

Disaster Resilience Tool Kit

A guide for how local leaders can reduce risks and better protect older adults



By **AARP** with the **Federal Emergency Management Agency**



FEMA



AARP is the nation's largest nonprofit, nonpartisan organization dedicated to empowering people 50 or older to choose how they live as they age. With nearly 38 million members and offices in every state, the District of Columbia, Puerto Rico and the U.S. Virgin Islands, AARP strengthens communities and advocates for what matters most to families, with a focus on health security, financial stability and personal fulfillment.

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AARP Livable Communities

The AARP Livable Communities initiative supports the efforts of local leaders and residents throughout the nation to make their communities more livable and age-friendly. Among the initiative's programs are the AARP Community Challenge, an annual grant-funding program to support projects that build momentum for local change, and the AARP Network of Age-Friendly States and Communities, which is described on page 29 of this guide.

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About the Federal Emergency Management Agency

FEMA's mission is helping people before, during and after disasters. Headquartered in Washington, D.C., FEMA has 10 regional offices with more than 20,000 people located across the country. As a federal agency within the U.S. Department of Homeland Security, FEMA leverages a tremendous capacity to coordinate within the federal government to make sure America is equipped to prepare for and respond to disasters.

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Order or download this free publication at [AARP.org/DisasterResilience](https://www.aarp.org/DisasterResilience).

Older adults are disproportionately impacted by disasters, often representing the majority of fatalities resulting from extreme weather, natural hazards and public emergencies.

AARP and FEMA created this publication to help local leaders build the type of community-wide resilience that benefits the safety and well-being of older residents.

The **AARP Disaster Resilience Tool Kit** examines the realities faced by older residents when a disaster strikes, and it presents strategies that can be used during all stages of the “disaster life cycle” (see page 6) to ensure that an all-ages lens is effectively integrated into preparedness, response, recovery and mitigation efforts.

Chief among the steps and strategies is the need to maintain or establish strong community connections.

That means identifying where older adults are, knowing how to reach them and understanding what they need. It also means addressing the communications and coordination gaps that often exist between emergency management professionals and the agencies and local organizations that serve, work with and frequently represent a community’s older residents. ■



◀ Hurricane Ida struck the Gulf Coast, East Coast and New England in 2021. Among the **FEMA** Disaster Recovery Centers established in response was the pictured one in New Hyde Park, New York.



▲ The one-two punch of hurricanes Irma and Maria within two weeks in 2017 was a first for the

U.S. Virgin Islands. Staff and volunteers from the local **AARP** office distributed relief supplies.

PART 1:

Why This Tool Kit Is Needed

The U.S. Census Bureau projects that by 2034 people age 65 or older will outnumber those under 18 — a first in the nation’s history.¹ That trend has profound implications for emergency management, especially as floods, droughts, wildfires, tornadoes, heat waves, hurricanes and other weather-related hazards and disruptive events become more common and severe.

A growing body of evidence confirms that older adults are disproportionately impacted during disasters. They suffer a disproportionate share of fatalities resulting from disasters — and even if they survive in the short term, there are lasting consequences for their physical and mental health, economic security, and overall well-being. In addition, as evidenced by the global COVID-19 pandemic, older adults are especially vulnerable during public health crises.

Improved emergency planning and community-wide resilience at the local level can go a long way toward addressing the impact of disasters on older adults.

Making Connections

A key to ensuring that older adults are properly served by disaster preparedness and emergency planning is to acknowledge — and address — the gaps that exist between local emergency management teams and the organizations and municipal offices that work with and on behalf of older community members.

Better integrated disaster planning will help local governments protect all older residents. Research by AARP and FEMA identifies three reasons for the gap.

1. Lack of communication and coordination: A crisis isn’t the time to start building connections. Facilitating earlier and more robust engagement and partnerships between a community’s emergency management and aging-services professionals is critical to ensuring that both are ready to collaborate if or when disaster strikes.

2. Absence of a common technical language: When emergency managers and the organizations that serve older adults do connect, they don’t speak the same technical language. There’s too little interaction between the systems-and-logistics-focused emergency managers and the advocates and service providers who understand the needs and abilities of older residents.

3. An emphasis on institutionalized older adults: While local leaders, emergency managers and care providers are rightly concerned about the needs of people living in nursing homes and similar institutional settings, such residents are not representative of *all* older adults. In fact, only 2.3 percent of older people live in nursing homes and another 1.5 percent reside in assisted living facilities.² Such a narrow focus leaves out the vast majority of older adults, who live independently but might lack the ability to evacuate an area, secure their property or safely shelter in place without some assistance.

Better integrated disaster planning will help local governments better protect more older residents.

The Signs Are Out There

Extreme weather, public health crises, shortages and other hazards are growing more common in both expected and unexpected places.

► Water from record rains in October 2015 breached two dams and closed roads in Givhans, South Carolina.



▼ A warning sign in Bolinas, California, in 2019, the state's second driest year.



► Like elsewhere in the state, Houston, Alaska, faced a 2019 fire season that included record-breaking warm temperatures and dry conditions.

▼ COVID-19 testing in Tucson, Arizona in July 2020.



► The Pacific Northwest was hit by an unprecedented heat wave in 2021. On June 26, the day this photo was taken in Portland, Oregon, the city hit a record 108 degrees. The average high: 76.7 degrees.



The **AARP Disaster Resilience Tool Kit** was created for local leaders, government staff, aging services professionals and community volunteers.

The publication is a companion title to the **Guide to Expanding Mitigation: Making the Connection to Older Adults**, a publication created by FEMA in cooperation with AARP for emergency management professionals. Targeted, coordinated education and outreach can help bridge a community's emergency response and resilience gaps.

When emergency managers as well as state, local, tribal and territorial officials, and community leaders understand the diverse needs of older adults — by working with them and one another — the plans, projects and procedures they design and deploy will be more effective at protecting residents from harm and saving lives.

Community resilience (see page 6 for a definition of the term) is best achieved by bringing together partners who, collectively, can reduce the risks faced by older adults — and people of *all* ages. ■

Temperature data from Weather Underground, [Wunderground.com](https://www.wunderground.com)

AARP, FEMA and Disaster Resilience

In August 2013, AARP and FEMA announced an agreement to provide resources and services for older Americans “with respect to disaster mitigation, preparedness, response and recovery operations in the event of natural, man-made or technological disasters.”³

The **AARP Disaster Resilience Tool Kit** is a product of AARP’s ongoing relationship with FEMA, which is centered in the shared goals of promoting disaster resilience through education and community engagement.

To create this tool kit, staff from AARP and FEMA, as well as leaders from the emergency management and aging advocacy disciplines, participated in interviews to form a shared understanding of how to better support older adults before, during and after a disaster.

“Climate change has led to more extreme-weather days, increased the number and intensity of natural disasters, and changes in infectious disease patterns. Older adults, people with disabilities, people of color, people with low incomes, and people with chronic illnesses bear the greatest burden of disease and death related to climate change. Extremely hot and cold days, which are increasing because of climate change, can be life-threatening for older adults. Older adults and people with disabilities also face greater challenges in evacuating safely during a natural disaster.”

