



ISSUE BRIEF

# Shelter from the Storm: Addressing the Dual Crisis of Extreme Weather and Homelessness

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# 1. Introduction

The homelessness crisis is growing in the United States, and extreme weather is amplifying drivers of homelessness, pushing more people into housing and economic insecurity. In recent years, extreme weather and climate-related disasters have increased in their severity, scale, and frequency. From debilitating heat waves to devastating hurricanes and flooding to wildfires and unbearable cold, extreme weather events are reaching every corner of the country.

In the United States, homeless service systems are designed to help people in crisis and are often forced to respond to social safety net failures that lead to housing instability and homelessness. On balance, the systems are underfunded and understaffed, lacking the resources to serve all people experiencing homelessness. Extreme weather and climate-related events place additional stress on shelters and their staff who are already operating well beyond capacity. Policy decisions such as *Grants Pass v. Johnson*<sup>1</sup> could further complicate homeless response systems as cities are emboldened to take more aggressive measures to remove people living on the street. Aggressive responses to encampments can push people experiencing unsheltered homelessness to seek out refuge in more remote and unsafe locations, outside of a service provider's reach. Camping bans can also add further complexity after extreme weather events as people who have lost their homes may have no choice but to stay in unsheltered locations. While in some cases bans can be temporarily lifted after a state of emergency is declared by a state governor, these protections end once the order expires, rendering people vulnerable again.<sup>2</sup>

Overall, extreme weather events amplify existing societal vulnerabilities, endangering communities, causing economic and infrastructure damage, and stressing emergency response systems. People experiencing homelessness and particularly unsheltered homelessness, are disproportionately exposed to extreme weather and are among the most vulnerable to its detrimental effects.

Extreme weather and homelessness are each widely acknowledged in social policy and human rights discourse, but the compounding impacts of the changing climate on people experiencing homelessness remain understudied and minimally addressed in both homeless response practice and climate adaptation practice. Addressing this gap and surging targeted, effective resources necessitates a cross-sectoral and multidisciplinary approach that bridges climate adaptation practice, homeless services and planning, and public health, towards a climate-resilient homeless response system.

The number of individuals experiencing sheltered and unsheltered homelessness is the highest it has ever been since AHAR reporting began in 2007, and 2023 was North America's hottest year on record.<sup>3,4</sup> The total number of people experiencing homelessness in the United States increased by 12% in 2023, or by roughly 70,650 people. That total does not include individuals and families who are living in the residence of family or friends (doubled-up or couch surfing) as they do not meet the U.S. Department of Housing and Urban Development's (HUD) definition of literal homelessness (i.e., an individual or family who lacks a fixed, regular, and adequate nighttime residence).

Though the impacts of extreme weather and homelessness are being experienced across the country, populations in some states and localities are suffering more acutely from the compounding vulnerabilities of increased homelessness and increased extreme weather. To best serve populations experiencing homelessness and housing instability, practitioners and researchers must understand the extent to which increasingly extreme weather multiplies the severity of the challenges they face.



## Homelessness and Extreme Weather Across the Country



### Arizona

**Homelessness:** Arizona reported one of the highest recorded percentages of unsheltered homelessness in the country in 2023 at 53.5% of those experiencing homelessness.

**Extreme Weather:** Phoenix reached a record-setting 110°F on 54 days in 2023.<sup>5</sup>



### California

**Homelessness:** California has the largest concentration of people experiencing homelessness, 68% of whom are unsheltered.

**Extreme Weather:** California experienced its driest period ever from 2019 to 2022, followed by unprecedented rainfall and flooding in 2023.<sup>6</sup>



### Nevada

**Homelessness:** Nevada reported one of the highest recorded percentages of unsheltered homelessness in the country in 2023 at 52.6%.

**Extreme Weather:** In 2023, the Las Vegas metro area saw its hottest July in history, including a two-week run with an average high of 112°F degrees. Emergency department visits related to heat across the state were double in July 2023 compared to July 2022.<sup>7</sup>



### Oregon

**Homelessness:** Oregon reported one of the highest recorded percentages of unsheltered homelessness in the country in 2023 at 64.6%.

**Extreme Weather:** In 2023, atmospheric rivers brought extreme flooding and an increased risk of landslides to the Pacific Northwest, destroying homes and communities.<sup>8</sup> Additionally, Oregon's 2020 wildfire season saw 4,000+ homes destroyed and some 40,000 people displaced.<sup>9</sup>



### Hawaii

**Homelessness:** In 2023, 62.8% of all people experiencing homelessness in Hawaii were unsheltered.

**Extreme Weather:** Maui's housing market crisis – characterized by high interest rates, soaring housing prices, and limited housing supply – worsened after a devastating wildfire in 2023 left more than 6,000 people homeless and destroyed an estimated 3,000 homes.<sup>10,11</sup> The wildfire only increased demand for housing, outpacing the already constrained supply.<sup>12,13</sup>

Data on homelessness in each state is from the 2023 Annual Homeless Assessment Report to Congress.



