

University of Arkansas, Fayetteville

ScholarWorks@UARK

---

Architecture Undergraduate Honors Theses

Architecture

---

12-2021

## Hurricanes and Housing: Highlighting the Ongoing Impact of Hurricane Michael and the Post-Disaster Housing Problem

Mary Beth Barr

Follow this and additional works at: <https://scholarworks.uark.edu/archuht>



Part of the [Architectural Technology Commons](#), [Construction Engineering Commons](#), [Environmental Design Commons](#), and the [Urban, Community and Regional Planning Commons](#)

---

### Citation

Barr, M. (2021). Hurricanes and Housing: Highlighting the Ongoing Impact of Hurricane Michael and the Post-Disaster Housing Problem. *Architecture Undergraduate Honors Theses* Retrieved from <https://scholarworks.uark.edu/archuht/47>

This Thesis is brought to you for free and open access by the Architecture at ScholarWorks@UARK. It has been accepted for inclusion in Architecture Undergraduate Honors Theses by an authorized administrator of ScholarWorks@UARK. For more information, please contact [scholar@uark.edu](mailto:scholar@uark.edu).



# HURRICANES AND HOUSING

*highlighting the ongoing impact of Hurricane Michael and the post-disaster housing problem*

Mary Beth Barr, Architecture Undergraduate | Fall 2021

# ABSTRACT

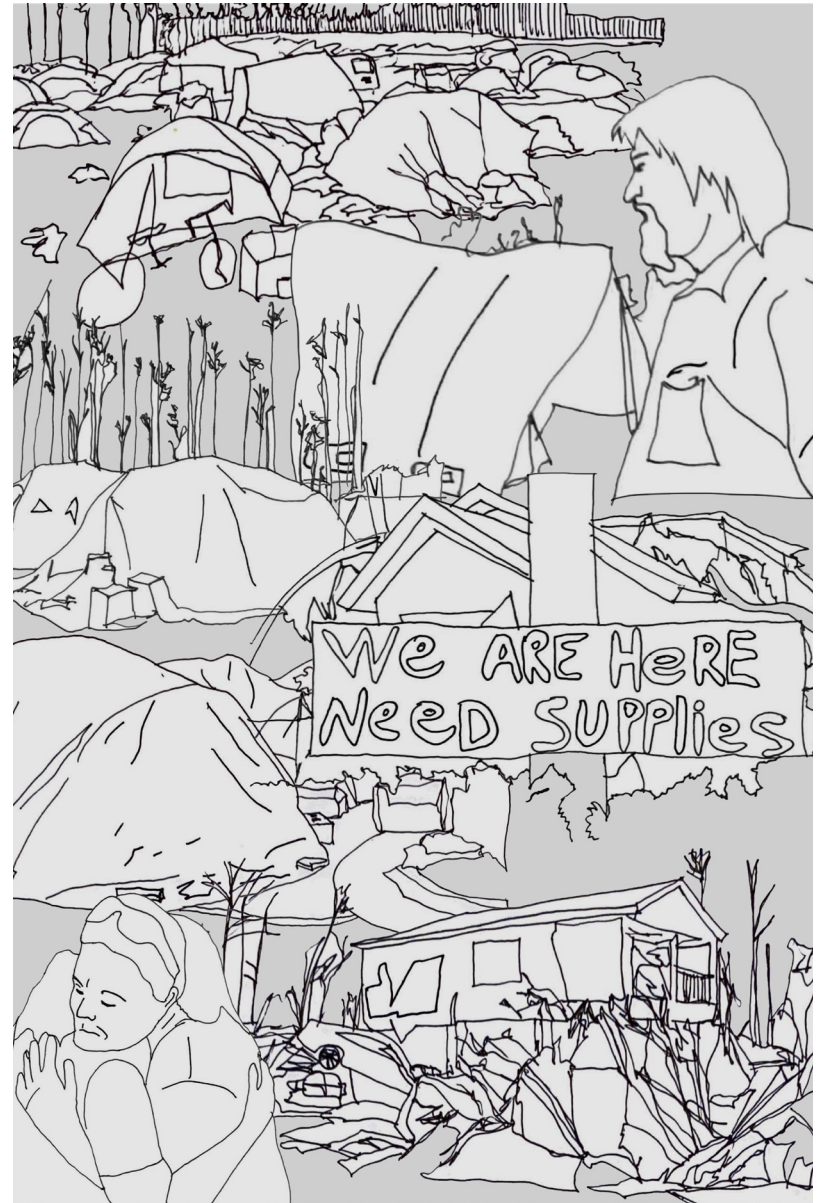
Hurricanes impact individuals and communities on many levels - emotional, physical, mental, financial - to name a few. Every time a hurricane occurs, lives are drastically altered forever. One of the ways that hurricanes impact individuals and communities most powerfully is through the effect that they have on housing. Unleashing uncontrollable damage to infrastructure and the built environment, hurricanes exacerbate housing problems that exist and create new ones where they did not exist before. Hurricane Michael, which catastrophically impacted the Florida Panhandle in 2018, is a case study in which the impact that hurricanes have on housing is prevalent.

By drawing connections from a series of questionnaires answered by local individuals and previously recorded interviews, this exploration presents observations about the impact that Hurricane Michael had on communities in North Florida and how its impact is still being felt today. Many individuals feel that they have been forgotten by federal governments and the national media while their communities still try to recover and housing shortages remain a problem. Through a series of posters illustrating the human experience during and after Hurricane Michael, this exploration seeks to ensure that communities affected by Hurricane Michael are not forgotten. Research is also presented discussing the impact of Hurricane Michael on housing in North Florida, as well as suggestions of solutions to the problem and next steps.



