



# How Well is North Carolina Prepared?

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## *Lessons Learned and Solutions Identified from Hurricanes Matthew, Florence, and Dorian*

***Sheri Badger**, Disability Integration Specialist, Human Services Branch, North Carolina  
Emergency Management*

***Johnell Daye**, Law Intern, Disability Rights North Carolina*

***Iris Green**, Supervising Attorney, Disaster Relief Project, Disability Rights North Carolina*

***Lauren Howard**, North Carolina Office on Disability and Health Director, Division of Public  
Health, Children and Youth Branch*

***Holly Watkins**, Business Development and Public Relations Manager, The Arc of North Carolina*

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## INTRODUCTION

In the past five years, North Carolina has witnessed and endured three major hurricanes (Florence, Dorian, and Matthew) that caused billions of dollars in damage across the state. Many people, including individuals with access and functional needs<sup>1</sup> and other disabilities, continue to deal with the effects of these three storms and need assistance.

The Arc of North Carolina is a leading advocate for people with intellectual/developmental disabilities (I/DD) and their families. Recognizing that preparing for and dealing with the aftermath of a storm affects people with access and functional needs, and people with disabilities, it is important to look at hurricane preparation and response from a global perspective. This paper will review storm information, data, issues identified, and solutions to help us better prepare for the next hurricane.

According to the Centers for Disease Control and Prevention, 27% of people living in North Carolina have some type of disability.<sup>2</sup> Now, more than ever, solutions are needed for long-term and systemic issues facing North Carolinians. The COVID-19 pandemic exacerbated the issues of poverty, insecurity, and health. Many individuals who have been affected by this pandemic continue to deal with housing and health issues related to recent hurricanes.

Local emergency response teams and community organizations were asked to participate in preparedness and response efforts for the hurricanes. North Carolina Emergency Management (NCEM) formed a CMIST<sup>3</sup> Advisory Committee to help identify people with access and function needs and people with disabilities. The committee meets quarterly and is made up of individuals from community organizations.

In preparation for and in response to these storms, logistical issues were quickly noted including accessibility in shelters, lack of quiet spaces in shelters for people with sensory issues, and connections to community resources after the storm had passed.

People with access and functional needs and people with disabilities dealing with preparation and then the aftermath of the hurricanes may be contending with unstable living situations, food insecurity, and health issues. In the midst of recovery, they are being asked to prepare for the next hurricane season and may be unable to do so.

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<sup>1</sup> Access and Functional Needs is defined as: populations whose members may have additional needs before, during, and after an incident in functional areas, including but not limited to, maintaining independence, communication, transportation, safety, support, and health care. Individuals in need of additional response assistance may include those who have disabilities, who live in the community or long term care facilities, who are elderly, who are children, who are from diverse cultures, who have limited English proficiency or are non-English speaking, or who are transportation disadvantaged.

<sup>2</sup> See: <https://www.cdc.gov/ncbddd/disabilityandhealth/impacts/north-carolina.html>

<sup>3</sup> CMIST (Communications, Maintaining Health, Independence, Safety/Support/ Self-determination, and Transportation).

## OVERVIEW

**Hurricane Matthew** (2016) was the most powerful storm of the 2016 Atlantic hurricane season, and made its fourth and final landfall near McClellanville, South Carolina as a Category 1 hurricane at 11 a.m. on October 8th.

Although gusts above hurricane force were reported along the Carolina coast, Matthew may most be remembered for its extreme rainfall and deadly flooding. According to the National Hurricane Center, Matthew was directly responsible for 25 deaths in North Carolina and four in South Carolina, all but one due to flooding. Damage in the United States was estimated by the National Center for Environmental Information (NCEI) at \$10.3 billion. There were 118 shelters open, with almost 3,800 housed at the storm's peak, with the last shelter closing after Thanksgiving that year.

**Hurricane Florence** (2018) made landfall near Wrightsville Beach (near Wilmington) in North Carolina at 7:15 a.m. on Friday, September 14, 2018 as a Category 1 hurricane, bringing a massive storm surge and sustained winds of up to 85 mph. The system slowed to a crawl and inundated North Carolina and South Carolina with torrential rain for days. To date, 50 deaths have been attributed to the storm in North Carolina. Florence, the eighth-wettest tropical cyclone to hit the mainland United States – and the wettest ever to hit North Carolina – dumped nearly three feet of rain across parts of that state. The slow impact of a flooding disaster resulted in the state feeling the biggest impacts toward the end of September. It has been estimated that there were \$17 to \$22 billion dollars' property damage in North Carolina.

Many counties along the coast had mandatory evacuations, and as a result, on the days following Hurricane Florence's landfall, there were over 250 shelters opened and nearly 22,600 people in those shelters. Of these, six were state-run shelters, and four were state medical support shelters (SMSS). There were over 800,000 homes and businesses without power, and close to 2,200 primary and secondary roads were closed due to flooding, including large sections of Interstate Highways 40 and 95. There were over 5,000 rescues performed.