— AARP Policy Book 2021–2022,
Chapter 7 “Health: Public Health Issues”

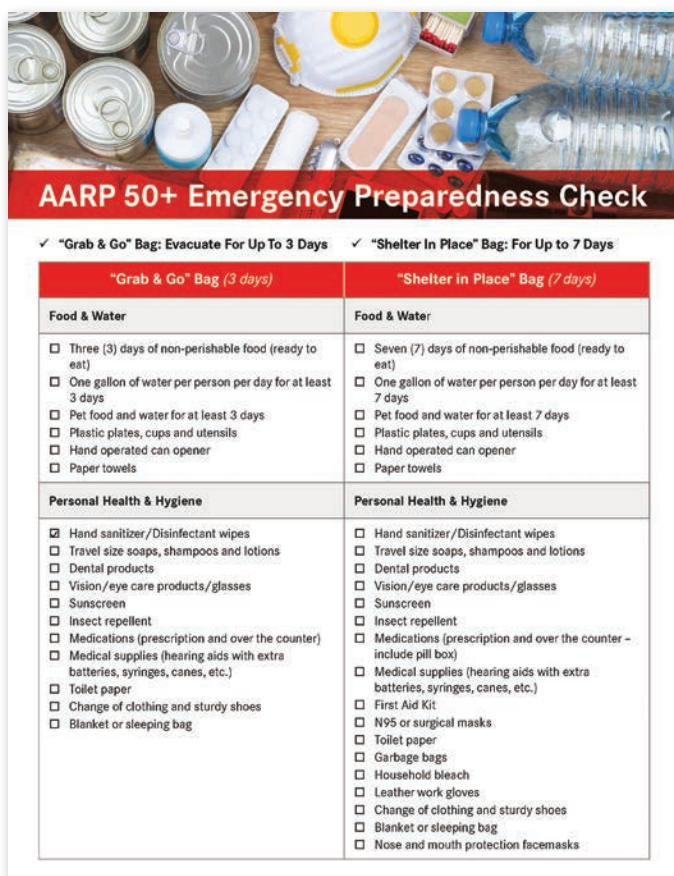
As part of that work, AARP advised FEMA in its creation of the **Guide to Expanding Mitigation: Making the Connection to Older Adults**, one of several titles in a mitigation guides series targeted at state, local, tribal and territorial emergency managers. In turn, FEMA advised AARP on the creation of this publication.

While FEMA is a trusted voice for emergency managers, it is not often considered an information source for public officials and service providers who work with and on behalf of older adults. Because of that, this tool kit targets a different audience: community leaders, including elected and appointed officials, staff, community development professionals, and advocates for older adults.

This publication’s approach is drawn from AARP’s livability work, which supports the efforts of neighborhoods, cities, counties, rural areas and states to become more livable and age-friendly for people of all ages. A key to that mission is building awareness among state and local decision-makers, community development professionals, and advocates about the AARP Livable Communities Principles,⁴ which set out the association’s goals for land use, housing and transportation policies, and practices in support of the kind of livable and resilient communities that can endure over time.

(See page 9 to read the AARP Policy Book statement about livability efforts as they relate to public health, disasters and recovery.)

AARP does not play a direct disaster response role. Rather, it serves as a



“second responder” by facilitating communication, cooperation and advocacy. Specifically, AARP:

- Amplifies disaster-related information about preparedness and recovery.
- Helps emergency managers and stakeholders identify the unique risks disasters pose to older adults — and then helps reduce those risks.
- Presents the concerns of older adults to decision-makers.
- Advocates for policies and laws that serve and help protect older adults.

Examples of AARP’s disaster-related activities and responses include:

- AARP Florida uses its website and Facebook page, among other

communications channels, to distribute hurricane season information, including how to create a “Grab & Go” bag and a “Shelter in Place” bag (pictured), find evacuation lodging, sign up for the Florida Special Needs Registry (see page 22), and use a backup generator and safely store the fuel for one.

- AARP Oregon hosted Resilient Futures 2021, a free, online disaster preparedness and resilience conference to help communities prepare for future emergencies. (Visit States.AARP.org/Oregon to watch videos from the event.)
- In response to the days-long power outage and extreme freeze that hit Texas in February 2021, AARP was among those advocating for a more reliable energy grid. ■

▲ “It’s long been standard practice for Floridians to prepare two kits as hurricane season begins — a ‘Stay Kit’ so they are prepared if they choose to ride out a storm at home and a ‘Go Kit’ if they need to evacuate in the face of a major storm,” says AARP Florida about the checklists it offers in English and Spanish. (Above are the front pages of each two-page handout.)

A Formula for Resilience

For most people, the story line of a disaster begins right before or immediately after the disaster strikes. Emergency management experts, however, take a longer view and have a broader perspective, one embodied in the notion of the “disaster life cycle.” This concept divides disaster planning into four phases:

- 1. Mitigation:** This involves making a community less vulnerable. Such efforts might include improving public infrastructure, building fire-resistant structures, flood-proofing homes, changing zoning laws, or adopting and enforcing hazard-resistant building codes. Planning and design work can leverage nature-based solutions that weave natural features or processes into environmental management and engineering practices. Formal mitigation planning provides an opportunity for communities to identify risks and vulnerabilities and then develop mitigation options and actions that will reduce risks.⁵ (Learn more on page 25.)
- 2. Preparedness:** This phase covers education, training, outreach and other measures that improve the ability of individuals and the community to respond during and immediately after a disaster. Steps might include instructing residents to stock up on food, water and medical

supplies; training community members in emergency protocols; developing communication plans.

- 3. Response:** This occurs in the immediate aftermath of a disaster and involves saving lives, searching for missing people, ensuring access to water and food, and limiting property damage.
- 4. Recovery:** This final phase begins once the immediate danger has passed. It includes cleanup and damage assessment, the restoration of utilities, and the start of structural repairs. Recovery requires careful planning to address long-term needs, including housing, employment, economic development and rebuilding. Recovery can last months, years or decades. Smart recovery work seeks to rebuild in a way that’s better than what existed before the disaster and involves doing so in ways that will reduce risks during future events.

All four phases of disaster planning can be enhanced — and the risk to older adults reduced — by a community commitment to becoming more resilient.

Our emphasis is on resilience

Building community resilience among older residents requires local leaders to be aware of the needs and concerns of older adults. It requires understanding the impacts on older people of typical disasters (blizzards, hurricanes, earthquakes), unexpected crises (power outages) and weather trends (droughts, floods, temperature extremes).

A highly resilient community can emerge from a disaster even stronger than it was before. ■

“Community resilience is the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions.” — FEMA

RESILIENCE NEEDED



Definitions

Emergencies are usually small-scale, localized incidents that are resolved quickly using local resources. (However, small-scale emergencies can escalate into disasters when there has been inadequate planning and a wasteful use of resources.)

Disasters are typically large-scale and cross geographic, political and academic boundaries. Disasters require a level of response and recovery greater than local communities can provide.

Natural hazards are a source of harm or difficulty created by a meteorological, environmental or geological event. Natural hazards, such as flooding and earthquakes, affect the built environment, including dams and levees.

Adapted from the FEMA training manual *Emergency Management in the United States and the DHS [Department of Homeland Security] Risk Lexicon 2010*⁶



1. Dawson Springs, Kentucky, in December 2021, after tornadoes touched down in several Midwest states. **2.** Post-storm flooding in North Carolina. **3.** Northern California wildfires blanket San Francisco in smoke and an orange haze. **4.** “Sunny day

flooding” in Miami Beach, Florida. (See page 11 to learn what that means.) **5.** Millions of Texans spent days without water, heat and electricity during a statewide freeze and power outage. (See page 10 for more about the February 2021 emergency.)

Why Equity Is Essential to Emergency Planning

The inclusion of older adults, among other historically underrepresented populations, in disaster resiliency planning increases the probability of more equitable disaster responses.

The publication *Building Alliances for Equitable Resilience: Advancing Equitable Resilience Through Partnerships and Diverse Perspectives*⁷ was released in 2021 by the Resilient Nation

Partnership Network, FEMA, and the National Oceanic and Atmospheric Administration.

In an opening essay, Chauncia Willis, the co-founder and CEO of the Institute for Diversity and Inclusion in Emergency Management, explains why equity and inclusion are essential components of successful emergency management.

“Equity is a continuous process that requires understanding the needs of those you serve and then applying their perspective in solution-building. In times of disaster, diversity and equity become critical and must be operationalized.

“People who lack diversity in perspective will not develop equitable policies, perform equitable planning, or create equitable programs that will benefit, rather than harm, the most vulnerable groups and communities.

“For example, say there is a major tornado that occurs in a city somewhere in America. During the disaster response, a homogeneous group of decision makers might assume those affected by the disaster will have access to personal transportation.

“They assume that because everybody they know has a car, then everyone has a car. As a result, they establish a disaster resource or recovery site that is well outside public transit access routes.

“Unfortunately, those who are most affected by the disaster do not have personal vehicles and thus cannot benefit from the available disaster resources. Their recovery is impeded until the inequitable response can be corrected.”



BUILDING ALLIANCES FOR EQUITABLE RESILIENCE

ADVANCING EQUITABLE RESILIENCE THROUGH
PARTNERSHIPS AND DIVERSE PERSPECTIVES

April 2021



From the AARP Policy Book

Every two years, AARP publishes its *Policy Book* to inform the public about where the association stands on issues that impact people age 50-plus and their families. The following text is from the “Disaster Planning and Recovery” and “Public Health Issues” sections.