## 2. Extreme Weather as a Driver Exacerbating Homelessness

The causes of homelessness are complex and vary by person, but researchers and homeless service providers largely point to a common set of factors. Among these are a nationwide lack of affordable housing, economic insecurity, domestic violence, and inadequate treatment for mental illness and substance use disorder – and extreme weather is exacerbating each of these.<sup>14</sup>

Underscoring these factors is the long-term and varied impact of structural racism on historically marginalized communities as well as systemic discrimination against other vulnerable populations, which have experienced disproportionate exposure to environmental hazards, poor quality housing, and insufficient health care. The 2023 Annual Homeless Assessment Report to Congress (AHAR) reports that of all people experiencing homelessness, about 38% were Black or African American and about 28% were Hispanic or Latino,<sup>15</sup> despite representing only 14% and 20%, respectively,<sup>16</sup> of the U.S. population. These data demonstrate that both groups continue to be overrepresented within homelessness, largely a result of structural racism and systemic barriers such as stagnation in wage growth, and affordable housing.<sup>17</sup>

### 2.1 Worsening of Housing Instability

Out of all weather-related hazards exacerbated by extreme weather such as tornadoes, mudslides, and wildfires, flooding is the costliest in terms of infrastructure damage and most widely experienced in the United States.<sup>19</sup> Heavy rainfall and flooding can cause severe damage to housing infrastructure, including foundations, walls, and electrical systems, which can lead to displacement of residents and, ultimately, to homelessness. Data from the U.S. Census Bureau shows that nearly 2.5 million people were forced from their homes due to weather-related disasters in 2023.<sup>20</sup> For many, long periods of housing instability and even homelessness can ensue. For example, directly after Hurricane Harvey in 2017, homelessness increased 15% in Houston (TX) after years of steady decline.<sup>21</sup> In 2022, one out of seven Houstonians experiencing unsheltered homelessness attributed natural disasters, most commonly Hurricane Harvey, as the cause.<sup>22</sup> Lower-income communities and historically marginalized communities often occupy flood-prone areas due to a long history of systemic and structural racism.<sup>23</sup> Research on Hurricane Harvey underscores this disparity, revealing that flooding disproportionately affected poor neighborhoods with higher percentages of non-Hispanic Black residents and those with disabilities.<sup>24,25</sup>

Low-income populations, who are already vulnerable to housing instability, face even greater challenges in finding affordable housing after natural disasters, further increasing their risk of homelessness. In disaster-affected areas the combination of widespread property damage,<sup>26</sup> limited availability of rental units, and the pre-existing housing crisis amplifies the housing insecurity faced by marginalized communities, exacerbating the cycle of evictions and homelessness. One study found that about one-third of people whose home was damaged by extreme weather reported being displaced for more than one month.<sup>27</sup> Another study found that following natural disasters, rental prices initially rise by 4% to 6%, then continue to climb for three years before plateauing; however, they remain elevated compared to pre-disaster rates for at least five years.<sup>28</sup> The U.S. Government Accountability Office found that a median rent increase of \$100 a month is associated with a 9% increase in homelessness.<sup>29</sup> Thus, after natural disasters, communities often see an uptick in people experiencing homelessness not only from damage to their homes but because they cannot afford rising rents.



## 2.2 Income Loss and Economic Impact

Extreme weather events can have effects far beyond physical damage to housing and infrastructure. Such events can disrupt entire communities, affecting local economies and social networks. Studies found that following devastating hurricanes, hourly employees experienced lost income due to business closures, damaged workplaces, and disrupted transportation systems.<sup>30,31</sup> Following the 2017 North Bay, California wildfires, unemployment claims in Napa and Sonoma counties rose and by 2021 retail employment in those counties had not returned to pre-fire levels.<sup>32</sup>

## 2.3 Domestic Violence

A growing body of evidence points to an increase in gender-based violence following climate-related disasters and displacement.<sup>33</sup> Extreme weather exacerbates violence against women and girls when resources such as food and income become scarce and when households are displaced from their homes and must stay in temporary shelters that can be crowded and lack privacy.<sup>34</sup> UN (United Nations) Women reports that in 2017, requests for services related to domestic violence survivors increased 62% in Puerto Rico following Hurricane Maria.<sup>35</sup> Extreme weather conditions caused by extreme weather not only worsen existing vulnerabilities but create new ones, such as isolating victims of domestic and gender-based violence from emergency resources when power lines are down.<sup>36</sup> In Texas, following Winter Storm Uri in 2021, domestic violence hotlines saw a drop in calls because of power outages, but then saw a spike following the storm.<sup>37</sup>