# TABLE OF CONTENTS

Introduction.....	1
Stage 1: Preparation.....	10
Stage 2: Fear.....	11
Stage 3: Shock.....	12
Stage 4: Recovery.....	13
Stage 5: New Normal.....	14
What Can We Do?.....	15
Conclusion.....	16
References.....	17
Additional Sources.....	18



# INTRODUCTION

We all know that there are moments in our lives that change the course of the rest of them and impact the lives of those that come after us. What we don't know is when these moments are going to happen. On October 10, 2018, one of these moments came. A category five hurricane named Hurricane Michael made landfall in Panama City, Florida. I was born and raised in Panama City. That's where my dad was born, where both of my parents grew up, went to school, and met each other. We used to get ice cream or donuts and drive around the old part of town while my dad told us stories about what he did in that building, who he met in that one, someone he knew that lived in another. He called it "cruising Main Street" even though there was no "Main Street." All of these buildings, every single one, look different now thanks to Hurricane Michael. Some are not even there anymore. Hurricane Michael, or "the storm," as we call it, directly impacted every childhood memory I have and my family forever. It has done the same for almost everyone that I know. I have thought about it and its impact almost every day since, because how could I not? It is the reason my parents were displaced and relocated to another state, out of the home they built and had lived in for almost thirty years. It is the reason I will probably never see some of my childhood friends again because I have no reason to go back to the city we grew up in anymore. My position regarding the hurricane has been in two places since that day. I have been in a position of thankfulness that my family and friends survived safely, but also a position of

helplessness because I am so far away, only in my twenties, and in college. What could someone like me do to help? Since then, I have only grown more interested in the impact that Hurricane Michael had on my hometown and communities around it. Hearing stories and reading articles about how the impacts of Hurricane Michael are still being felt tugs at my heartstrings. Many community members, even community leaders, feel that they have been forgotten by the federal government and national media. They are still reeling.

Hurricanes and Housing is an exploration that seeks to tell the often untold or unheard stories of community members during and after Hurricane Michael. Seeing how my hometown, family, and friends were impacted, and remain impacted by the events of October 10, 2018, leaves me with the inability to turn my head to the problems that are so present in post-disaster housing implementation across the country. Hurricane Michael does not stand alone as a storm that impacted infrastructure, communities, and people forever, with effects being felt years later. According to the Insurance Information Institute, "a typical year has twelve named storms, six hurricanes, and three major hurricanes" (2020). In recent years, the number of hurricanes has met or surpassed this average and is projected to continue rising in number due to climate change, especially in coastal areas (III 2020). The Saffir-Simpson Hurricane Wind Scale measures hurricanes based on their sustained wind speed and categorizes them on a scale from 1 to 5, predicting their level of potential property damage. Hurricanes that reach a category 3, 4, or 5 are considered major hurricanes due to their potential for

considerable property damage and loss of life (NOAA 2020). In the United States, major hurricanes cause an average of \$17,000 of estimated insured property loss each year (Ill 2020). In total there are over 7 million homes in the United States at risk for hurricane damage (Ill 2020). A hurricane's impact on infrastructure is significant, and its impact on people is only going to continue to become more significant. This is because the populations of coastal counties most susceptible to hurricane damage have some of the most significant percent growths in population in the country (Ill 2020).



Figure 1. Damage to housing caused by Hurricane Michael.

*What happens to housing  
when a hurricane strikes?*

Many hardships and problems arise in the days, weeks, months,

and years following a hurricane. In one day, priorities shift suddenly to surviving and recovering. One of the most significant of these issues, one that is continuing and worsening, is housing. Most families are displaced from their homes immediately following a hurricane and the long journey to getting their own roof put back over their heads begins. The people who tend to suffer the most in these situations are home renters and those with low incomes, due to lack of insurance or because FEMA and other disaster relief organizations direct most of their efforts toward homeowners (NLIHC 2019, 1). After Hurricane Michael, an estimated twenty thousand people were displaced, seventy percent of which were home renters (Thompson 2019). The inability to anticipate the amount of damage that will result from a given hurricane, and therefore an inability to anticipate how many people will be without a place to live, combined with well-meaning but insufficient disaster relief aids, results in long-lasting housing crises. These arise in almost every city impacted by property-damaging hurricanes. A considerable amount of research has been done that discusses the problems with housing following such a storm. Given a substantial lack of housing in communities following these disasters, property taxes and rents on the housing that remains tend to double or triple (Thompson 2019). Many are also without work following disasters and are unable to pay high prices. This results, as in the case of Hurricane Michael, in hundreds of families still living in “tent communities” or things of the sort – homeless – for a year or more after a storm (Thompson 2019). An already devastating and increasing issue with homelessness in this country and world is worsened every time a natural disaster occurs.



Figure 2. Damage caused by Hurricane Michael.

## *Why is this such a problem?*

Post-disaster housing implementation is inherently a policy issue because policymakers, governments both local, state, and federal, are the ones who determine the policies that impact implementation, and ultimately, they are often the same play makers who fund these restorations. The existing procedure is for disaster recovery funding to start at the federal level and trickle down through state and local governments as well as non-governmental organizations (NGOs) before aid reaches communities. The process includes federal programs like FEMA, the Department of Housing and Urban Development (HUD), local decision-makers like city council and county task forces, and includes cooperation from funders, logisticians, and insurers. Non-profits may also play a role.

While many of these organizations have plans and grants in place specifically for post-disaster recovery, there are pitfalls to them that contribute to the exacerbation of the post-disaster housing crisis. A big problem lies in the process itself. The fact that funding trickles all the way down from the federal level before it reaches communities separates the funding too far from the community, city, and even the state impacted, and greatly slows the process of aid being received. Additionally, the international law that applies in the event of a natural disaster, Principles on Housing and Property Restitution for Refugees and Displaced Persons (the Pinheiro Principles), was not originally intended for natural disasters but was extended from a protection law for displaced refugees (Gould 2009, 173).