Extreme weather conditions, natural disasters and health emergencies can be devastating to communities. They can destroy housing, transportation networks, businesses and institutions. They can also damage critical infrastructure, such as telecommunications and utility lines. In addition, they can drastically disrupt residents’ livelihoods, social connections and access to vital services. Rebuilding efforts can take years. The long-term effects of disasters, such as home repair needs or health setbacks, can harm the financial and emotional well-being of older adults and others in the community.

Community planning plays a vital role in reducing the long-term risks to life and property from natural hazards such as hurricanes, earthquakes, wildfires and floods. These can cause property damage in the tens of millions of dollars. They can also lead to hundreds of deaths and the displacement of thousands of residents. Experts predict that future natural hazard events in the U.S. could be even more damaging and costly.

People who have chronic illnesses, functional limitations or disabilities are especially vulnerable during natural disasters. Planning can help communities identify the natural hazards to which they are susceptible. Then, communities can develop strategies to reduce vulnerability.

Well-planned post-disaster recovery efforts are also needed when disasters occur. Federal and state disaster aid is often available. Still, under-resourced communities may not receive sufficient funding compared with better-off communities. Such funding disparities can exacerbate existing social and economic inequality. Equitably distributing disaster relief funds helps ensure that all communities affected by disasters receive fair assistance.

AARP POLICIES

Disaster Planning: Federal, state and local policymakers should plan for and mitigate potential natural hazards. This includes identifying and mitigating vulnerabilities and risks in order to expedite recovery efforts. Policymakers should regularly plan, execute, and evaluate outreach and education activities to equip all residents to shelter in place or evacuate safely. Policymakers should develop pragmatic evacuation plans with sufficient shelter space. Policymakers at all levels of government should regularly conduct specific, comprehensive and evidence-based planning. This planning should address specifically the needs of older adults, people with disabilities and their caregivers in different settings.

Disaster Recovery: Federal, state and local governments should engage in post-disaster recovery efforts that reach all populations, including older adults, people with disabilities and their caregivers. Disaster relief assistance and funding should be distributed equitably, fairly and expeditiously. Rebuilding and recovery efforts should promote livability and resilience by encouraging a diverse housing supply; a wide range of mobility options; access to safe, accessible and sustainable public spaces; and proximity to necessary services.

Housing for Displaced Residents: Policymakers should ensure access to safe housing for people who are displaced after a natural disaster. They should move people from temporary shelters to permanent housing as soon as possible.

Rebuilding: Policymakers should provide support to areas that have suffered, or are at high risk for, damage from extreme weather events. They should prioritize funding for repairing homes that have been damaged by extreme events (repairs should ensure that damaged homes do not pose health risks to older adults); provide incentives for existing buildings to be fortified; and strengthen public infrastructure to mitigate the risk to the community as a whole. ■

PART 2:

The Impact of Disasters on Older Adults

When hazards — whether natural or human-made — strike, the consequences tend to be harder on older adults than on younger age groups.

The Numbers Are Revealing

- Although people age 75 or older made up about 6 percent of the population in the city of New Orleans in 2005,⁸ they accounted for 50 percent of those who died that year as a result of Hurricane Katrina.⁹
- In Northern California's 2018 Camp Fire, 71 of the 84 identified fatalities were of people age 60 or older.¹⁰
- When Hurricane Sandy struck the New York tristate area in 2012, nearly half of the fatalities were among people age 65 or older.¹¹
- According to the Texas Department of State Health Services, people age 60 or older accounted for 60 percent of the 246 deaths that resulted from subzero temperatures and an extended statewide power outage during a February 2021 winter storm. (On February 17, the temperature dropped to minus 5.98 degrees in Jacksonville, Texas, where the normal February low is about 40 degrees.) All but a handful of the storm related fatalities were due to hypothermia.¹²

Rising Waters

From 1970 to 2010, U.S. coastal regions saw an 89 percent increase in the number of residents age 65 or older.¹⁷ (See the graph on the opposite page.)

As a result, the nation's oldest adults routinely find themselves in the path of rising seas, and a growing number of nursing homes and assisted living facilities are now in flood-prone coastal areas.¹⁸

Florida is projected to be the hardest-hit state in coming decades, with 2 out of every 3 of its care-facility beds located in areas that will likely experience occasional or frequent flooding from now to 2050. That's 67 percent higher than those at risk today.¹⁹

Coastal homes are at risk for flooding due to hurricanes and major storms. But even "sunny day" flooding — which has become common in Miami Beach due to seawater rising up through

sewer grates during high tides — can impede the ability of residents to go about their daily business and errands. (The city has been installing pump stations and raising many of its streets.)²⁰

The confluence of demographic shifts, population growth along the coasts and rising sea levels means such dangers are likely to become commonplace.

From the U.S. Department of Health and Human Services: "Addressing these threats calls for an approach that combines what we know about preparing for disasters with what we know about actions that strengthen communities every day.

"Community resilience focuses on enhancing the day-to-day health and well-being of communities to reduce the negative impacts of disasters."²¹

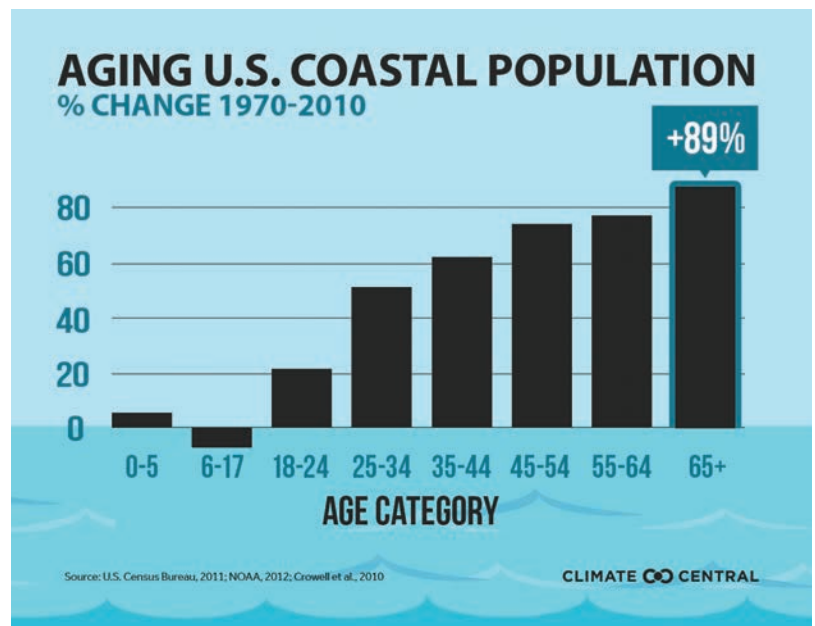
Contributing Factors

Some of the reasons older residents are at a disproportionately high risk during emergencies and disaster:

- Older adults often have mobility difficulties that make it harder to get out of harm's way. They often lack access to transportation.¹³ They might be socially isolated, with no friends or family nearby to help. They may be reluctant to leave a pet behind.
- Older adults without a cell phone or internet access lack an essential information and communications resource in this online era. According to AARP's 2021 *Tech Trends* report, 15 percent of people age 50 or older do not have access to any type of internet service, and 60 percent say the cost of high-speed internet is a problem.¹⁴ As a result, many older people are unable to get real-time information about changing weather or emergency conditions, available resources or how to find help.
- Many older adults lack the financial means to prepare for disasters or relocate. The 2019 median income of older adults was \$27,398. Among all people age 65 or older who reported income that year, 12 percent reported less than \$10,000.¹⁵
- More than half of Americans age 50 or older have no emergency savings.¹⁶ Many are on fixed incomes and lack the available cash to stock up on food and prescriptions (which can be costly), let alone to make their home more disaster resistant.

“Disasters disproportionately affect older people. Yet, this population is often ‘invisible’ in terms of data about risks and needs, guidelines, planning and overall understanding of their unique needs during a disaster. This is gradually changing as the overall population ages and greater awareness about the needs for older adults is determined. However, seniors continue to be the group most vulnerable to loss of life in disasters.”