**Hurricane Dorian** (2019) made landfall over Cape Hatteras, North Carolina at 8:35 a.m., on Friday, September 6, 2019, as a Category 1 storm with sustained winds of 90 mph and gusts above 100 mph. There was a significant portion of the northeast corridor that received substantial damage from storm surge, wind, and rain. Officials from Ocracoke Island reported over 6 feet of storm surge in approximately 90 minutes.

There were over 4,000 people staying in a total of 78 shelters. There was a state coordinated regional shelter in Durham that housed 69 at its peak, and there was a state medical support shelter that housed 22 patients and 11 caregivers at its peak.

It is important to note there has been progress made over the past few years assisting people with access and functional needs and people with disabilities during hurricane response and recovery. Grant funding from the North Carolina Council on Developmental Disabilities was awarded to North Carolina Emergency Management for the development of an Emergency Preparedness Initiative in 2013. Disability Rights North Carolina set up a disability rights hotline in 2020, which is used during disaster response. After the NC Council on Developmental Disabilities grant ended in 2017, North Carolina Emergency Management created a Disability Integration Specialist position, one of only a handful of similar positions across the country. The NCEM CMIST Advisory Committee was formed with agencies, organizations and individuals that represented the five categories of CMIST – Communication, Maintaining Health, Independence, Safety, Support and Self-determination, and Transportation. Efforts from this position and advisory committee include the Access and Functional Needs Toolkit for Emergency Managers; development, training and deployment of the Functional Assessment Support Teams (FAST); Shelter Accessibility guidance and assistance; Agency/Organization Disaster Readiness program; and, a regular NCEM Disability Stakeholders coordination call before, during and after disasters.

## Issues Identified During Hurricanes Matthew, Florence, and Dorian

### Sheltering

One of the continuing challenges for people with disabilities is accessibility in disaster/emergency shelters. Reasons for this may include (1) lack of accessible facilities in rural areas in general; (2) buildings with appropriate accessibility for day-to-day commercial use, but not accessible for overnight sheltering use; and (3) facilities which meet ADA basic requirements for accessibility, but not for functionality (e.g. the accessible wheelchair ramp and entrance around the back of the building, or the accessible bathroom that is too small for a power wheelchair user). Shelter accessibility is also a product of the actions and behaviors while the shelter is operational. In one shelter which opened during Hurricane Florence, an accessible bathroom on the same floor as the sleeping section was closed due to continued drug use in the restroom. Access to the second-floor bathrooms was limited by one service elevator that could only be operated by a staff member, or a steep set of bleacher stairs.

Another example of these actions was noted in *Alliance of Disability Advocates North Carolina After Action Report Hurricane Florence Response, October 2018*, p. 4. “The shelter housed approximately 20 families which included several survivors who experienced a disability. The majority of those families were also experiencing homelessness. As soon as ADANC staff walked into the facility they identified a significant accessibility issue. The shelter staff had covered the floors with sheets to protect the floors unaware that this immediately created fire and trip/fall hazards for anyone with mobility difficulties. A Red Cross employee also wanted a survivor who used a scooter to either leave or discontinue its use to avoid damaging the floor. ADANC staff

quickly resolved the issue, the sheets were removed and the woman with the scooter was able to stay until suitable housing was obtained.”

In some jurisdictions, the report noted that “(A)ccess and functional need support for durable medical equipment, medical cots, and privacy screens needed at shelters was significantly delayed due to lack of communication and knowledge of shelter trailers that were in the field staged at various counties and available through mutual aid agreements at the county level. The process to request these resources is at a county level and the Red Cross seemed unaware this resource was available, and the counties also did not request through their process.”

To address these and other anticipated issues related to sheltering and shelter accessibility, the NCEM CMIST Advisory Committee convened several work groups to identify and develop solutions. The Shelter Accessibility Workgroup developed and continues to address ways to bring increased awareness of accessibility issues within different shelter settings. The development of the Functional Assessment Support Teams (FAST) program in North Carolina also serves to support individuals with access and functional needs in a shelter setting (as well as other disaster service center settings).

## Post-Disaster Housing

Two years after Hurricane Florence, thousands of impacted North Carolinians still do not have permanent, safe housing. For many, there is no promise of stability in the near future. On September 14, 2018, the federal government issued a major disaster declaration for 34 counties following Hurricane Florence (FEMA-4393-DR); the effects in the 14 most impacted and distressed areas<sup>4</sup> are severe, forever changing entire communities.<sup>5</sup>

This section will present an overview of the availability of affordable, accessible, temporary, and permanent housing. With respect to both temporary and permanent housing, the status is dire and requires an urgent response.