In the MIT Center for Transportation and Logistics' report titled "Disaster Housing Construction Challenges in America: Exploring the Role of Factory-Built Housing," they focus on factory-built homes, their benefits, and some factors that might prevent them from being implemented. They bring up pitfalls in the system, most of which center around code and zoning discrepancies between the federal, state, and local levels. For clarity, code differs on the state and sometimes local level, while zoning is a county, city, or municipal affair, not regulated or uniform from state to state (MIT 2019, 4). Most of FEMA's assistance, the study points out, centers around "manufactured homes" governed by a pre-emptive national building code established by the "HUD Code." Thus, this assistance does not always align with local building zoning laws (MIT 2019, 5). Another disheartening fact is highlighted in this report,

“Contrary to the usual role of state, local, tribal, and territorial governments leading disaster response and recovery, in housing matters, states view the federal government as the leader. States pay none of the costs related to disaster housing rental and repair programs” (MIT 2019, 7).

Thus, state and local governments are unable to assist their communities following devastating disasters and must wait on federal assistance, which can take a significant amount of time for approval and implementation. Discrepancies like these suggest that policy change or manipulation is crucial to soothing or eliminating post-disaster housing crises.

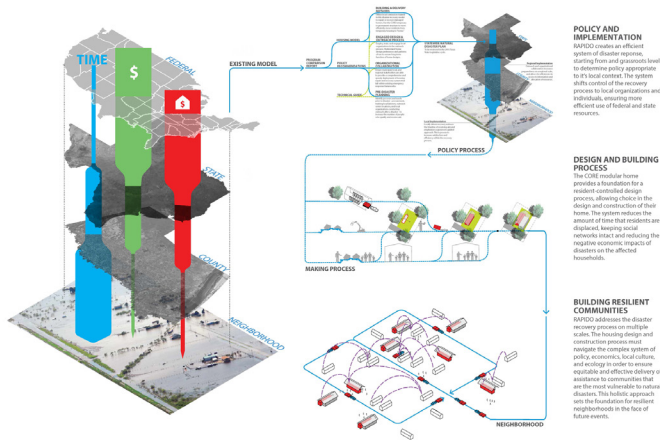
Recovery statistics after Hurricane Michael are just one example of what happens far too often following devastating natural disasters across the country. FEMA assistance is often hardest to attain for those who need it the most, people with low incomes and home renters. Following Hurricane Michael, FEMA denial rates in some areas were as high as 50% (Disaster Housing Recovery Coalition, 2019). Following previous disasters, administrations activated the Disaster Housing Assistance Program (DHAP) to aid specifically the lowest-income disaster victims (Disaster Housing Recovery Coalition, 2019). Following Hurricane Michael, FEMA denied activation of the program. They instead enacted their Transition Shelter Assistance (TSA) motel voucher program, not accessible to many low-income victims due to their financial status (Disaster Housing Recovery Coalition 2019). As a result, many low-income

residents were rendered homeless, many still living in cars and tents a year after the storm. A total of 5,000 of Bay County's 174,000 residents were still homeless a year after the storm (Schneider 2019). Residents and local officials are still struggling with receiving the help they need. As recently as July 2020, leaders of Bay County, Mexico Beach, Panama City, Springfield, Parker, Lynn Haven, The Panama City Housing Authority, and local non-profits cosigned a letter outlining FEMA's disparaging storm response, citing “inconsistent guidance, inaccurate and inconsistent application of FEMA policy and communication issues” (Calhoun 2021). Problems with post-disaster housing lie not only in the policy that exists, but in the implementation, or lack of implementation, of it.

## *What can be done to fix the problem?*

It is important for families to be placed back into homes quickly because this helps them, local governments, and local economies. When there is nowhere to live, local governments struggle to find places for aid workers to be housed during the recovery process, which slows down this already creeping process. With fewer aid workers comes fewer houses and buildings mitigated and rebuilt, which means the city's economic recovery is slowed or halted. An effort whose main goal is to put families back into their homes quickly (within twelve to twenty weeks of disaster) is [bc] Workshop's RAPIDO Housing. Starting with Hurricane Dolly in 2008, the company has designed a system in which they implement homes built using previously constructed systems, informed by resident input, and built

using local labor, allowing for communities to return to life on their own property, swiftly and comfortably. This, in turn, helps speed up the process of recovering local economies and communities.



## the RAPIDO model

Figure 3. [bc] Workshop's RAPIDO model.

With the RAPIDO model for post-disaster housing, [bc] Workshop produces a package of materials off-site that become “the core:” a 400 square foot pod that can be constructed by local volunteers in the community in about a week ([bc] Workshop 2020). These pods resemble those handed out by FEMA, but the important difference is that FEMA’s assistance is only allowable for temporary housing, while [bc] Workshop’s “core” is a permanent structure that can be built upon and made unique in the months following a resident’s move-in (2020). This proves to be a more beneficial solution than FEMA’s manufactured homes, and their end price is about the same (Tyx2018).

The RAPIDO pilot program produced 20 prototype units for three counties in the Lower Rio Grande Valley of Texas in 2015. Using their ground-up approach of connecting with communities and residents in need from the beginning and dedicating themselves to community involvement throughout the process, [bc] Workshop’s project proved successful in these communities. [bc] Workshop emphasizes the importance of the involvement of community members in the rebuilding of their own communities, both through community engagement meetings and utilization of local skilled workers in construction itself. In turn, all this community involvement results in comfortable, place-based housing that residents feel they had a part in creating for themselves and their neighbors, making them active participators in the rebuilding of the communities that they love.



Figure 4. [bc] Workshop’s “core.”

[bc] Workshop has also taken necessary steps to set up future endeavors for disaster relief housing for success. They have created documents that present suggestions for necessary policy changes that would help with the implementation of disaster relief housing, a step-by-step guide to implementing their Disaster Recovery Housing Program in other communities, as well as a Program Comparison Report that draws conclusions from several disasters in the United States and their response, providing the framework for their policy change suggestions.