— Center for Disaster Philanthropy²²



▲ In addition to places on or near the Atlantic or Pacific oceans and the Gulf of Mexico, coastal America includes areas adjacent to rivers, major estuaries and the Great Lakes.

Continued on page 12 ►

“Here in Oregon, we’ve had several massive wildfires, as well as massive floods, in the last two years. We’ve had a record-breaking heat wave. While we were holding a disaster-resilience conference in Portland, hundreds of people in the Pacific Northwest died of heat-related causes. Roughly 8 out of 10 were age 60 or older.”

— Bandana Shrestha, AARP Oregon state director, speaking in 2021.
(On June 28 in Salem, Oregon, the temperature rose to 115 degrees.
The normal high for June is around 74 degrees.)²³

- The wealth of many older homeowners amounts largely to the equity in their homes. In such cases, an individual’s or couple’s financial security is even more entwined with the impact of a disaster. The property owners may want to make a permanent move to a safer neighborhood or dwelling but simply can’t afford to.
- In some coastal areas, current and anticipated rates of sea level rise have depressed property values and increased property taxes and the cost of homeowners’ insurance. For older adults with limited disposable income, the cost of increased or new insurance — or new assessments in a multifamily condominium building for needed maintenance or structural improvements — can be prohibitive, further exposing them to financial challenges when disaster hits.
- Because many older adults own their homes outright, they are less likely to have flood insurance, which is required by many lenders in flood-prone areas but optional for people without a mortgage.
- Older homes in many parts of the United States don’t have air-conditioning because, until recently, it was rarely or never needed. Retrofitting a home for a whole-house cooling system — and running one — is expensive. Many people, including older adults, just don’t have the money, strength or skills needed to purchase, lift and install even one window-unit air-conditioner.
- Heating a home can be similarly challenging. In 2015, approximately 1.6 million people age 50 or older who were the heads of their households could not afford the heating fuel, electricity or natural gas necessary to heat their homes. As a result their fuel deliveries were discontinued or their natural gas or electricity disconnected.²⁴

Enable Help From Local Organizations

After a disaster strikes, money often pours into aid groups in large communities, while those serving smaller or remote places struggle to secure funding. It can be difficult to identify which organizations do the “boots on the ground” work.

Having a vetted list of where and how people can make donations is an invaluable way to help those who need it.

The charitable AARP Foundation actively supports disaster recovery efforts. Learn more at [AARP.org/Foundation](https://www.aarp.org/foundation).

Continued on page 14 ►

The Extreme Consequences of Extreme Heat

Although hurricanes, wildfires and floods may be the most spectacular disasters to make headlines on a regular basis, they're not the deadliest.

According to the National Oceanic and Atmospheric Administration ([NOAA.gov](https://www.noaa.gov)), that distinction goes to heat or, more specifically, extreme heat, which causes the most weather-related deaths in the United States each year.²⁵

According to the U.S. Environmental Protection Agency ([EPA.gov](https://www.epa.gov)): “Unusually hot summer temperatures have become more common across the contiguous 48 states in recent decades, extreme heat events (heat waves) have become more frequent and intense, and these trends are expected to continue. As a result, the risk of heat-related deaths and illness is also expected to increase.... The population of adults aged 65 and older, which is expected to continue to grow, has a higher-than-average risk of heat-related death.”²⁶

An estimated 12,000 Americans die of heat-related causes annually, according to research by scientists at Duke University.²⁷ In Arizona alone, a record 520 people died due to extreme heat during the summer of 2020, nearly twice the highest toll in the previous decade.²⁸

Older adults as well as people who work outdoors or live in low-income communities are especially vulnerable to the consequences of extreme heat.

- **Heat Illness:** Older people are more susceptible to heat-related illnesses for reasons that include weakened cardiovascular systems and a lower ability to reduce their body temperature through sweat. Preexisting health conditions can add to the risk since many prescription medications used by older people impact temperature regulation and hydration.
- **Access to Water:** Staying hydrated during hot weather is essential for survival, but many communities in the United States struggle with access to safe drinking water. In rural areas, where residential water typically comes from aquifer-supplied wells, drought conditions and power outages (since wells need electricity to pump) can leave a home without running water. Bottled water can be a stopgap measure for those able to afford water, transport the water and lift the water. (One gallon of water weighs roughly 8 pounds.) Carrying bottled water can be hard even for young and able-bodied people. Doing so can be even harder for older people and people with certain disabilities.
- **Manufactured Homes:** Nearly 50 percent of people living in manufactured homes (sometimes referred to as mobile homes) are age 55 or older.²⁹ Residents of such homes can face unique dangers. Units built before 1976, when manufactured housing standards were improved, often have aluminum wiring that's incapable of powering a modern air-conditioner.³⁰ Homes built before the 1990s, when energy-efficiency standards were updated, may lack the insulation necessary to keep occupants safe and comfortable.³¹ One in 5 heat-related deaths that occurred during the unprecedented June 2021 heat wave in Oregon happened to people who lived in manufactured homes.³²
- **Urban Heat Island Effect:** Cities tend to be hotter than the surrounding countryside because developed areas have more pavement (which retains heat) and fewer trees (which cool the air and provide shade). While heat impacts all urban residents of all ages, older adults, people of color and the residents of lower-income neighborhoods often bear the brunt of this effect due to historical land use policies, some of which were racially motivated. A 2020 study by the U.S. Forest Service with several nonprofit and academic research teams found that formerly redlined neighborhoods (see page 14 for what that means) have half as many trees today, on average, as the highest-rated white neighborhoods.³³ For example, in Los Angeles, Beverly Hills enjoys a tree canopy of 25 percent; the mostly nonwhite community of Watts, 20 miles away, has just 5 percent tree coverage.³⁴ That tree-density difference can translate to a temperature difference of as much as 45 degrees Fahrenheit — and truly make the difference between life or death conditions.³⁵

For a related discussion, see “Cool(ing) Ideas” on page 35.

Increasing Risks

According to an online fact sheet from the U.S. Department of Health and Human Services Office of the Assistant Secretary for Preparedness and Response, “Factors like climate change, globalization, and increased urbanization can bring disaster-related risks to greater numbers of people.”³⁷

Increasingly intense weather events affect older adults differently than other groups and impact segments of the older adult population unevenly, influenced by factors such as race, health, income and geography as well as the lack of public and private investment (or post-disaster aid) in a community.

- Low-income individuals and people of color are often highly vulnerable to the impacts of weather-related disasters due to inadequate housing and risk-exposed locations — as residents of all ages in New Orleans’ Lower Ninth Ward discovered during Hurricane Katrina.³⁸

- Lower-income residents are more likely to live near industrial facilities, increasing the danger of toxic leaks resulting from storms or similar disasters. Low-income people, including many retirees, are more likely to live in manufactured homes (formerly referred to as mobile homes), which offer less protection from the elements than conventional housing.
- The legacies of race-based zoning, covenants, redlining (the practice of systematically denying home loans based on race, faith or ethnicity), and highway projects that displaced residents and destroyed neighborhoods mean that certain communities — often those of color — are less likely to have parks, green spaces or tree canopies that cool temperatures and absorb water runoff. (See page 13 for more about redlining and the Urban Heat Island Effect.)

Continued on page 16 ►

Disasters come in many forms and emerge from a variety of causes. While older adults may not be the most severely impacted population group in every disaster, they have proved to be the most at-risk — and most in need of emergency services, care and assistance — during the global COVID-19 pandemic. Nearly 95 percent of all people who died due to COVID-19 in the United States during 2020 and 2021 were age 50 or older.³⁶ Residents of assisted living or nursing homes had a far higher rate of death than those not living in institutional settings.