## Accessible Temporary Housing

The lack of accessible temporary housing is an urgent issue in North Carolina. Because of the lack of affordable, accessible temporary housing, some survivors continue to live in structures that are not fit for human habitation, including homes damaged with mold, mildew, and insect infestations. Some homes damaged by Hurricane Florence have wildlife entering through holes in walls and floors.

In the weeks following Florence, the Federal Emergency Management Agency (FEMA) was slow to approve the use of travel trailers and other temporary housing in a few of the affected areas, such as vouchers and hotel stays. Because of the widespread flooding in eastern North Carolina

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<sup>4</sup> Hurricane Matthew Human Services AAR, Jan. 4, 2017

<sup>5</sup> See: [https://files.nc.gov/rebuildnc/documents/Florence/NCORR\\_CDBG\\_DR\\_Florence\\_AP\\_Final\\_508.pdf](https://files.nc.gov/rebuildnc/documents/Florence/NCORR_CDBG_DR_Florence_AP_Final_508.pdf). HUD has identified 10 counties and four zip codes as mostly impacted and distressed areas in NC following Hurricane Florence. The areas are: Brunswick County, Carteret County, Columbus County, Craven County, Duplin County, Jones County, New Hanover County, Onslow County, Pender County, Robeson County, Zip Code 28433 (Clarkton, Bladen County), Zip Code 28352 (Laurinburg, Scotland County), Zip Code 28390 (Spring Lake, Cumberland County), and Zip Code 28571 (Oriental, Pamlico County).

communities, it took some survivors up to four months after Hurricane Florence to obtain permission to enter the FEMA-supplied travel trailers.<sup>6</sup> For many, the option to reside in FEMA trailers allowed them to continue to live on their property, close to work and school, while needed repairs were being made to their homes. Barriers to overcoming the many hurdles demanded by insurance companies, FEMA, and other legal barriers left many people living in FEMA mobile trailers. As 2020 dawned, nearly 200 families were still living in FEMA trailers. By September 2020, no families remain in these trailers.

Some survivors with access and functional needs are mired in bureaucratic requirements that disproportionately affect people of color, and those with disabilities, and/or low incomes. They are stuck in an exhausting labyrinth of barriers as they try to resolve complications regarding property ownership, duplication of benefits, gap financing, poor credit history and other issues. They have little legal redress to overcome the housing stock shortage, their inability to navigate the extremely complicated systems to access the government assistance programs, and the economic toll and stressors that disasters heap on them. Many survivors with access and functional needs have little to no support or expertise in navigating these substantial barriers to recovery.

### **Affordable, Accessible Permanent Housing**

Affordable, accessible housing is a luxury that many people with disabilities do not have access to and/or cannot afford. In North Carolina, 70% of individuals with I/DD have housing needs.<sup>7</sup> Hurricane Florence demolished some of the state's smaller cities and most vulnerable communities in the affected areas. Much of the destroyed rental stock were single-family homes owned by local mom-and-pop landlords who themselves could not afford to repair and sustain the properties. The Hurricane Florence wipe-out of rental housing in low-income communities followed Hurricane Matthew's destruction of low-income housing, further compounding North Carolina's overlapping crises of affordable, accessible housing and people living in homelessness.

The North Carolina Housing Coalition (NCHC) provides North Carolina with expert data regarding housing insecurity that demonstrates that owning or renting a home is out of reach for many North Carolinians, including those with access and functional needs. On a national level, people with access and functional needs live in poverty at more than twice the rate of people without disabilities.<sup>8</sup> People with access and functional needs make up approximately

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<sup>6</sup> See: <https://portcitydaily.com/local-news/2019/01/18/fema-and-pender-county-officials-dispute-what-delayed-post-florence-trailer-housing-for-months/>. The mobile housing units were provided to Hurricane Florence survivors in the most highly impacted counties: Brunswick, Carteret, Columbus, Craven, Duplin, Jones, Onslow Pender, New Hanover and Robeson.

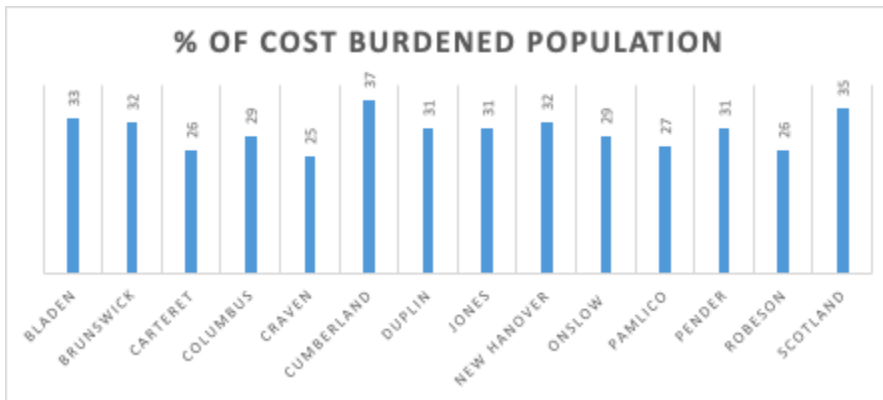
<sup>7</sup> See: <https://www.arcnc.org/advocacy/blog/567-the-need-for-accessible-and-affordable-housing#:~:text=Approximately%2070%25%20of%20people%20with,is%20about%20%249%2C000%20per%20year>