## 2.4 Chronic or Acute Medical Conditions, Mental Illness and Substance Use Disorder

A growing body of research is showing that extreme weather is negatively affecting mental health, leading to increased levels of anxiety and depression.<sup>38</sup> Loss of employment, disruption in employment, or the inability to access healthcare due to extreme weather events and natural disasters may also contribute to a deterioration of mental health. This can result in more people using psychiatric medications or developing a substance use disorder to cope, potentially contributing to their economic insecurity and eventual loss of stable housing.<sup>39</sup>

# 3 Extreme Weather as a Vulnerability Multiplier for People Experiencing Homelessness

People experiencing unsheltered homelessness confront relentless challenges to their safety and health – challenges that are, and will continue to be, worsened by the impacts of climate change. Additionally, people experiencing homelessness already have higher rates of existing medical conditions,<sup>40</sup> and extreme weather exacerbates complications due to increased rates of heat stress, infection, cardiac stress, physical injury, and water- and air-borne illnesses.

These impacts of extreme weather on physical and mental health can also stress the capacity of health care systems and emergency response systems, rendering delivery of care insufficient, and at times too late.

## 3.1 Extreme Heat and Cold

Extreme heat causes the greatest mortality of all extreme weather, which is particularly true for people experiencing homelessness.<sup>41</sup> In summer of 2023, about one-third of the U.S. population was put under heat advisories.<sup>42</sup> That summer, Arizona's Maricopa County experienced record prolonged heat, setting a new top-five record-breaking temperature of 119°F in July. The Maricopa Department of Public Health reported that of the 645



heat-related deaths that occurred in the County that year, 45% were among people experiencing homelessness.<sup>43</sup> In California, people experiencing homelessness made up 13% of heat-related hospitalizations though representing less than 1% of the population (between 2017 and 2021).<sup>44</sup>

According to a report by the U.S. Office of Climate Change and Health Equity, extreme heat increases risk of hospitalization for heart disease, heat stroke, and worsening asthma. Additionally, because of climate change, night-time temperatures are warming more and faster than day temperatures,<sup>45</sup> making it more difficult for people to recover from hotter daytime temperatures, especially in urban environments, which can be anywhere from 5 to 10 degrees hotter than rural environments due to the urban heat island effect.<sup>46</sup>

Without access to ways of cooling down and staying hydrated, people experiencing homelessness face an elevated risk of heat-related illnesses. The Texas Health Network reports that people experiencing unsheltered homelessness are about 200 times more likely to die from heat-related causes than are sheltered individuals.<sup>47</sup> In Southwestern states such as Arizona and Nevada that have historically experienced higher temperatures, multiple days or weeks of above-average temperatures might not initially alarm people experiencing homelessness and housed residents, contributing to heat garnering the nickname “quiet killer”.<sup>48</sup>

In addition to heat stress, heat also exacerbates particulate air pollution, including ozone, which people experiencing unsheltered homelessness are more exposed to and which ultimately worsens respiratory and cardiac conditions.<sup>49</sup> For people experiencing homelessness with substance use disorder or those taking psychotropic medications for mental illness, heat can increase risk of death through a lessened ability to regulate body temperature. Finally, people experiencing homelessness already experience disproportionate rates of violence, crime, and suicide compared to housed individuals, and instances of these adverse events can become more frequent with increases in temperature.<sup>50</sup>

Climate change has also resulted in increasing polar vortex disruptions, causing more frequent and extreme cold weather.<sup>51</sup> People experiencing homelessness are at an increased risk of developing hypothermia and frostbite compared to the general population.<sup>52</sup> Staying warm in the winter poses additional challenges and safety concerns, as people might resort to unsafe methods of warming such as lighting small fires or burning plastic, or using alcohol and other numbing substances.<sup>53</sup> The Denver Health Hospital reported seeing an uptick of frostbite-related visits in 2023, treating 164 such patients, of whom 115 were unhoused.<sup>54</sup>