Calculating a Community's Vulnerabilities

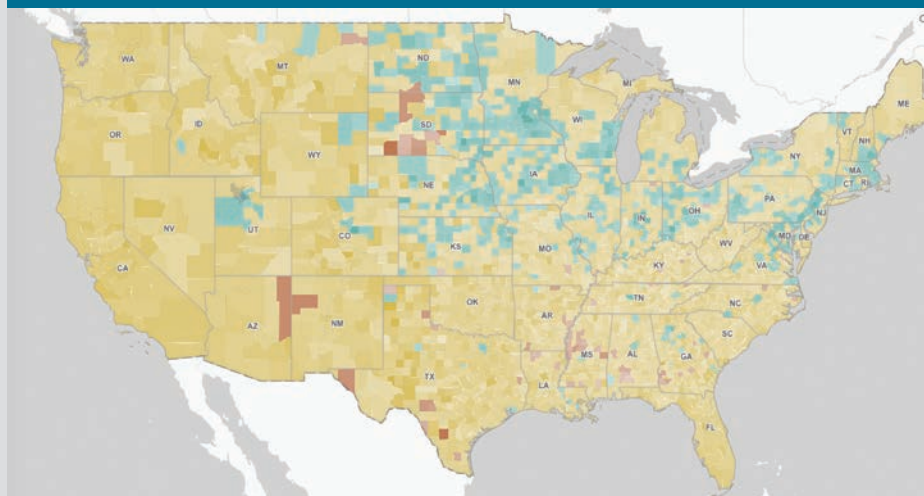
To be proactive and plan for what *might* happen, local leaders need to understand what they're dealing with. The U.S. Census Bureau's online, interactive **Community Resilience Estimates** tool provides information about communities' strengths and weaknesses.

The calculations are done using factors such as age, income, employment, household composition, disability status, internet access and the availability of vehicles.

This data is analyzed through state-of-the-art statistical methods, enabling the tool to provide an estimate of the number and percentage of people in a community — even for specific census tracts — who can be considered high-, medium- or low-risk.

(Visit [Census.gov](https://www.census.gov) and search for "Community Resilience Estimates" to learn more.)

PREDOMINANT RISK FACTOR BASED ON ALL RISK FACTOR CATEGORIES



The Added Hazards of Homelessness

As with other life challenges, the risks associated with disasters are even greater for unhoused people — a group in which older adults predominate.

Census data shows that housing insecurity among single adults affects a preponderance of people born between 1955 and 1965.

By 2026, the U.S. homeless population over age 55 could grow to 225,000, up from 170,000 in 2017; the number of those age 65 or older could more than double, from 40,000 to 106,000 by 2030.³⁹

Exposure to the elements is not the only hazard facing unhoused individuals. Many also struggle with mental health or substance use disorders and from the wear and tear of an unsheltered existence. Homelessness ages people physiologically. Research shows that they experience geriatric medical

conditions, such as cognitive decline and reduced mobility, at rates comparable to those of housed individuals who are 20 years older.⁴⁰

Impaired health can make it harder to survive a disaster or to recover fully from injuries or trauma. Yet emergency managers rarely connect with organizations that serve people experiencing homelessness.

The publication ***Disaster Preparedness to Promote Community Resilience: Information and Tools for Homeless Service Providers and Disaster Professionals***⁴¹ — developed jointly by the U.S. Department of Veterans Affairs, the U.S. Department of Health and Human Services, and the U.S. Department of Housing and Urban Development — offers comprehensive guidance about planning for the disaster needs of unhoused people.

The Days After a Disaster

Many residents — and especially older ones — are at risk even when they escape harm during a disaster.

After the storm or immediate dangers have passed, older residents and low-income households can quickly spin into a downward spiral caused by the environmental hazards and structural damage present in their new reality.

- Rescues can be hard to come by due to the demand for services and access challenges.
- When the power goes out and stays out in hot climates or during heat waves, mold and mildew take over homes, medicines cannot be refrigerated, and clean water becomes a scarce resource. When the power goes out and stays out in cold climates or during extreme cold snaps, pipes burst and frostbite (and death) are serious risks.
- Researchers found higher death rates among nursing home residents

during the weeks after hurricanes Katrina in 2005⁴² and Irma in 2017.⁴³ Among the causes were the post-storm heat exposure caused by power outages and the resulting lack of air-conditioning.

- In 2021, in the middle of the global COVID-19 pandemic, several nursing home residents died and more than 800 others suffered in hot, crowded, unsanitary conditions when they were relocated to an ill-equipped warehouse before Hurricane Ida struck Louisiana.⁴⁴
- Disrupted routines and displacement can adversely impact a person's physical and mental health. A 2011 study showed that in four hurricanes, death rates were higher among nursing home residents who were evacuated than among those who sheltered in place.⁴⁵ A likely cause was the “transfer trauma” associated with being evacuated.
- Repair assistance can be impossible to secure due to the demand for contractors, a shortage of supplies and, for some, a lack of home ownership documents. (See page 27 for more about that.) The need to request emergency assistance online is a challenge for people without access to the internet.
- Older people are a frequent target of fraudulent contractors who capitalize on distressed residents' desperation.

These realities pose fraught choices for older residents (and for those who serve them) and underscore the need to reduce every community's overall risk. ■

Rebuilding in Jackson County, Oregon

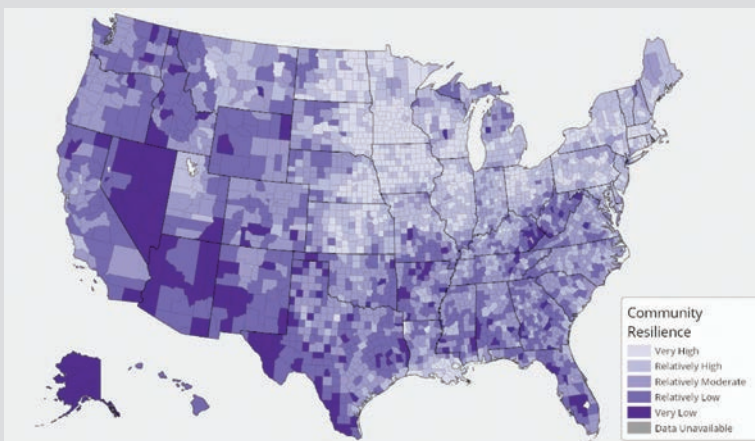
AARP surveyed residents age 45 or older about the impact of devastating wildfires in 2020.⁴⁶

- 91% support prioritizing community preparedness (including wildfire-related training, signage, evacuation routes and alert systems)
- 83% support creating disaster relief housing programs for homeowners and renters affected by wildfires

National Risk Index

The National Risk Index is a data set and online tool that helps identify the communities most at risk for 18 natural hazards. The Risk Index uses data on community risk factors and natural hazards to develop a relative risk rating for each United States county and census tract.

Visit Hazards.FEMA.gov/NRI/Map



Older Adults Are Concerned About Community Resiliency

In 2021, AARP added a question about the environment to the [AARP Home and Community Preferences Survey](#), a national poll of people age 18 or older.⁴⁷

The results show that adults of all ages, and *especially older adults*, are concerned about the impact disasters can have on themselves and their communities.

THE QUESTION

“How important is it for you personally to have the following in your community right now?”

THE RESPONSES

Those who answered “extremely important” or “very important.”

Adults age 18 or older	Adults age 50 or older	Community Features
62%	66%	Low risk of natural disasters and extreme weather
67%	76%	Community-wide actions to protect all residents in times of natural disasters and extreme weather, including clear evacuation plans and assurances that utilities will remain functional for critical services
82%	89%	Access to clean, safe water for all residents
53%	54%	Community-wide actions to improve air quality, such as planting more trees and promoting alternatives to driving, including biking and walking
56%	61%	Access to a range of reliable energy sources, including renewable energy

National survey of 2,826 adults age 18 or older

PART 3:

Strategies for Expanding Resilience

The following recommendations, developed in partnership between AARP and FEMA and the other experts involved in the creation of this tool kit, can serve as a starting point for local leaders and community advocates who seek to reduce the risks and impacts of disasters on older adults.

Strategy 1 Make the right connections and build relationships



◀ Representatives from AARP Mississippi and the City of Vicksburg celebrate the local government's enrollment in the AARP Network of Age-Friendly States and Communities. (See page 22 to learn more about the network.)

Strategy 2 Identify where older adults are — and how to reach them



◀ Once AARP Puerto Rico staff and volunteers were able to get out of their homes and back to work after 2017's Hurricane Maria, they distributed more than 7,000 bags of groceries to older people living alone in 26 towns.

Strategy 3 Seek and include diverse perspectives



◀ In Auburn Hills, Michigan, residents are invited to participate in community conversations about local issues and planning priorities.