<sup>8</sup> See: <https://ncd.gov/newsroom/2017/disability-poverty-connection-2017-progress-report-release#:~:text=People%20with%20disabilities%20live%20in,living%20in%20long%2Dterm%20poverty>

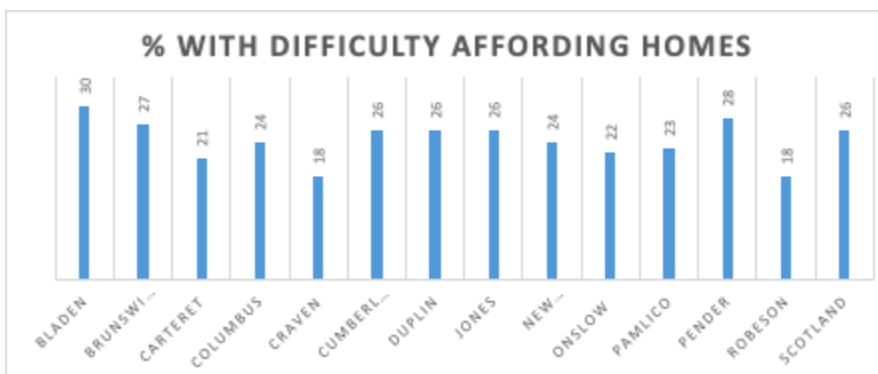
12 percent of the U.S. working-age population; however, they account for more than half of those living in long-term poverty.<sup>9</sup>

It follows then that people with disabilities are disproportionately represented in NCHC’s “County Profiles.” The organization’s County 2019 “County Profiles” states, “[h]ousing is affordable when it compromises no more than 30% of the family’s budget. Families that spend more than this on housing are cost burdened.” The document provides a snapshot of housing needs for each of North Carolina’s 100 counties. People with disabilities live in poverty – the data shows that cost-burdened households pay more than 30% of their income for housing.

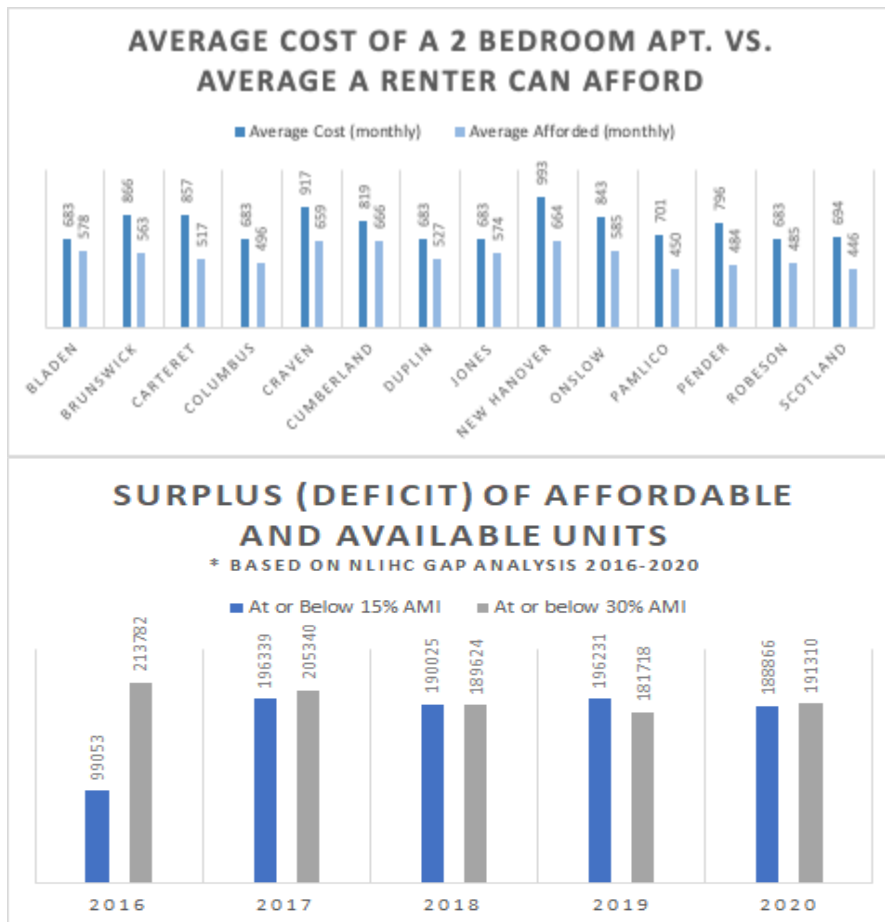
In the 14 Eastern North Carolina counties designated as most impacted and distressed by Hurricane Florence, the NCHC data describes 10 of the counties as having high housing insecurity, and three of them (Cumberland, Jones, and Scotland) as having very high housing insecurity. A breakdown of the cost-burdened families in the Hurricane Florence highly impacted areas are as follows:



The following graphs demonstrate the differences in the supply and demand for affordable housing:



<sup>9</sup> Ibid.