Figure 5. [bc] Workshop's "core" with customized additions being constructed.

Post-disaster housing is a design issue, but more than that, it is a policy issue. It is of substantial importance for the wellbeing of individuals and communities, especially during the regrowth period following a natural disaster, that federal, state, and local governments

understand this problem as a policy issue and do something to fix it. Many of the policy change suggestions outlined by [bc] Workshop focus on preparedness before disaster, including but not limited to environmental reviews, land use planning, and including local stakeholders in the process of "pre-covery." ([bc] Workshop 2015). They emphasize the necessity of clear administrative structures that set residents up for success in navigating the recovery process post-disaster ([bc] Workshop 2015). These are just a few of the things that [bc] Workshop cites as necessary actions for policy makers to assist in the bettering of the disaster relief housing problem. Without setting up communities for success with pre-disaster planning, it is hard for solutions like RAPIDO to be successful.

### *With viable suggestions and effective solutions, why is there still a problem?*

It is frustrating to see that, while a large breadth of research has been completed and effective solutions have been designed and implemented, disaster relief housing is still a problem, especially in communities like those affected by Hurricane Michael, who are still feeling the sting more than three years later. Hurricane Katrina, one of the most devastating natural disasters on record, was a catalyst for necessary policy change. It even got its name put into a new authority, the "Post-Katrina Emergency Management Reform Act" (PKEMRA), which altered the operations of FEMA, filling gaps that were brought to light by Hurricane Katrina (FEMA 2021). FEMA is still making changes regularly, with amendments

to the Stafford Act coming just this year (2021). But, as is evidenced every time a hurricane occurs, even as recently as Hurricane Ida in September of 2021, these changes are not enough to solve the post-disaster housing crisis. Effective solutions like RAPIDO housing are not getting implemented at a significant capacity. In the Lower Rio Grande Valley, [bc] Workshop cites the separation between FEMA funding and HUD funding and the Stafford Act as roadblocks on the way to implementation ([bc] Workshop 2021). [bc] Workshop has experienced firsthand the policy problems that make solving post-disaster housing problems that much harder. Changes must continue to be made at the federal level, and thus filter to the state and local levels, in order for solutions like RAPIDO to be implemented at a substantial rate to have a greater impact.

## *Why is this problem persisting? What can we do to fix it?*

The root of the issue is that the post-disaster housing crisis can be categorized as a wicked problem. Horst W.J. Rittel and Melvin M. Webber, two Berkley professors, published an article in 1973 discussing “wicked” problems, specifically “wicked” social problems. Their article was titled “Dilemmas in a General Theory of Planning” and gave ten criteria that help identify problems as “wicked.” These ten criteria follow.

1. There is no definitive formulation of a wicked problem (162).
2. Wicked problems have no stopping rule (162).
3. Solutions to wicked problems are not true or false, but good or bad (162).
4. There is no immediate and no ultimate test of a solution to a wicked problem (163).
5. Every solution to a wicked problem is a “one-shot” operation; because there is no opportunity to learn by trial and error, every attempt counts significantly (163).
6. Wicked problems do not have an exhaustively describable set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan (164).
7. Every wicked problem is essentially unique (164).
8. Every wicked problem can be considered to be a symptom of another problem (165).
9. The existence of a discrepancy representing a wicked problem



Figure 6. A family stands in front of their completed RAPIDO home.

can be explained in numerous ways (166).

10. The planner has no right to be wrong (166).

These criteria prove that the post-disaster housing crisis is a wicked problem. Wicked problems are challenging, but this only makes their study more important. Wicked problems cannot be solved quickly. They can take generations of research by many to achieve any kind of success or solutions. Upon recognizing the depth and wicked nature of the post-disaster housing problem, I decided to focus on taking a first step in the long process of seeking a solution to this problem. The following study was chosen as this necessary first step. The goal of the study is to raise awareness of the post-disaster housing problem by presenting the case study of Hurricane Michael through personal accounts and factual data.

After conducting interviews with a number of relatives and other individuals from my home county (Bay County, Florida) asking questions about their experiences during and after the storm, I discovered a series of similarities between them. I communicated with eight residents of different backgrounds and ages. Questions were formulated that allowed them to talk about their experiences with the storm, focusing specifically on housing, displacement from their home, experiences with insurance, FEMA, etc. to get a feel for their experience on the post-disaster housing front, given the focus of this study. There were also questions that allowed room for residents to tell their personal stories and how they felt during

and after the storm, what allowed them to feel “normal” again, etc. Interestingly, similar accounts of the impact of Hurricane Michael were communicated across the board. Some of these include people “riding out” the storm with minimal or no preparation because they did not expect it to be as serious as it was, anxiousness about the lack of communication due to downed cell towers, communities looking “unrecognizable” and “like war zones,” fearing the unknown during the storm itself, coming together as communities to help, check on, and take care of one another, and more. All the commonalities among responses have been categorized into five general stages that represent the progression of residents’ experiences before, during, and after Hurricane Michael. These five stages are: preparation (or lack thereof), fear, shock, recovery, and new normal. Commonalities found among interviews were interpreted into a series of posters that will highlight these observations taken from the stories of impacted individuals.

The graphic novel was chosen as the representational method for the posters after researching a number of viable storytelling options. Graphic novels present an accessible way of reading, recognizable like a comic book with simple text. They also provide an accessible way to present emotion through imagery that allow readers to relate to what they are reading. For example, “Hurricanes, Hot Meals, and Helicopters,” a graphic novel series by World Health Kitchen, graphically represents several different people, their experiences, and emotions. They represent statistics and the people they affected simultaneously.