### **3.2 Extreme Rainfall and Flooding**

Rain and flooding can cause people experiencing homelessness to lose their belongings due to damage or displacement, thus exacerbating the daily traumas of unsheltered homelessness. Emergency shelters and interim and affordable housing<sup>55</sup> are often built in areas of cities that are prone to flooding and under resourced. Additionally, people experiencing homelessness who stay in unsheltered locations such as riverbeds and tunnels are particularly at risk of the dangers posed by extreme rainfall, flooding, and mudslides. The *Grants Pass vs. Johnson* decision could further exacerbate this issue by forcing people to seek out alternative spaces that might be more vulnerable to extreme weather to escape police sweeps.<sup>56</sup>

Service providers operate in increasingly perilous environments as they look to warn or help individuals. In Los Angeles, service providers conducting outreach in encampments along the Los Angeles River Basin ramp up outreach ahead of annual flooding to warn people of the dangers of floodwaters and debris (Figure 1). Encampments along the Los Angeles River Basin are among the most difficult to serve due to steep concrete slopes, varying water levels, and hazardous debris.



Similarly, around 2,000 people experiencing homelessness in tunnels beneath the city of Las Vegas (NV) are at particular risk of the health and safety impacts that heavy rainfall brings to the tunnels.<sup>57</sup> Health impacts of extreme precipitation are also significant. Floodwaters carrying debris can cause injuries, and exposure to floodwater contaminated with pollutants or toxic chemicals and sewage can cause gastrointestinal and respiratory illnesses.<sup>58</sup> Extreme precipitation and flooding are particularly dangerous for people with diabetes, as persistently wet footwear and socks can lead to infection and even gangrene. Flooding has also been associated with increased levels of anxiety and post-traumatic stress disorders, which people experiencing homelessness suffer at disproportionate rates.<sup>59,60</sup>



Figure 1: A former encampment site along the Los Angeles River bed (Photo: Abt Global)

### 3.3 Wildfires, Airborne Pathogens, and Pollution

Wildfires can inflict severe damage on communities, causing displacement and worsening housing instability. The increase in scale and severity of wildfires across the Western states not only contributes to disaster-related homelessness but also displaces those already experiencing homelessness to farther remote locations.<sup>61</sup> The increase in ground-level ozone and particulates from the wildfires results in additional harm and adverse cumulative impacts for populations already sleeping near roads or residing in temporary shelters in areas with existing high levels of air pollution (Figure 2).<sup>62</sup> A report published by the U.S. Office of the Assistant Secretary for Planning and Evaluation states that “people with a history of homelessness are much more likely to have chronic respiratory conditions such as chronic obstructive lung disease (23%) or asthma (24%).”<sup>63</sup> Additionally, research has linked short-term exposure to peaks in air pollution with an increased risk of death among people with serious mental illness, and air pollution is associated with a risk of various psychiatric disorders.<sup>64</sup>

Drought also aggravates asthma and other respiratory conditions. Droughts reduce surface water levels, leading to more particulate matter being picked up from sediment and soil by wind. This increased particulate matter in the air can lead to respiratory irritation.<sup>65</sup>



## 4. Current Extreme Weather Response Strategies

The increased severity, frequency, and duration of extreme weather is making preventative strategies that homeless service providers have always innovated and stretched limited resources to make available more difficult to implement, less effective, and simply insufficient. Though federal, state, and municipal climate action is on the rise, people experiencing homelessness – and the homeless response system – are often left out of climate resilience and adaptation planning and resourcing.

### 4.1 Local Service Provider Response

Many service providers in communities across the country have established processes to notify and prepare people experiencing homelessness of inclement weather events. Following such events, service providers conduct street outreach to check on people experiencing unsheltered homelessness and help repair damage to tents, makeshift dwellings, vehicles, and RVs. The magnitude and frequency of outreach needed to alert and protect these populations are growing, and the extreme and rapid changes in weather make it not always possible to reach every person in a timely manner.

Rural communities – depending on their size – might have a few service providers offering hot meals or a day shelter, but they often lack physical and mental health care services, housing options, and employment opportunities to connect to people experiencing homelessness. Rural communities are also much less likely to have established robust extreme weather responses due to a lack of funding. People experiencing homelessness in rural areas might lack transportation to inclement weather shelters, as services might be located farther away. The Association of American Medical Colleges notes that “While more severe heat, storms, floods, and wildfires are affecting people just about everywhere, aspects of rural geography, economics, and lifestyle make its residents susceptible to those changes in particular ways.”<sup>66</sup> And though people experiencing homelessness might have personal cell phones and other devices that could receive emergency warnings about extreme weather, they often lack access to reliable charging stations or Wi-Fi services, leaving them unable to receive emergency warnings and other safety alerts. The 2023 AHAR found that largely rural Continuums of Care (CoCs) had the highest percentage of people experiencing homelessness in unsheltered locations (43%), highlighting the growing need for robust extreme weather responses in rural areas.<sup>67</sup>

Additionally, the growing need for enhanced extreme weather responses often disrupts critical daily case management activities. For people experiencing homelessness, extreme weather can derail a housing plan or progress they have made to move inside.