Based on *The GAP: A Shortage of Affordable Homes March 2020* report, North Carolina has a shortage of 188,866 available and affordable rental homes for extremely low-income renters, defined as those with incomes at or below the poverty line, or 30% of the area median income (AMI), whichever is greater.<sup>10</sup> Eighty-seven percent (87%) of renter households spend more than 30% of their income housing costs and utilities. Sixty-six percent (66%) of them are severely cost burdened and spend more than half of their income on housing costs and utilities.<sup>11</sup>

Despite the urgent need to preserve and increase the number of affordable rental homes for low-income households, the stock of this precious resource is steadily dwindling. This housing pressure is exacerbated when disasters strike. People who rely on Supplemental Security Income (SSI) and who are able to rent apartments are likely to be living in substandard housing or using virtually all of their income to pay rent. Disabled people are particularly at risk of having to choose between housing or medications, transportation to appointments, and access to needed services – not to mention food, clothing, and other necessities. People with access and functional need are in dire need of housing. To further complicate matters, North Carolina

<sup>10</sup> See *The GAP, A Shortage of Affordable Homes, March 2020*, National Low Income Housing Coalition: [https://reports.nlihc.org/sites/default/files/gap/Gap-Report\\_2020.pdf](https://reports.nlihc.org/sites/default/files/gap/Gap-Report_2020.pdf)

<sup>11</sup> See: <https://nlihc.org/housing-needs-by-state/north-carolina><sup>11</sup>



does not have an approved state budget which is holding up millions of dollars that is needed to address the housing crisis and could benefit people with functional and access needs.<sup>12</sup>

Some people with access and functional needs, including people with disabilities, in eastern North Carolina were already unstably housed when Hurricane Florence hit; Hurricane Matthew had wiped out much of the affordable, accessible housing in that area. Following Florence, North Carolina implemented the *Back@Home* rapid rehousing program to try to address the dire housing needs. Governor Roy Cooper introduced the program to create stability for our most vulnerable populations who did not qualify for FEMA assistance and were living in a disaster shelter and/or at risk of homelessness.

The *Back@Home* Initiative offered hope for many people by creating a pathway for survivors to obtain and sustain permanent housing. Thirteen months after Florence, the *Back@Home* rapid rehousing program housed more than 1,000 individuals in 28 disaster-impacted counties. Even though this program is a lifeline to many survivors, it is challenged due to the lack of available, affordable, accessible housing. Without a stock of affordable, accessible housing, *Back@Home* staff is unable to move clients into secure permanent housing, which can keep them from achieving stability in the community of their choice.

As we reached the two-year anniversary of Hurricane Florence's landfall, the U.S. Department of Housing and Urban Development's (HUD) Community Development Block Grant (CDBG)<sup>13</sup> disaster recovery funding did not become available for application until June of 2020. The agency charged with overseeing and determining how to spend this CDBG-DR funding, the North Carolina Office of Recovery and Resiliency (NCORR), works with the NC Housing Coalition and members of the Housing Recovery Support Function to make policy, and institutional recommendations facilitate future recovery efforts and stewardship of this funding. Though HUD allocated \$542,644,000 in CDBG-Disaster Recovery funding, advocates for survivors fear that the more than half-billion dollars will not be enough to fully repair all the devastation.

Additionally, NCORR oversees the \$168,067,000 CDBG-Mitigation (CDBG-MIT) funds that HUD allocated to North Carolina in 2019.<sup>14</sup> After a 30-day public comment period, NCORR decided to allocate CDBG-MIT to strategic buyout, acquisition, and resilient affordable housing programs. These strategies were determined to be the best ways to serve the people of North Carolina.<sup>15</sup>

But the process for application and distribution of the funding is slow. The state must provide meaningful and effective outreach and application assistance to reach and maintain contact with the low- and moderate-income populations that CDBG-DR funds are intended to benefit.

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<sup>12</sup> As of September 2020; North Carolina does not have an approved budget.

See: <https://www.usnews.com/news/best-states/north-carolina/articles/2020-01-14/nc-legislature-back-with-possible-budget-veto-override-vote>; See <https://www.ncleg.gov/>

<sup>13</sup> This is a program that has requirements beyond the control of NC. It is also meant to be a program that steps in to assist when all other federal programs have been exhausted.