Strategy 4 Be mindful of response and relocation risks



◀ Eastbound I-10 was snarled with evacuee traffic as Hurricane Katrina approached the Gulf Coast in August 2005. Among the road hazards: overheated cars, empty gas tanks and lack of hotel vacancies.

Strategy 5 Strengthen community-wide infrastructure



◀ This Napa, California, park becomes submerged when the Napa River floods. Levees and solid gates protect the adjacent business district. The bench is bolted to the ground so it won't float away.

Continued on page 20 ▶

Strategy 1: Make the right connections and build relationships

Long before a disaster happens, it's critical that those charged with emergency response and disaster recovery get to know the people who work with older residents and the organizations that already play a front-line role in responding to the everyday needs of older adults — whether they live independently or in a facility.

For example, organizations that provide transportation services to older adults can be critical partners in disasters — especially for the nearly 20 percent of people over 65 who do not drive at all.⁴⁸ But it's equally important to seek out age-friendly coalitions, area agencies on aging (dubbed “triple A’s”), caregiver networks, senior centers, volunteer-led “village networks” and other entities that can effectively represent the needs and concerns of older residents.

Keep in mind the following guidelines for building new relationships:

“Older adults often have long-term perspectives and longstanding relationships that may help planning efforts. At the same time, older adults are disproportionately affected by disasters.”

— *Guide to Expanding Mitigation: Making the Connection to Older Adults* by FEMA with AARP

1. Find trusted partners

- Local groups, clubs, organizations and agencies can be ideally situated to support disaster resilience efforts by serving as trusted sources of information for older community members and as sources of input on the development of disaster planning efforts. AARP State Offices can be both an ideal starting point for identifying these organizations and a key partner themselves.

2. Build a broad coalition

- Pre-emergency conversations and coordination can and should involve a variety of partners. For example, after floods struck Boulder, Colorado, in 2013, county officials worked with local senior centers, the Area Agency on Aging, the Silver Jackets (a team of locally and regionally based state, federal and tribal agencies devoted to enhancing disaster resilience) and the Army Corps of Engineers to develop mitigation strategies for older adults in future disasters.

3. Include older adults as contributors

- When communities make older adults part of the planning process for disaster resilience, there are usually better outcomes for everyone. Older residents should be invited to participate in planning efforts and to play a peer-to-peer role in promoting disaster mitigation and preparedness. It's important to engage older adults as conscious stakeholders in disaster settings, rather than dismissing them as passive victims. ■

The Volunteer Advantage

VOADs (Voluntary Organizations Active in Disaster) are convening hubs for faith-based, nonprofit and nongovernmental organizations that provide essential disaster response and recovery services. They often serve as an information hub for FEMA by gathering real-time information about a disaster's impact at the local level and ensuring that assisting organizations don't duplicate response efforts.

National VOAD (*NVOAD.org*), a nonprofit association of more than 60 voluntary disaster relief organizations, has an affiliate in every state and territory. The **State VOADs** consist of numerous **COADs** (Community Organizations Active in Disaster), through which local and regional nonprofits work together to coordinate services, provide financial assistance and supplies, and share knowledge and resources.

- The U.S. Virgin Islands reestablished its VOAD after Hurricane Maria struck in 2017. AARP Virgin Islands acts as a convener and communicator with the Virgin Islands VOAD, bringing organizations together to enhance disaster preparation for people age 50-plus. With AARP's help, the organization distributed 1,000 emergency kits to older adults in need throughout the four-island territory. Work is underway to build a registry of older adults in order to enable better outreach before, during and after major storms or emergencies.

- After Hurricane Ida struck Louisiana in 2021, AARP Foundation granted more than \$1 million to local nongovernmental organizations to help increase programming designed for older adults. Southeast Legal Services in Louisiana is leveraging the funds it received to assist older adults who need title clearance for their homes (see page 27) or are having trouble accessing disaster relief aid.

It's critically important that organizations serving and advocating for older adults — including but not limited to AARP — forge relationships with emergency and disaster responders. One way to do so is for the groups or representatives to join a VOAD. In fact, organizations that are active in disaster response should have older individuals or aging-services representatives on their boards and committees.

AARP Louisiana representatives regularly attend meetings of the state's VOAD.

"We're their ears on the ground when it comes to older adults," says LaTonya Smith Scott, AARP Louisiana's communications director. "We tell them, 'This is what we're hearing from our folks.' In turn, we make sure that information from the VOAD gets out to our members in the most effective way possible."

"Often, local evacuation plans failed to adequately provide for the transportation needs of people with disabilities for two reasons: first, many local planners reported that they were unaware that people with disabilities have special evacuation needs; and, second, when local planners were aware of the need to plan for people with disabilities, the plans failed because they did not involve people with disabilities in the planning process."

— From the article "The Impact of Hurricanes Katrina and Rita on People With Disabilities: A Look Back and Remaining Challenges," National Council on Disability⁴⁹

Strategy 2: Identify where older adults are — and how to reach them

There is generally a poor level of understanding within communities about where older adults reside and how to best reach them.

Emergency plans often limit responders' consideration to the needs of people in nursing homes. Many older adults not in care facilities rely on landline phones, radio and TV, and a local newspaper (if one still exists) for their news.

To enhance community-wide resilience and reduce the risks to older adults, it's crucial for emergency managers to know where to find older residents who might need help and establish effective ways to keep those residents informed.

There are many ways to address this gap and proactively consider how older adults will be informed when disaster is on the horizon.

1. Let people register in advance

- Following floods that inundated southern Oregon in 1997, the Rogue Valley Council of Governments (RVCOG) created a registry of vulnerable community members to ensure better communication and support during upcoming disasters. Older adults in need of assistance during disasters (or their caregivers) and people with disabilities are invited to add their names, and volunteers check the list every three months to ensure that the contact information is up to date. During a public emergency, such as the wildfires that struck in 2020, people in the impacted areas get a call. Whether they need help or not,

“people are very grateful,” says Connie Saldana, a planner with the RVCOG. “It makes them feel a little bit safer, a little bit less panicked.”

- The Florida Department of Health, in coordination with its county health departments and local emergency management agencies, developed the Special Needs Registry (FloridaDisaster.org/SNR). The registry provides first responders with valuable information to prepare for disasters or other emergencies. People with certain special needs can register in order to receive assistance during a disaster.
- In Florida's Miami-Dade County, residents with limited mobility or medical issues who require evacuation assistance are asked to preregister with the Emergency and Evacuation Assistance Program (MiamiDade.gov/Hurricane) before each hurricane season to ensure that help will be provided to them following an evacuation order or during certain types of emergencies. The program is specifically for people who are *not* in nursing homes, group homes or assisted living facilities.
- Also in Florida, the Seminole County Medically Enhanced Sheltering/ Well-Being Check Program (SeminoleCountyFL.gov) provides disaster-related evacuation assistance and care for people of any age who have “a minor or chronic but stable” physical, cognitive, medical or sensory disability and have no other transportation or shelter options. Individuals can register themselves or a family member.

Lessons From a Live-In Liaison

Many apartment complexes employ live-in courtesy officers, people whose job typically involves making sure residents are safe and all emergency alert systems are working. The position often goes to a law enforcement officer who works during off-duty hours in exchange for a living space.

In Calloway County, Kentucky, a senior-living center added an extra dimension to the role — one that could be adapted by other such facilities to enhance their readiness for disasters.

The experiment was launched in 2018 by Stacey Orr, manager of two Wesley Living retirement communities, when she hired Chesley Thomas as the courtesy officer. In addition to performing the

usual duties — nightly security checks, responding to after-hours medical emergencies and assisting the property manager as needed — Thomas was invited to present a series of educational programs and drills for residents and staff, drawing on his experience as an EMT, CPR instructor and assistant 911 director for the local sheriff's office.

Two years later, when he became Calloway County's director of emergency management, Thomas kept his after-hours job — and became a direct liaison between Wesley Living and local officials. He regularly shares his insights with emergency planners and the sheriff's department, with the goal of incorporating older adults' needs into disaster mitigation efforts throughout the county.

2. Do home checks — and, if needed, provide a way out

- In Cutler Bay, Florida — which is a member of the AARP Network of Age-Friendly States and Communities (see page 29) — officers in the police department's Neighborhood Resource Unit check on assisted living communities when a storm is approaching. The community also keeps a list of who lives in each assisted living facility in case, says Town Manager Rafael Casals, "we find someone wandering in the middle of the storm with no ID." The officers also do home checks in response to calls from out-of-town family members concerned about a relative. When evacuations to shelters are necessary, the city and county work together to assign evacuation buses that make pickups at bus stops along routes near senior citizen centers and communities.