Figure 7. Hurricanes, Hot Meals, and Helicopters by World Health Kitchen

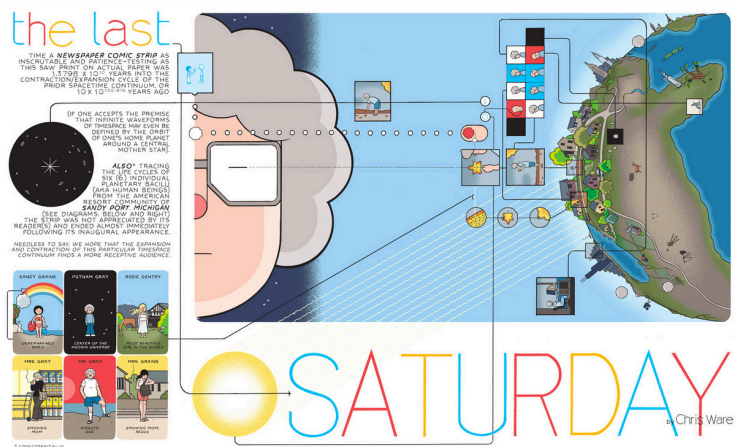
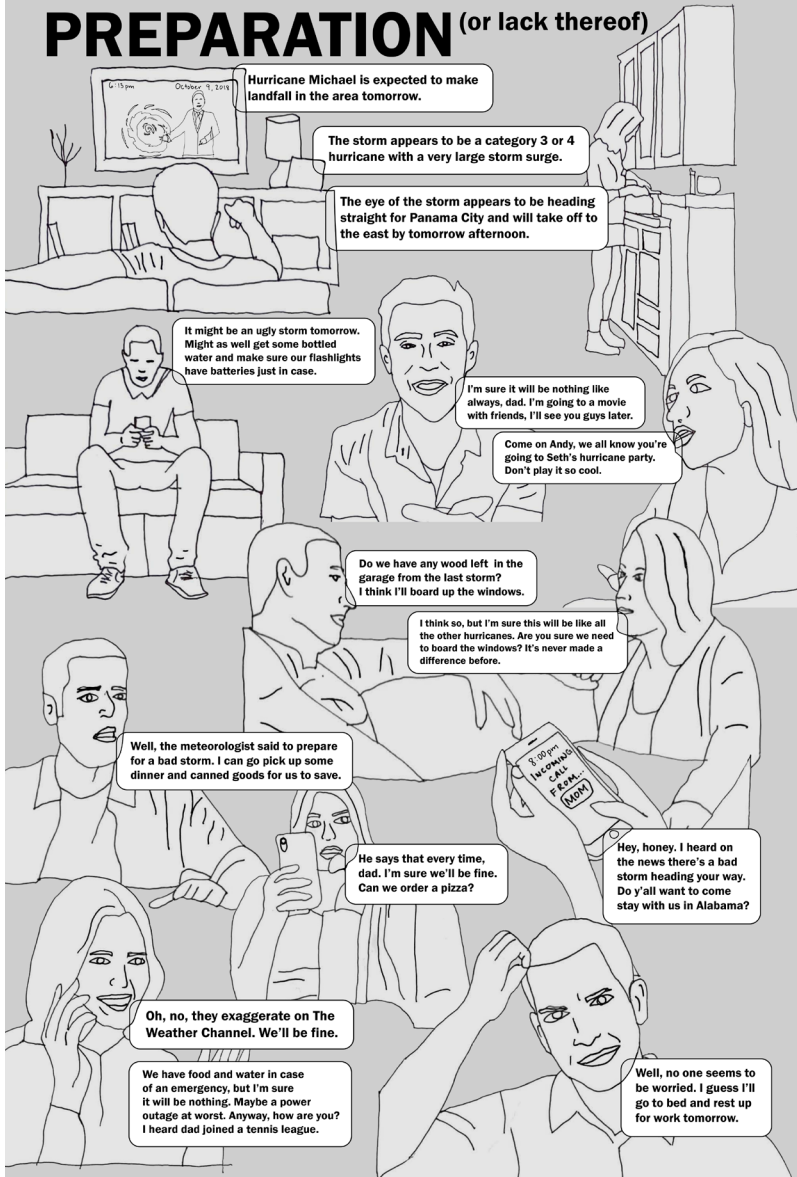


Figure 8. The Last Saturday by Chris Ware

The storytelling techniques of Chris Ware, an American cartoonist, were also studied. Ware often graphically represents a “day in the life” or singular experience of a person, their emotions, thought, placement in space and time, etc. in his stories. The way the emotion and experience of people are made evident in his work is successful in representing their stories.