<sup>14</sup> CDBG-MIT is a new funding approach from HUD intended to relieve the repetitive cycle of disaster relief allocations to often impacted areas of the country. The Federal Register Notice, 84 FR 45838 (the Notice) outlines the requirements and expectations that HUD places on its grantees specific to CDBG-MIT funds.

<sup>15</sup> See CDBG-MIT Action Plan(Draft):

[https://files.nc.gov/rebuildnc/documents/Florence/NCORR\\_CDBG\\_DR\\_Florence\\_AP\\_Final\\_508.pdf](https://files.nc.gov/rebuildnc/documents/Florence/NCORR_CDBG_DR_Florence_AP_Final_508.pdf).

Effective outreach must include not only publicity, but also communication, and accessibility accommodations for those with disabilities and language barriers, and assistance with documentation of eligibility. As of September 18, 2020, many Hurricane Matthew survivors have applications that have been pending for months, especially if they were dual impacted by Hurricane Florence. NCORR has recently been approved by HUD to take a more flexible approach to those who were dual impacted in terms of satisfying the federal Duplication of Benefits requirements attached to these funds. NCORR is reevaluating each Hurricane Matthew applicant to apply the more flexible policies to each of these files. Advocates are requesting that NCORR streamline the process, subject to HUD requirements, and make urgent decisions on the many individuals and families whose applications are pending so they can begin their recovery.

Although by law, 70 percent of the HUD funds must be used to benefit low-to-moderate income persons and promise hope for many communities, the coalitions and survivors are actively engaged in this process to ensure that the money flows into these intended communities. In order to ensure equitable outcomes, a systematic approach designed to include affected communities is needed, including people with disabilities, as partners in the development of disaster recovery and resiliency plans. NCORR is planning a series of digital roundtable discussions to include stakeholder representatives in affected communities for the purpose of gathering input and recommendations on optimizing the investment of CDBG-MIT and CDBG-DR funding in affordable housing. Advocates are encouraging NCORR to ensure representation from among those with disabilities at these roundtables so their needs can be heard.

### Housing Summary

The severe shortage of affordable homes for low-income renters and homeowners is systemic and remains the biggest barrier to recovery for many survivors including those with functional and access needs.

Access to permanent, safe, affordable housing is a fundamental element of the recovery process. For individuals with disabilities and their families, affordable, accessible housing located in proximity to the networks, systems, goods, and services they need is vital to community participation, inclusion, and independence. The goal of disaster recovery and resiliency is to reestablish and support the full functioning of every community impacted by disasters and prevent future loss of property and life.

North Carolina requires substantial investments to prevent people with disabilities from experiencing housing instability. This includes reducing homelessness and rates of institutionalization and addressing the state's longstanding failure to invest in affordable, accessible housing. This necessary investment must include strengthening and expanding affordable, accessible housing for all.

People with disabilities must continue to be included in disaster recovery and mitigation programming and not relegated to a "Plan B."

Disabled people must be able to participate on an equal basis and not subjected to discriminatory rules and policies such as: architectural, communication and transportation

barriers; (2) intentional exclusion; (3) qualification standards; (4) relegation to lesser services and opportunities; and (5) lack of reasonable modifications or accommodations. As North Carolina implements the CDBG-MIT and CDBG-DR action plans, it is imperative to move forward with clear, inclusive policies that advance the rights of people with disabilities. This must be evident throughout North Carolina's disaster recovery strategies.

## FEMA Response

FEMA deploys teams of Disability Integration Advisors (DIAs) to aid those with disabilities during federally declared natural disasters, such as hurricanes, wildfires, and floods. In the past, this included providing disability training to FEMA employees, as well as assessing what technical assistance people needed, like hearing amplifiers or sign-language interpreters. The roles of DIAs continued after the disaster, helping people find appropriate housing and avoid having to go to nursing homes.

But back in May 2018, FEMA announce it was reducing the number of DIAs deployed per disaster from 60 to five. For major storms in the past, such as the 2016 flooding in Louisiana, FEMA deployed between 60 and 65 DIAs. During Hurricane Florence, FEMA sent five advisors to North Carolina and two to South Carolina.<sup>16</sup>