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Poison Pipes



▲ In 2017, AARP Michigan committed itself to helping the residents of Flint navigate the process for replacing the lead-tainted city pipes that connect the main waterline to their homes. The plumbing work was free to homeowners, but to get on the list each needed to sign a consent form. Volunteers from AARP and other organizations went door to door to help get the forms signed.

Suitable Spaces



◀ Evacuees from 2005's Hurricane Katrina sheltered inside the Houston Astrodome. People with hearing impairments could choose to stay in a defined area. (See page 31 for more about making emergency shelters safe and welcoming.)

3. Communicate in plain language and through appropriate media

- Text and email messages as well as website and social media platforms will of course reach a significant number of older people, but many still rely on such old-school standbys as TV or radio news, automated or person-to-person phone calls, postal mail, flyers and even notices tacked to community bulletin boards.
- Existing community resources (such as a 211 telephone help line that connects callers to local services) can provide real-time news updates. It's

Serve and Include the Disability Community

As noted by the National Council on Disability, adopting a broad, inclusive definition of the word “disability” leaves no one behind.

“The term disability does not apply just to people whose disabilities are noticeable, such as wheelchair users and people who are blind or deaf,” states a council report. “The term also applies to people with heart disease, emotional or psychiatric conditions, arthritis, significant allergies, asthma, multiple chemical sensitivities, respiratory conditions, and some visual, hearing, and cognitive disabilities.”⁵⁰

When Hurricane Maria struck in 2017, Carol Salas, director of the Puerto Rico University Center for Excellence in Developmental Disabilities, went to the local emergency command center seeking aid for the special-needs community. “It took a long time to get an audience, and the response was totally inadequate,” Salas recalls.

Two years later, Salas was appointed to FEMA's National Advisory Council,⁵¹ on which she works to ensure that the concerns of people with disabilities are incorporated into every stage of disaster resilience planning. She also promoted

the creation of a network of advisory groups in Puerto Rico, including VOADs, disability service providers and the people they serve.

Salas urges a similarly proactive approach to disaster resilience planning for older adults. “If you design your disaster plan with the needs of people with disabilities and seniors in mind, it will better address the needs of the larger community as well,” she says. No matter the emergency:

- Those serving older adults need to be vocal.
- Joining VOADs, meeting with emergency managers, and advocating at the local and state levels can focus emergency planning organizations' attention on older adults.
- Local leaders (elected, appointed and/or hired) need to ensure that older residents and people with disabilities — or their representatives — are included in the community's disaster response and resiliency planning.

LEARN MORE: See FEMA's *Guide to Expanding Mitigation: Making the Connection to People With Disabilities*.⁵²

important to keep messages simple and slow enough to be absorbed by individuals of differing hearing or cognitive abilities — and to translate the messages into languages other than English in communities that have significant immigrant populations.

- An example of an effective low-tech approach is the Bring Back Louisiana #SleevesUp campaign, in which AARP and other nonprofits worked with the governor's office to encourage vulnerable groups to get COVID-19 vaccines. In addition to web-based outreach, #SleevesUp relied on mailers, direct phone calls, TV commercials and live events. "This kind of outreach is also essential in a natural-disaster context," says AARP Louisiana State President Bobby Savoie. "The internet provides real-time, direct information — but not if you can't access the internet."

4. Help people to practice and plan

- In 2016, AARP California helped Los Angeles officials develop the Purposeful Aging Los Angeles initiative (*PurposefulAgingLA.com*), which calls for incorporating older residents into all county and city emergency response protocols, including practice drills and planning processes. The plan, which came out of the city's membership in the AARP age-friendly network (explained on page 29), also seeks to register older residents in local mass-notification systems, tailor neighborhood emergency readiness programs to their needs, help households develop age-appropriate family emergency plans, and partner with the private sector to purchase and distribute preparedness kits that target low-income older adults. ■

Hazard Mitigation Planning

FEMA's broad mandate also includes reducing risk for communities through hazard mitigation planning. It does this by incentivizing communities to articulate in a formal plan, before a disaster occurs, how they will reduce the vulnerabilities and impact of hazards. Such support for local efforts ultimately reduces disaster-related suffering, including the loss of life and property.

Hazard mitigation planning calls on state, local, tribal and territorial governments to identify vulnerabilities and risks that are common in their areas — and then develop strategies for protecting people and property from future events. Mitigation plans are key to breaking the cycle of disaster damage and reconstruction. To encourage the use of such plans, FEMA requires, as one condition of eligibility, that a hazard mitigation plan be completed in order for a community to receive certain types of nonemergency disaster assistance.⁵³

These plans are important opportunities for articulating the needs of older adults before, during and after a disaster. The planning process is an excellent time for engaging and providing input.

- Organizations that serve older adults can contribute data, insights and expertise. They can illustrate the impacts of hazards and disasters on older people, identify the facilities on which they rely, develop effective risk reduction approaches, and assist in identifying local capacities that can be leveraged.
- State and local governments enrolled in the AARP Network of Age-Friendly States and Communities (see page 29) have age-friendly committees and action plans that can augment local plans. Partnerships with age-friendly teams can help bolster public support for large-scale infrastructure projects or communicate the benefit of smaller-scale risk reduction measures.
- Older residents can share their stories of past hazard events and contribute information based on their experiences. Incorporating these voices increases equity in the planning process and can lead to a reduced need for response and recovery.

Strategy 3: Seek and include diverse perspectives

One reason disaster resilience strategies for older adults are often ineffective is that they fail to account for the demographic's considerable diversity — of race, ethnicity, faith, income, wellness, physical and cognitive abilities, and even age. Collaboration with trusted, local, community-based groups that understand the needs of a diverse older population is critical. Ways to do that include the following.

1. Acknowledge the needs gap

- Adults in their 60s often have very different needs and abilities than adults in their 90s. Age is only one factor among many that can increase older adults' vulnerability to the effects of natural hazards.
- People who live in nursing homes because they require care might have different needs than people who live at home and require care. In a disaster situation, older people who live at home and need high levels of support might have a very hard time simply because their health aides can't reach them.
- In 2019, 19 percent of adults age 65 or older reported they could not function independently at all or had a lot of difficulty with at least 1 of 6 functioning domains (including understanding and communication, mobility, and self-care).⁵⁴

2. Engage a diverse group of stakeholders

- In 2019, nearly 1 in 4 people age 65 or older were members of a racial or ethnic minority population.⁵⁵

- In addition to age, race and ethnicity, the physical and cognitive capabilities of older adults can play a significant role in how effective disaster resilience planning and communication efforts will be.
- Outreach approaches should be done in a manner, language and format that respects these differences — and when possible, through trusted intermediary organizations. For example, older adults may be more receptive to information that comes from groups with language, cultural or faith traditions similar to their own. Identifying and engaging trusted intermediaries — locally based religious congregations, social groups and other organizations — is crucial for reaching a wider range of populations.

3. Identify and address specific needs

- The American Red Cross hosts Sound the Alarm events, during which volunteers, local fire departments and other partners canvass neighborhoods to install free smoke alarms, replace batteries in existing ones, and provide fire prevention and safety education. AARP Louisiana works closely with the program's organizers. "We promote their events to our members, and we partner with the group to offer our own fire-safety workshops," says LaTonya Smith Scott of AARP Louisiana. "Targeting older adults directly works better than assuming that they will participate in events aimed at the larger community." ■

Homeownership, Documents and Disaster Aid

Besides making individuals more vulnerable to the immediate impacts of disasters, the legacies of poverty and racism can make it harder for certain communities to access funding for disaster mitigation and recovery. One longstanding source of this disparity is the prevalence of informal property ownership norms among some marginalized populations.

For decades, FEMA has required applicants for disaster aid to provide a deed or other formal proof of homeownership. That policy, designed to prevent fraud, has disqualified countless Black people in the South, where more than a third of Black-owned land in the region is held as “heirs’ property,” passed down informally within families over multiple generations.⁵⁶ The region’s history of discrimination often placed conventional property ownership out of reach, thereby increasing the number of people who are homeowners yet do not have bank documents or deeds.