Figure 2: Los Angeles, USA. 18th Mar, 2021. Tiny Home Villages in Los Angeles are bridge housing units designed to help people experiencing homelessness. 4/15/2021 Los Angeles, CA USA (Photo by Ted Soqui/SIPA USA) Credit: Sipa USA/Alamy Live News

## 4.2 Federal Disaster Response

The Federal Emergency Management Agency (FEMA) plays a critical role in providing immediate assistance in a disaster, such as temporary housing, financial aid, and infrastructure support to affected communities. Though FEMA's involvement is crucial in mitigating homelessness after a natural disaster, implementation challenges have surfaced. Disparities were evident in a comparison between FEMA's response to Hurricane Maria in Puerto Rico and Hurricanes Harvey and Irma in Texas and Florida.<sup>68</sup> Following Hurricane Maria, FEMA faced criticism for delays in providing temporary housing and financial assistance for rebuilding, which prolonged housing insecurity and the homelessness crisis in the region.<sup>69</sup> In contrast, FEMA's response to Hurricanes Harvey and Irma was more robust, demonstrating quicker resource deployment and greater availability of temporary housing options despite bureaucratic complexities.<sup>70</sup> Despite FEMA's dedicated efforts in providing immediate relief, its emergency response focus can overlook underlying structural issues in a community, such as affordable housing shortages and socioeconomic disparities. However, FEMA is increasingly prioritizing disaster preparedness to work with communities and HUD to proactively develop sustainable housing solutions before a disaster occurs.<sup>71</sup>

It is notable that extreme heat events are not federally recognized as natural disasters under the Stafford Act, and thus FEMA has not historically responded to community needs specific to extreme heat.<sup>72</sup> This lack of response is due partially to insufficient data demonstrating that resources are burdened enough to warrant requests for extreme heat aid. The Centers for Disease Control and Prevention's (CDC) Heat and Health Tracker includes a 'Health Burden' section which provides crucial data on heat related emergency room visits and worker illnesses.<sup>73</sup> Still, there are data gaps that hinder adequate response to extreme heat events. For FEMA to provide assistance, requests for aid must be supported by data that demonstrates that losses incurred by an extreme weather event surpass the state's capacity to address them, such as infrastructure damage and costs to health facilities. These impacts can be more challenging to quantify for extreme heat compared to other extreme weather events.<sup>74</sup>

Measuring and addressing loss of life from extreme heat is more challenging and often receives less focus than fatalities from events such as tornadoes, as the populations who are affected most by extreme heat are often disproportionately made up of historically marginalized people. Additionally, deaths related to heat are often misidentified on death certificates due to inconsistencies in classification, reporting practices, and difficulties in isolating heat as the primary cause of death rather than a contributing factor to existing health conditions. Data on communities most affected by extreme heat, such as people experiencing homelessness and people of color, has historically been under collected.<sup>75</sup> Collecting these data may impose a significant burden on homeless systems and, as funding is not guaranteed, renders the cost-benefit of this data collection in a constrained resources environment dubious. To supplement funding, communities are surging temporary resources from non-permanent federal sources such as American Rescue Plan Act funding, which is part of pandemic relief aid and has been used to fund resources such as cooling centers that remain open when high temperatures persist overnight.<sup>76</sup> The Attorney General of Arizona, where temperatures have exceeded 100°F for more than 100 days straight in 2024, is leading a coalition of 14 other attorneys general in petitioning FEMA to initiate a rulemaking that would enable the agency to recognize extreme heat and wildfire smoke as events eligible for major disaster declarations under the Stafford Act.<sup>77</sup>

The U.S. Department of Veterans Affairs (VA), the U.S. Department of Health and Human Services (HHS), and the U.S. Department of Housing and Urban Development (HUD) developed a toolkit to address extreme weather preparedness needs of people experiencing homelessness.<sup>80</sup> The toolkit serves as a guide for homeless service providers and government agencies to provide services that address disaster needs, for nonprofit homeless service



providers to create disaster response plans, and for public health officials and health care systems to build capacity to offer health care to people experiencing homelessness when disasters occur. The VA also conducted a study based on interviews with six homeless service providers in Los Angeles to evaluate disaster preparedness maturity. It found that though respondents reported being very prepared to carry out life safety measures (emergency evacuation, providing survival supplies), long-term “continuity of operations tended to be limited.”<sup>81</sup> Missing from these resources is the call for targeted funding to support implementation as well as recognizing the role of climate change in exacerbating extreme weather/disaster events.