One issue noted was the insufficient FEMA support to State and Local Agencies. Historically, FEMA deployed teams of DIAs in the field, who aided people with disabilities during federally declared natural disasters, such as Hurricane Florence. DIAs are a valuable resource to a state and local disaster response. The experience of DIAs help inform local responders to the potential needs of survivors with disabilities including: (1) quickly assessing what assistive technology frequently needed such as hearing amplifiers or sign-language interpreters; (2) durable medical devices; (3) accessible transportation, (4) the physical configurations of shelters, and (5) any information survivors would need to begin the application process for FEMA services. In prior disasters, the role of DIAs continued throughout disaster response and recovery, helping evacuees find appropriate housing and supports which avoided unnecessary institutionalization. Their presence in shelters and follow-up support was invaluable with Hurricane Matthew recovery. However, during FEMA's Florence Response, with over 41 of 100 North Carolina counties eligible for FEMA assistance, only five FEMA DIAs were deployed. It is our understanding that FEMA policy now limits the ability of DIAs to maintain an active presence in the shelters. The lack of presence of FEMA DIAs in shelters negatively impacted the ability of FEMA DIAs to provide critical information and support to shelters housing survivors with disabilities, such as information on FEMA Services and Support Enrollment Procedures. ADANC believes this impacted FEMA's response both in its effectiveness in the immediate response as well as long-term.<sup>17</sup>

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<sup>16</sup> See: *PBS Newshour*, Oct. 12, 2108 <https://www.pbs.org/newshour/nation/as-disasters-strike-advocates-worry-fema-policy-changes-put-disability-community-at-risk>

<sup>17</sup> See: *Alliance of Disability Advocates After Action Report Hurricane Florence Response, October 2018*, <https://adanc.org/wp-content/uploads/2018/11/ADANC-After-Action-Report-Final-.pdf>

## Individual Preparedness

Individual and family preparedness is a critical first step to having a community that is prepared for a disaster. It is often more critical for individuals with access and functional needs, including those with disabilities, and their families to create an emergency plan and assemble needed supplies to prepare for an emergency. Yet, many individuals and families face barriers to preparedness which include limited financial resources to obtain needed supplies; inability to secure extra supplies, such as medication; and a lack of awareness of how to prepare.

Recommendations and information about the many items that should be collected to create emergency kits is plentiful, but often not followed. For many individuals and families in North Carolina, securing the recommended three- to seven-day supply of food and water, batteries, and extra supplies to shelter-in-place can cause significant financial hardship or be unattainable. Most preparedness guidance recommends individuals and families have an emergency kit to shelter in place and a separate emergency kit if they evacuate. The procurement of items required for two emergency kits may be very difficult for those with access and functional needs to afford on a fixed or limited income. In addition to cost, the burden of finding and storing necessary items may create additional barriers.

Necessary supplies for emergency kits may also be difficult or impossible to obtain because of medicine refill policies and limitations on medical supplies. Inability to get necessary medication is a significant fear for many families. Due to problems experienced during Hurricane Florence, a new state law allows pharmacists to refill a prescription during a natural disaster without a doctor's authorization. Even with this law, the problem of insurance coverage and the cost of extra medication remains a barrier for many with access and functional needs. For those trying to assemble emergency kits, keeping up with which extra medications are needed, changing medications or dosages, medication expiration dates, and medications that require refrigeration all present additional challenges that must be considered.

It is important to focus on the low or no cost preparations in addition to the acquisition of costly supplies. Development of an emergency plan is especially critical for individuals with access and functional needs, including those with disabilities and families of children and youth with special health care needs. Many still do not have an emergency plan or consider their risk minimal. Plan development costs nothing, but often does not get the focus it needs. It is important for individuals with access and functional needs to get information about developing communication plans, identifying people to provide support, collecting health information, assembling important documents, determining evacuation plans, and identifying sheltering needs which are all important elements of individual preparedness. Much of this information is provided on websites, but for those with limited technology access, language barriers, or disabilities that affect communication, web-based information creates a barrier.

In addition, it is important to look beyond the traditional communication methods to consider how those individuals with access and functional needs who are also part of historically marginalized populations (such as communities of color and the Latinx community) send and receive information. Individual preparedness information needs to be available in a language, format, and platform that is accessible and culturally relevant.

## Transportation

In most of the rural areas in North Carolina, transportation is an issue. Public transportation is either limited or not available. Many families may not be able to afford a car and even if they have a vehicle, they may not have funds available for needed maintenance.

People then become reliant on other family or friends to help them run errands, go to medical appointments, or evacuate during an emergency. A person with access and functional needs or other disabilities and their family may face additional challenges regarding the need for accessible transportation.

The importance of transportation tends to be overlooked when reviewing a person's critical needs. Not having a vehicle affects potential earning capability, food security, and physical and mental health.

According to 2016 data from the North Carolina Department of Health and Human Services, rural areas of the state tend to have a higher percentage of households with no access to a vehicle. For example, counties in the northeastern area of North Carolina reported 7,958 occupied households (7.8%) did not have a vehicle available.<sup>18</sup> Counties in the northcentral area of North Carolina reported 23,345 occupied households (6.6%) did not have a vehicle available.<sup>19</sup>

When a hurricane is predicted to make landfall, reliable transportation that can be quickly accessed is essential. If an evacuation order is given, people with access and functional needs and people with disabilities who do not have access to a vehicle will need a solution involving some type of public transportation to a local shelter, or if necessary a non-local shelter. Most areas affected by Hurricanes Matthew, Florence, and Dorian did not have this service available.

