfranchised Americans, but taking these initial, achievable steps in improving our disaster evacuation infrastructure will ensure better safety and security on at least one front.