In addition to single-agency initiatives, the *All In: The Federal Strategic Plan to Prevent and End Homelessness* is an interagency roadmap to address homelessness led by the United States Interagency Council on Homelessness (USICH).<sup>78</sup> The plan highlights the need for collaboration across federal agencies such as FEMA and the Environmental Protection Agency (EPA), state and local governments, and CoCs to establish procedures for coordination and preparedness related to extreme weather. The USICH notes that without proper preparedness and coordination, people experiencing homelessness might not receive extreme weather alerts and might not be welcomed or receive adequate care in disaster shelters.<sup>79</sup> This plan is critical, and communities and local service providers need direct and targeted support to put the *All In* strategic plan into action in communities across the country.

## 5. Solutions to Address the Impact of Extreme Weather on Homeless Response Systems

As the hazards of extreme weather exacerbate existing vulnerabilities of the more than 655,000 people across the United States experiencing homelessness – a number rising every year – **the homeless response system itself must be bolstered with common sense climate adaptation and resilience measures.** This critical nexus must be made a top priority for federal, state, and local policymakers and funders, homeless system operators, and non-profit organizations.

Coordinated immediate action and data-driven long-term strategies are urgently needed to strengthen climate resilience of the homeless response system and those it serves. Many entities charged with addressing the homelessness crisis are already operating at or beyond capacity, making it virtually impossible to allocate additional resources to dull the impact of rising climate hazards. Political engagement can be crucial for coordinating the necessary resources to ensure buy-in from key partners and secure funding and infrastructure to provide effective and comprehensive support, as addressing these challenges of extreme weather adds another layer of complexity and burden to an already strained system.

To scale up response systems, communities and practitioners need funding and capacity support from federal and state governments to develop and implement effective solutions.

Solutions must be:

- Co-created with people with lived experience of homelessness, as they are most vulnerable to the compounding impacts of extreme weather and homelessness.
- Tailored to the unique challenges of each community. Due to the place-based nature of climate-related hazards and varied challenges that communities experience and resources they have access to, a solution that addresses one community's needs might not generate the same outcomes for another.
- Cognizant of the barriers for people experiencing homelessness to access common climate adaptation solutions (e.g., community cooling centers, temporary emergency disaster shelters, early warning notifications, etc.) and obstacles to staying in emergency shelters in general, such as owning pets, substance use, or previous trauma from a congregate situation.



Federal, state, and local agencies have an opportunity to fund and support a suite of common-sense, cost-effective solutions that will increase the resilience of homeless services providers already working beyond capacity to withstand the shocks of increasingly extreme weather and protect populations uniquely vulnerable to an evermore erratic climate.

## 5.1 Climate Resilient Infrastructure

The most effective way to address the dual crises of extreme weather and homelessness is to increase the stock of, and access to, housing that is climate resilient and energy efficient.

There is a shortage of 7.3 million affordable homes in the United States.<sup>82</sup> As communities consider investment in the expansion of affordable housing, it is critical to ensure that, unlike in the past, these structures are sited outside of flood plains to minimize future damage and that they are built with energy efficiency in mind to support affordability. Emergency shelters are essential to ensure safety for populations experiencing homelessness. Shelter facilities must be retrofitted and/or constructed to withstand extreme weather conditions.

Specific climate-resilient infrastructure recommendations include:

- **Build housing with climate resilience in mind.** “Passive House” structures take advantage of climate conditions to reduce energy use; multi-family Passive House structures use about 80% less energy than a standard building.<sup>89</sup> Modular buildings<sup>9</sup> also offer dual benefits of affordability and climate benefits as they can be built to exceptional energy efficiency standards (including Passive House) while keeping construction costs (and associated material waste and carbon emissions) low.<sup>83</sup>
- **Conduct climate vulnerability assessments for homes and shelter facilities.** Performing regular climate vulnerability assessments can help identify specific risks such as flooding or heat exposure, enabling the prioritization of renovations such as elevating foundations or improving ventilation.
- **Develop preparedness plans tailored to the needs of shelters.** Creating customized preparedness plans that address the unique circumstances of shelter infrastructure, such as evacuation routes and locations of emergency resources.
- **Increase access to grant application support.** Training sessions and one-on-one assistance for shelters navigating grant applications can aid their ability to secure funding for critical infrastructure improvements such as solar panels or structural reinforcements.