Local agencies and governments need to ensure that there is accessible, reliable transportation available for individuals and families that need to evacuate before or during a hurricane.

Suggestions include mobilizing available buses or large passenger vehicles that could transport people to a designated location.

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<sup>18</sup> See: <https://nc.maps.arcgis.com/apps/MapSeries/index.html?appid=def612b7025b44eaa1e0d7af43f4702b>

<sup>19</sup> See: <https://nc.maps.arcgis.com/apps/MapSeries/index.html?appid=def612b7025b44eaa1e0d7af43f4702b>

## Social Determinants of Health

Key factors are critical to a person's well-being and can determine how successful they will be in their life.

Some of these factors include social determinants of health, which are conditions of a person's life that shape their health. Education, housing, access to health care, food security, and neighborhood environment are defined as social determinants of health.

Many people with access and functional needs and people with disabilities living in North Carolina were already struggling with poor social determinants of health before Hurricanes Matthew, Florence, and Dorian hit our state. According to the North Carolina State Center for Health Statistics, counties in the eastern area of the state have concentrated areas of poverty with over one third of the residents living below the poverty line.<sup>20</sup>

The same counties have areas with low access to food, transportation, and employment opportunities.

These storms hit eastern North Carolina with relentless rain, causing multiple flooding events in the same flood-prone neighborhoods. During Hurricane Florence, areas in southeastern North Carolina received over 20 inches of rain. Families had no time to recover from one storm to the next.

Local solutions, such as food banks, were established in churches and community centers to help those affected by the storms. But resources were strained due the length of time that food banks needed to remain open.

State agencies responded to the crisis by speeding up the process to deliver benefits from the Disaster Supplemental Nutrition Assistance Program (D-SNAP), and Governor Roy Cooper established the *Back@Home* program to help get people affected by the storms re-housed. Despite the initiatives, there are issues with people who are not receiving assistance from federal agencies; for example, FEMA requires families to file multiple claims for one property.

The North Carolina Department of Health and Human Services (NC DHHS) established a public-private partnership with the Foundation for Health Leadership and Innovation, and in January 2019, began to implement a new tool called *NCCARE360*. This is the first statewide electronic coordinated care network. Leadership at NC DHHS wanted to ensure that people were being given "whole-person" care. For example, if a person is in a physician's office for treatment of a health condition, they may not be questioned about food insecurity, housing stability, or

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<sup>20</sup> See: <http://nc.maps.arcgis.com/apps/MapSeries/index.html?appid=def612b7025b44eaa1e0d7af43f4702b>

employment. If that person is not getting enough to eat or does not have adequate housing, this can affect their health outcomes.

By utilizing *NCCARE360*, doctors and staff in a healthcare office or community organization can ask a person a series of questions about their living conditions to determine if they need help. That person can receive referrals to other medical providers, food pantries, employment offices, housing programs, and other community organizations providing substance abuse and/or mental health counseling. This is a critical tool that can help connect people affected by hurricanes to needed community services.

## CONCLUSION

We want to acknowledge the work that has been done and the programs put in place to help people with access and functional needs and people with disabilities prepare for and recover from hurricanes. Leadership from North Carolina state government took the time to listen to disability stakeholders to make needed changes. While progress has been made, we need to continue working together.

North Carolina has experienced significant damage due to hurricanes that have hit the state in recent years. Future hurricanes are likely to have similar or worse intensity and frequency, so it is important that we prepare now so that we can best serve people with access and functional needs and people with disabilities. Hurricanes Matthew, Florence, and Dorian caused billions of dollars in damage and left many people without homes and/or jobs.

People with access and functional needs, and people with disabilities require assistance to ensure that they plan for a hurricane, and there are accessible shelters, and community services to help them recover once the storm passes. There are several solutions to be considered:

- Ensure that shelters are accessible and safe and can acquire resources and/or services to support people with access and functional needs.
- Assure access to permanent, safe, affordable, and if needed, accessible housing.
- Streamline processes, develop clear, inclusive policies that advance the rights of people with disabilities so that households can access needed resources to recover effectively and quickly and remain stable.
- Focus on no- or low-cost preparation for hurricanes, e.g., creating an emergency plan.
- Have costly supplies or “go-kits” made available.
- Make accessible transportation options available for evacuation, e.g., public buses or community vans.
- Utilize existing programs such as *NCCARE360* and *Back@Home* to connect people with access and functional needs and people with disabilities to community services such as mental health counseling, housing, employment, and food.

These times are challenging, but we can work together to help people with access and functional needs and people with disabilities recover from previous storms and prepare for the future.

*The views expressed in this white paper are not the official opinion of the North Carolina Department of Health and Human Services, North Carolina Department of Public Safety, or Division of Emergency Management, and represents the personal opinions of the authors.*