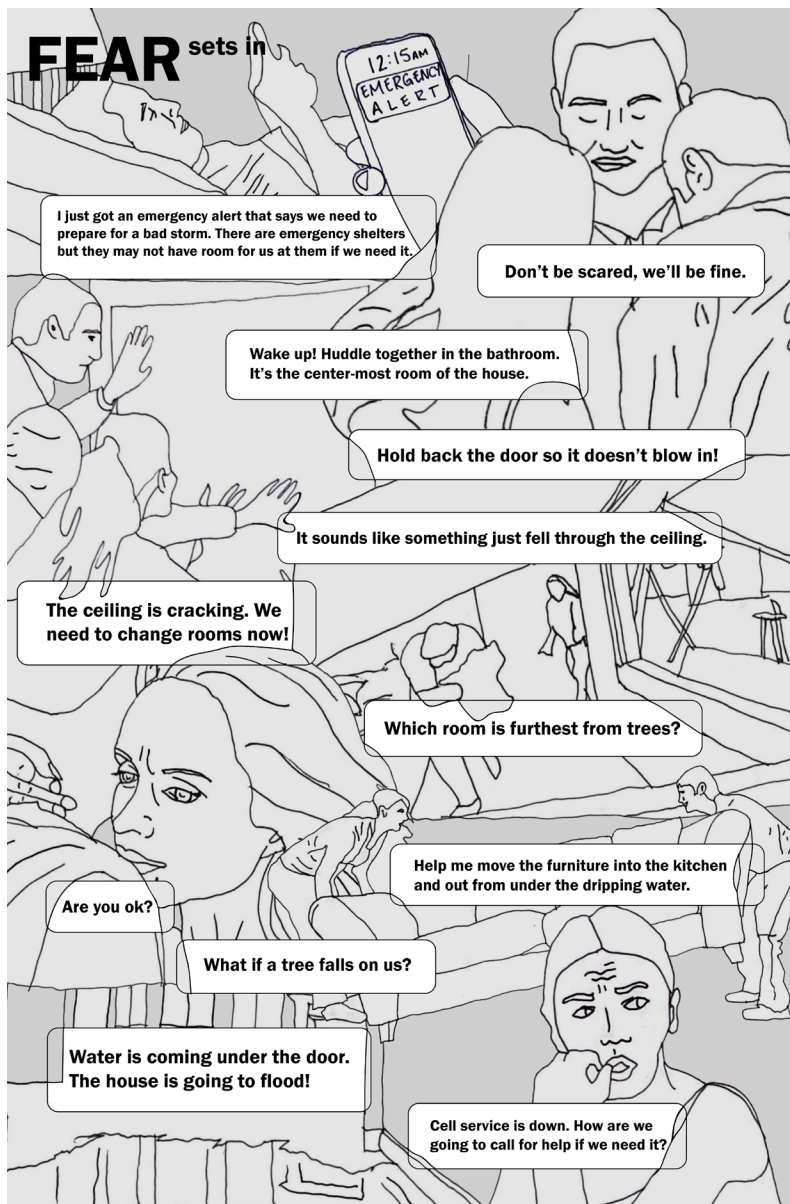
Both of these precedents and more set the basis for the graphic techniques and goals of the posters created for Hurricanes and Housing. The posters aim to use techniques inspired by graphic novel precedents to present emotions and information in a way that is tangible and can be read from a large scale down to the detail of every word and statistic. The goal in shining a light on the observations made by residents through posters is to incite conversations about the devastation (to property, infrastructure, emotion, and health, both mental and physical) that hurricanes bring to communities like those impacted by Hurricane Michael. This exercise is just the beginning of a lifelong effort that seeks to solve the wicked post-disaster housing problem.

# PREPARATION (or lack thereof)



## Stage 1: Preparation

Residents say that they “rode out” the storm with minimal or no preparation because they didn’t expect it to be as serious as it was. The minimal preparations some made did not prove to be helpful because of the level of destruction. Though they were warned by local and international media, residents of a hurricane prone area like North Florida have lived through many storms, never any of this magnitude. Many say they expected it to be like all the others, so they didn’t prioritize preparation.



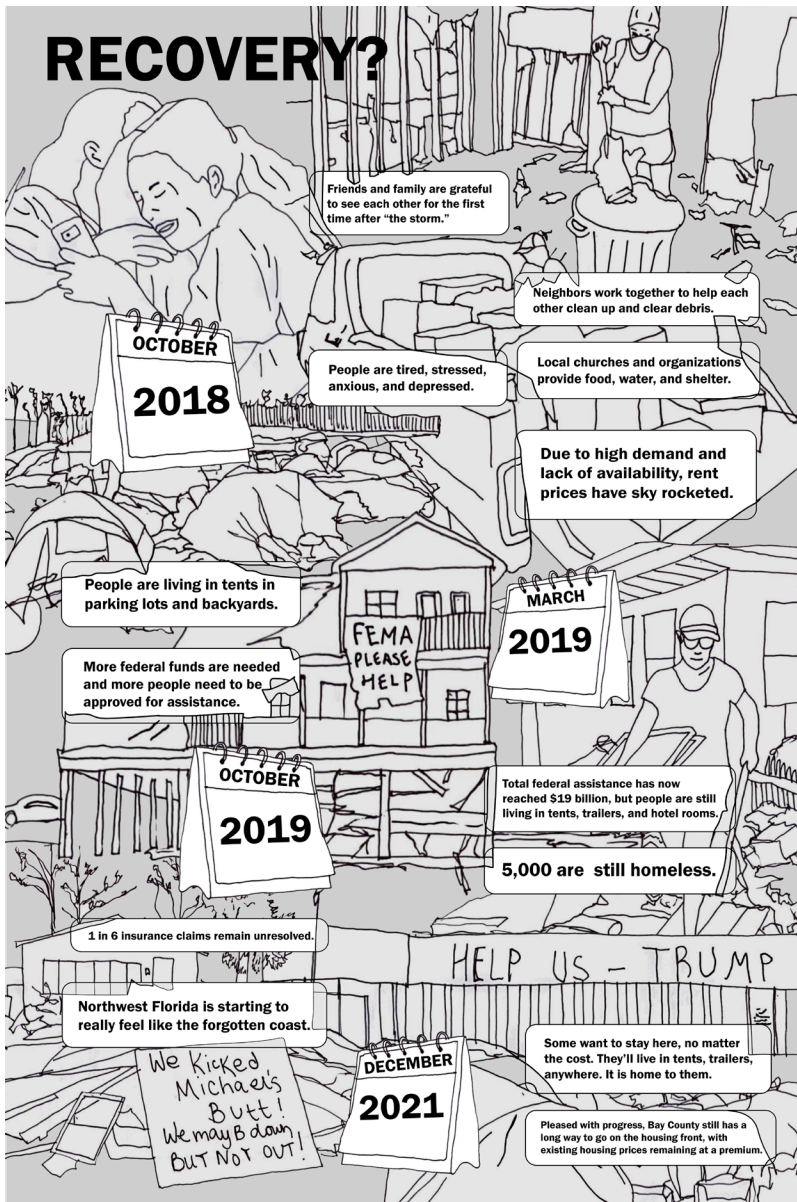
## Stage 2: Fear

The fear of the unknown during the storm was prevalent. Residents were suddenly thrown into survival mode in the blink of an eye, protecting their families and belongings while their safe space, their home, crashed around them. Cell towers went down during the storm which made it impossible to connect with first responders, family or friends.