## 5.2 Inclusive Multi-Sectoral Collaboration

Engaging a diverse range of partners is crucial for enhancing resilience to extreme weather as it fosters shared resources, expertise, and coordinated strategies that address the complex and interrelated challenges faced by people experiencing homelessness.

Community-level response to the impacts of extreme weather should be bolstered by federal and state support to enhance the capacity of response systems. CoCs are uniquely familiar with the local homelessness context, which can further support the development of enhanced climate preparedness and response. To break down siloes and enhance localized responses, it is critical to convene and align agencies across state and local governments, CoCs, and non-profits to identify shared priorities and responsibilities for disaster response and preparedness. Further, cross-sectoral collaboration that engages partners such as health care providers, emergency responders, and climate-resilience partners is crucial for pooling localized resources. Local entities that already have relationships with several key parties to coordinate operation must be empowered, and coordination between neighboring CoCs must be enhanced to strengthen capacity and improve care for people who might move between local CoCs due to varying weather conditions by season.

<sup>9</sup> See, <https://www.modular.org/what-is-modular-construction/>



Some specific multi-sectoral collaboration recommendations include:

- **Integrate homeless service systems into emergency and disaster planning at the local level.** Facilitate familiarity with community disaster response plans and networks.
- **Create strong networked linkages ahead of a disaster with existing local partners.** Prioritize proactive relationship-building, including across climate resilience and adaptation teams, CoCs, and culturally specific community organizations.<sup>85</sup>
- **Elevate the importance of treating extreme heat as a disaster.** Extreme heat is considered a “slow disaster” yet one that causes more loss of life than any other weather-related disaster addressed in disaster management.
- **Explicitly incorporate the needs of people experiencing homelessness in state and local climate action plans.**<sup>86</sup>
- **Set expectations that policies, response plans, and funding across levels of government need to account for and engage populations experiencing inadequate housing and homelessness.**

### 5.3 Data Sharing, Collection, and Early Warning Systems

Comprehensive data and communication systems are essential for homeless shelters to proactively address extreme weather impacts and enable timely communication to safeguard the safety of people experiencing homelessness and care providers.

Integrating climate change, homelessness, and public health data systems can allow key partners and practitioners to identify and better respond to the compounding impacts of extreme weather on populations experiencing homelessness. The analysis of integrated and overlapping data can reveal correlations between extreme weather events and spikes in health crises, such as where deaths are taking place, where they are

likely to take place in the future, and which populations are most likely to be affected. Analysis of integrated data can help to refine the targeted deployment of resources such as mobile clinics, cooling/warming centers, and emergency shelters, reducing negative outcomes including hospital stays or death that could occur without these preparedness measures. The analysis of integrated data can also enable proactive planning to mitigate future risks, ensuring that interventions are efficient and effective in reducing harm. Additionally, insights gained from integrated data may attract non-traditional funding from sectors such as disaster preparedness, environmental justice, and health to address these interconnected challenges.

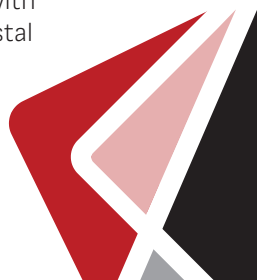
Some specific data sharing recommendations include:

- **Establish data-sharing frameworks.** Establish data-sharing memorandums of understanding among homeless response, emergency response, health, and meteorological data providers.
- **Pursue multi-sectoral data integration.** Integrate Homeless Management Information System data with Medicaid or local hospital data, underpinned with weather data on heat, precipitation, inland and coastal

#### Data Sharing: Michigan’s Department of Health and Human Services and Emergency Management Response

In response to the Canadian Wildfires in 2023, the state of Michigan’s Housing and Homeless Services Division within the Department of Health and Human Services wanted to understand the impact of the wildfire smoke on the people experiencing homelessness within the state. A team focusing on the intersection of climate and emergency preparedness worked with Housing and Homeless Services to develop outreach materials on the impact of wildfire smoke on people experiencing homelessness, distributing informational materials to service providers.

The team also matched Medicaid data to Homeless Management Information System data, finding the most common medical conditions among the homeless population are chronic obstructive pulmonary lung disease and asthma – making people experiencing homelessness uniquely vulnerable to wildfire smoke and other air pollution. The agency is working on developing proactive climate plans that incorporate the needs of people experiencing homelessness.



flooding, poor air quality, winter conditions, and drought. Integration can deepen understanding of impact, enable evaluation of current interventions, deliver real-time notifications, and enable predictive capabilities to better target and deploy scarce resources.

- **Build the body of research on the intersection of homelessness/housing insecurity and extreme weather:**
  - Collect data on the impacts of extreme weather on housing instability and homelessness.
  - Evaluate the impact of extreme weather on systems capacity, service delivery, and emergency response systems.
  - Identify gaps in federal, state, and local policy relating to extreme weather and the intersection of homelessness.
- **Establish inclusive cascading and complex risk modeling.** Ensure climate vulnerability and risk modeling includes homeless populations and impacts of extreme weather across social determinants of health and drivers of housing insecurity and homelessness.
- **Conduct hazard-specific outlooks and scenario assessments for hazards acutely affecting jurisdiction.**

## 5.4 Service Provider Preparedness for Climate Resilience and Emergency Response

Enabling staff to effectively support themselves and people experiencing homelessness during extreme weather events and in the face of the rapidly changing climate is essential for the long-term safety and resilience of communities.

Extreme weather events can quickly overwhelm homeless services, with shelters already operating over capacity, leaving people experiencing homelessness at heightened risk of harm. Proactively implementing climate resilience and emergency response plans and strategies among provider staff can help shelters offer critical resources during extreme weather events.

- **Conduct workforce training.** Improve awareness, understanding, and prevention of health impacts from extreme weather on people experiencing homelessness and staff who are providing care.
- **Disseminate user-friendly checklists and tools.** Develop and deploy community-specific checklists and decision-support tools for extreme weather preparedness and response that can be easily integrated into existing standard operating procedures.
- **Provide technical assistance to support providers.** Topics can include shelter facility climate vulnerability assessments, preparedness plans, and grant application support.
- **Advocate for and resource and implement climate-resilient homeless service solutions in the field:**
  - Day- and night-time dedicated warming and cooling centers and flood shelters with flexible access.
  - Shelter back-up generators.
  - Multi-lingual culturally appropriate education on weather-related dangers, warning signs, and steps to be taken for populations experiencing homelessness.
  - Distribution of drinking water with electrolytes.
  - Heat or frost advisories in print and visual form posted in public places.
  - Cooling vans deployed to offer temporary reprieve from the heat.
  - Readily available whole-body cooling solutions for acute emergencies, such as a tarp with iced water.
  - Long-lasting protective materials to help reinforce tents and dwellings from floods over time.
  - Temporary and permanent shade infrastructure.
  - Cool pavements.
  - Public device-charging stations at bus terminals or parks.
  - Misting tents.



- **Establish accessible weather notification systems to ensure that vulnerable populations receive extreme weather alerts.** Strategies to increase access to notifications include offering free public Wi-Fi.<sup>87</sup>
- **Acknowledge and inform interventions with lived-experience, so that community needs are represented in a nuanced and caring manner.**
  - People experiencing unsheltered homelessness can face barriers to staying in emergency shelters, such as lack of beds, owning pets barred from entry, substance use, or previous trauma from or fear of staying in shelters (e.g., abuse, lack of personal space, and contraction of illness).
  - Extreme weather events can be traumatic for community members and/or trigger trauma from past experiences.
  - Working with first responders involved in extreme weather preparedness and response such as firefighters and police officers can be traumatic for community members and/or trigger trauma from past experiences.

### **Building Preparedness in Los Angeles County**

Los Angeles County’s Chief Executive Office in collaboration with the Los Angeles Homeless Services Authority (LAHSA) is working to ensure the safety of people experiencing homelessness staying in encampments in areas at severe risk for fires. The initiative, *Services for People Experiencing Homelessness in Very High Fire Hazard Severity Zones*, aims to develop outreach and awareness curriculum and engage with encampments located in such zones, connecting them to supportive services.

Additionally, a motion by the LA County Board of Supervisors instructs the county’s Office of Emergency Management and Department of Public Health to reassess existing protocols for the activation of cooling centers, establish a protocol and a toolkit to provide extreme heat warnings in multiple languages, and to identify additional funding opportunities to procure and disseminate Water Boxes in vulnerable communities and locations with high numbers of people experiencing homelessness. This motion is in direct response to increasing heat waves in LA County.

## **6. Conclusion**

The dual crisis of increasingly extreme weather and rising homelessness is overburdening communities across the United States. Climate change is both exacerbating drivers of homelessness and is making experiencing homelessness more perilous. Those experiencing unsheltered homelessness are additionally at risk of experiencing worsening physical and mental health outcomes due to the changing climate. Addressing homelessness and building climate-resilient response systems will require collaboration among community members and organizations, service providers, disaster preparedness, climate resilience, and health sectors, and federal, state and local agencies. A set of practical, cost-effective solutions can enhance coordination and bolster the resilience of the homeless response system, enabling it to better withstand extreme weather shocks and reduce harm to the most vulnerable members of our communities.



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