### *Stage 3: Shock*

After the wind subsided and the storm passed, residents stepped into a new reality. Consistent descriptors of communities and neighborhoods are “like a war zone,” “the apocalypse,” and “unrecognizable.” Life long residents had a hard time getting around due to the sudden lack of landmarks. The fabric of the area was changed forever. Roads were impassible until they were cleared of debris, and many roads themselves were damaged. Neighborhoods once known for trees were suddenly without any.



## Stage 4: Recovery

The never ending process of joining together and rebuilding communities began, but not before days and weeks of surviving with limited water, food, and electricity. Churches are consistently cited as organizations that came together to help following the storm, as well as neighbors and out-of-town volunteers. Churches provided ice, water, food, showers, and other helpful things to their communities, despite significant damage to the structure of their own building in many cases.



## Stage 5: New Normal

Most residents say that they believe life will never feel the same as it did before the storm. It will never feel like the “old normal” again, there is only a “new normal.” Some cite getting back into their homes after repairs as what finally brought normalcy. The most inspiring thing about hearing and learning from communities after the storm, whether it be days, weeks, months, or years after, is that everyone seems to agree that the future will be bright. They will figure everything out somehow. Structures will be rebuilt and they will replace things. Many cite their faith as helping get them through the storm itself and continuing to help them persevere through the recovery process.

# WHAT CAN WE DO?



Join a community emergency response team.

Spread awareness on social media about the problem and give followers suggestions for how to help.

Contact local, state, and federal representatives to encourage change.

Complete FEMA.gov online training to prepare to be the help until help arrives.

Donate to reputable organizations through The National Voluntary Organizations Active in Disaster (NVOAD).

Volunteer with reputable organizations through The National Voluntary Organizations Active in Disaster.

Be patient. Do not self deploy to a disaster affected area. Get in contact with professionals and wait to hear what you can do to help them.

Study preparedness plans for hurricanes on ready.gov.

## *What can we do?*

All initiatives have one thing in common that they need to make things happen: people. It is up to us to get involved in the process of bettering the post-disaster recovery process for our neighborhoods and fellow citizens. If you want to help, use your resources to connect the right people. Invest in or volunteer at a non-profit that is focused on post-disaster recovery. Write letters to your local, state, and federal government leaders. Start the conversation. Educate people around you about the issues. When you hear about a hurricane on the news, remember the lives that it is impacting. That could be you. Make an effort to make a difference in their lives.

# CONCLUSION

The value of this exploration is that it starts to give a voice to those who feel that they have not been heard for the past three years. These voices need to be heard, not only to simply tell the story of a devastating hurricane and its impact, but these details need to be heard by the right people, those that can help solve problems. As is suggested by [bc] Workshop, community engagement and involvement in the process of their own rehabilitation is crucial to the success of disaster relief housing solutions. Changes need to occur not only at the federal level but at the state and local levels to improve the process of disaster relief housing implementation and therefore help solve the post-disaster housing crisis. Local governments can do things like creating pre-disaster plans, defining hazardous areas in their jurisdictions, and controlling zoning and code in these areas to prevent devastating damage to infrastructure in the event of a disaster. Local governments, most importantly, should prepare for disasters and seek as much control as they can over the recovery process. Recovery works best when it is grounded heavily at the local level. State and federal governments have more power, and with this comes more responsibility to make changes that make a difference. State governments should implement and operate post-disaster task forces whose only job is to ensure that communities impacted get the help they need in a timely and effective manner. Federal governments should aid both the state and local levels in their post-disaster assistance. Federal governments

should spend more time and money on research and land mapping that targets the areas that are most at risk for hurricanes so that they can be better prepared for them when they come. Federal organizations like FEMA should adjust their processes to accommodate people with lower incomes and home-renters instead of favoring homeowners. Federal funding should be spent at the local level on organization, workers, materials, etc., which not only makes funding cheaper but puts money back in the pockets of affected communities. Recovery and construction of replacement housing should be simplified so that it can occur at the state and local levels, thus speeding up the recovery process and making it more personal to communities. State and local governments that have plans and funding in place can respond much faster than federal governments, which allows for communities to stay together during recovery, resulting in a better post-recovery community and life.

This exploration should not only encourage empathy for the post-disaster housing problem and those it effects but should spark necessary action for change so that individuals and communities are not affected in the devastating ways that those impacted by Hurricane Michael were. Communities are resilient, people band together, but it is up to governments to set up communities for success in preparation for a devastating event. Education is key, but taking action is the most important thing. With a changing climate, pre-disaster preparation will only become more important to prevent the post-disaster housing crisis from persisting in the years to come.

# REFERENCES

- [bc] Workshop. (2015). Rapid Disaster Recovery Housing Program. Brownsville, Texas; Community Development Corporation of Brownsville.
- Calhoun, S. Brady. "Local Leaders Say FEMA Issues Stalling Hurricane Michael Recovery." mypanhandle.com. mypanhandle.com, March 26, 2021. <https://www.mypanhandle.com/news/local-leaders-say-fema-issues-stalling-hurricane-michael-recovery/>.
- "Disaster Authorities." FEMA.gov. <https://www.fema.gov/disaster/authorities>.
- "Facts + Statistics: Hurricanes." III. <https://www.iii.org/fact-statistic/facts-statistics-hurricanes>.
- Gould, Charles W. "The Right to Housing Recovery after Natural Disasters," Harvard Human Rights Journal 22, no. 2 (Summer 2009): 169-204
- "Impact of Hurricane Michael." NLIHC.org. Disaster Housing Recovery Coalition, August 21, 2019. <https://nlihc.org/sites/default/files/Hurricane-Impact-Michael.pdf>.
- MIT Humanitarian Supply Chain Lab, MIT Center for Transportation & Logistics. (2019). Disaster housing challenges in America: exploring the role of factory-built housing. Cambridge, MA: Windle, M., Quraishi, S. & Goentzel, J. <https://hdl.handle.net/1721.1/122651>.
- "Rapido." [bc]. <https://www.bcworkshop.org/rapido>. 2020.
- Rittel, H. W., & Webber, M. M. (1973). "Dilemmas in a General Theory of Planning." Policy sciences, 4(2), 155-169. <https://www.cc.gatech.edu/fac/ellendo/rittel/rittel-dilemma.pdf>.
- "Saffir-Simpson Hurricane Wind Scale." NOAA.gov. <https://www.nhc.noaa.gov/aboutsshws.php>.
- Schneider, Mike. "A Year AFTER Michael, Florida Community Still in Crisis." AP NEWS. Associated Press, October 9, 2019. <https://apnews.com/article/ap-top-news-us-news-violence-florida-united-states-0d260a9ec44545458ab1f25b6f969a5a>.
- Thompson, Jim. "A Year after Hurricane Michael, Housing Remains a Challenge." Panama City News Herald. Panama City News Herald, October 11, 2019. <https://www.newsherald.com/news/20191010/year-after-hurricane-michael-housing-remains-challenge>.
- Tyx, Daniel Blue. "Forget FEMA Trailers: Here's How to House People in a Hurry." Yes! Magazine, 4 June 2018, [www.yesmagazine.org/issue/affordable-housing/2018/06/04/forget-fema-trailers-heres-how-to-house-people-in-a-hurry/](http://www.yesmagazine.org/issue/affordable-housing/2018/06/04/forget-fema-trailers-heres-how-to-house-people-in-a-hurry/).
- US Department of Commerce, NOAA. "Hurricane Michael 2018." National Weather Service. NOAA's National Weather Service, October 9, 2019. <https://www.weather.gov/tae/HurricaneMichael2018>.
- Walter Gillis Peacock, Shannon Van Zandt, Yang Zhang & Wesley E. Highfield (2014) Inequities in Long-Term Housing Recovery After Disasters, Journal of the American Planning Association, 80:4, 356-371

# ADDITIONAL SOURCES

- "Backgrounder: Major Hurricanes Affecting United States over Last Two Decades." Xinhua, September 2, 2019. [http://www.xinhuanet.com/english/2019-09/02/c\\_138358780.htm](http://www.xinhuanet.com/english/2019-09/02/c_138358780.htm).
- Baussion, Danielle. "When You Can't Go Home." Center for American Progress, August 18, 2015. <https://www.americanprogress.org/issues/green/reports/2015/08/18/119511/when-you-cant-go-home/>.
- Blue Tarps: This Is Over Six Months After Hurricane Michael. Sea Hunter Films, LLC, 2019. <https://www.amazon.com/Blue-Tarps-Months-Hurricane-Michael/dp/B083MY3P7R>.
- "FEMA Makes Changes to Individual Assistance Policies to Advance Equity for Disaster Survivors." FEMA.gov. <https://www.fema.gov/press-release/20210902/fema-makes-changes-individual-assistance-policies-advance-equity-disaster>.
- Monroe Group. "Affordable Housing Statistics." Monroe Group, May 13, 2021. <https://www.monroegroup.com/about-us/affordable-housing-statistics/>.
- "NAACP Releases Toolkit--'In the Eye of the Storm: A People's Guide to Transforming Crisis and Advancing Equity in the Disaster Continuum'." NAACP, September 26, 2018. <https://www.naacp.org/latest/naacp-releases-toolkit-eye-storm-peoples-guide-transforming-crisis-advancing-equity-disaster-continuum/>.
- "National Engagement Planning Considerations: Disaster Housing." fema.gov, September 12, 2019. [https://www.fema.gov/media-library-data/1568213149207-45fef0845806b93c83d34d2e067c5913/Planning\\_Considerations\\_Disaster\\_Housing\\_Draft\\_201909.pdf](https://www.fema.gov/media-library-data/1568213149207-45fef0845806b93c83d34d2e067c5913/Planning_Considerations_Disaster_Housing_Draft_201909.pdf).
- "Natural Disaster Displacements: Spending and Solutions." ECU Online, July 21, 2020. <https://safetymanagement.ecu.edu/blog/displacements-due-to-natural-disasters-spending-and-solutions-infographic/>.
- Schweers, Jeffrey. "'Collectively We've FORGOTTEN THEM': Hurricane Michael SURVIVORS Hanging on One Year Later." Tallahassee Democrat. Tallahassee Democrat, October 18, 2019. <https://www.tallahassee.com/story/news/local/state/2019/10/04/hurricane-michael-survivors-hanging-one-year-later/3774446002/>.
- "'Sickening': Six Months after Hurricane Michael, People Are Still Living in Tents." CBS News. CBS Interactive, March 22, 2019. <https://www.cbsnews.com/news/hurricane-michael-six-months-later-people-are-still-living-in-tents/>.
- Sullivan, Patricia, and Joel Achenbach. "Survivors of Hurricane Michael in the Florida Panhandle Fear They Have Been Forgotten." The Washington Post. WP Company, April 8, 2019. [https://www.washingtonpost.com/national/survivors-of-hurricane-michael-in-the-florida-panhandle-fear-they-have-been-forgotten/2019/04/05/793ab5ce-563b-11e9-8ef3-fbd41a2ce4d5\\_story.html](https://www.washingtonpost.com/national/survivors-of-hurricane-michael-in-the-florida-panhandle-fear-they-have-been-forgotten/2019/04/05/793ab5ce-563b-11e9-8ef3-fbd41a2ce4d5_story.html).