A similar situation exists in Puerto Rico, where 45 percent of residents live below the poverty line — and an estimated 25 percent of homes (about 260,000) lack titles or deeds.⁵⁷ After Hurricane Maria struck in 2017, FEMA denied about 40 percent of aid applications, mostly due to an inability to prove ownership.⁵⁸ Thousands of these American citizens still live with blue tarps over their houses, unable to replace roofs torn away by the storm.

In September 2021, FEMA took a big step toward easing such inequities, announcing that it would accept a broader range of homeownership and occupancy documentation from survivors seeking disaster relief.⁵⁹ For those lacking a deed, a public official’s letter or receipts for major

repairs now suffice. Among survivors with heirship properties are owners of manufactured homes or travel trailers (which likewise often change hands without legal documents). Now, they too can self-certify ownership and qualify for assistance.

FEMA officials have indicated that this change is a critical part of reducing barriers to their Individual Assistance program and part of a larger shift to provide more equitable disaster support to all survivors, including underserved populations.

The new guidelines apply retroactively to August 2021 in order to cover damage from Hurricane Ida in Louisiana, the flooding in Tennessee and the California wildfires. Proposed legislation in Congress would codify these changes and require FEMA to reopen cases going back several years.

Disparities in recovery aid extend to the local level as well, sometimes leaving residents permanently dispossessed after a disaster. For example, after floods in 2013 destroyed two mobile-home parks in Lyons, Colorado, voters rejected an affordable housing plan that would have addressed the housing needs of displaced residents — most of whom were low-income seniors. In the end, they were uprooted from the community and their ecosystem of support.⁶⁰

Deep-seated inequities need to be considered throughout the disaster planning and recovery process. Even with new FEMA requirements in place, it will take time for financial assistance applications to be filed, processed and reviewed. Meanwhile, an array of reforms — such as construction moratoriums in areas with repeated flooding — have been proposed to combat inequities through state and federal regulations.

Strategy 4: Be mindful of response and relocation risks

During a disaster or emergency event residents can respond in one of two main ways: They can shelter in place or evacuate. The risks of staying put may seem obvious — injury or death due to fire, flood, wind, heat or other hazards.

Nevertheless, in many cases, older adults hunker down, even when authorities urge or order them to flee. Many have experienced past disasters. Because of that, some believe they can withstand the coming storm, flood or freeze. For others, the costs and risks of relocation outweigh the risk of sheltering in place.

AARP's Vital Voices Survey of Florida residents age 45 or older provide some insights into why people choose *not* to evacuate.⁶¹

- Nearly 80 percent of respondents said they had personally experienced a natural disaster as an adult.
- Three-quarters had an emergency plan in place in the event of a natural disaster.
- Nearly two-thirds (63 percent) had an emergency kit prepared and ready for use in case of a natural disaster.
- Almost 9 out of 10 (87 percent) said they felt “very prepared” or “somewhat prepared” to safely get through a natural disaster.
- Seven out of 10 said they were “very confident” or “somewhat confident” they could rebound financially from a natural disaster.

Given those considerations, it may be less surprising that 55 percent said that, in the event of a hurricane, they would plan to ride it out at home. Of those who would evacuate, 30 percent planned to go to the home of a family member or friend, and 16 percent said they'd go to a hotel. Only 13 percent were willing to evacuate to a public shelter.

This reluctance to seek out an officially sanctioned place of refuge reflects an often-overlooked factor: Evacuation poses risks of its own.

Among the potential dangers, demonstrated tragically in several recent disasters, is becoming trapped in a vehicle while attempting to evacuate when a wildfire or flash flood sweeps across a roadway.

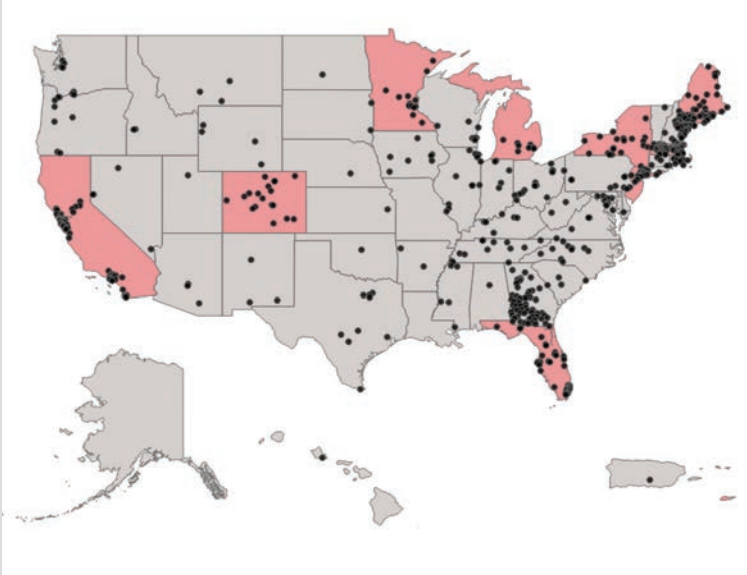
For some older people, the anxiety about abandoning one's home to the ravages of nature (or looters) overrides the fear of high winds or flames. For others, the prospect of sheltering among strangers in an unfamiliar, communal location is more concerning than the disaster itself.

Issues of health, disability and social connectedness can play a role as well. People with cognitive impairments may be disoriented by moving from their accustomed surroundings. Others risk losing access to their medications, special diets or medical equipment such as electric-powered respirators.

People whose main companion is a pet may refuse to relocate or evacuate if their pet isn't welcome.

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The Age-Friendly Network



Established in 2012, the **AARP Network of Age-Friendly States and Communities** serves as a catalyst to educate local leaders (elected officials as well as engaged residents) and encourage them to advocate for and implement the types of policies and improvements that make communities more livable for people of all ages — especially older adults.

Membership in the age-friendly network means that a community's elected leadership has made a commitment to actively work with residents and local advocates to make their town, city, county or state an age-friendly place to live.

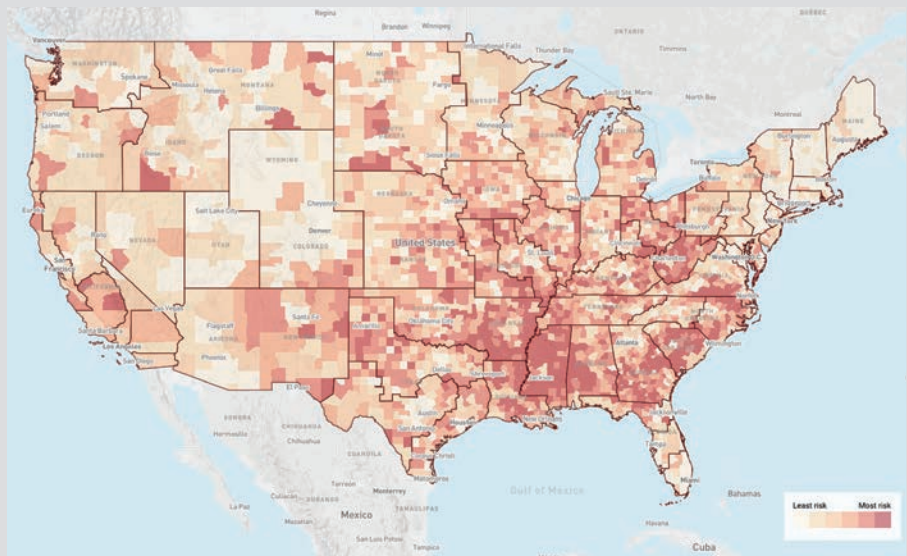
Membership map as of February 2022. See the current Member List at [AARP.org/AgeFriendly](https://www.aarp.org/AgeFriendly).

Home Fire Risks

As part of its **Home Fire Campaign**, the American Red Cross uses targeted fire safety interventions to protect and save lives in communities with high concentrations of low-income families, residents with disabilities and older adults.

At the national level, the Red Cross leverages the Home Fire Risk Map (pictured), which was created in partnership with DataKind DC to pinpoint areas that need services. The map uses fire incidence data from FEMA's Fire Incident Reporting System alongside demographic data from the U.S. Census Bureau to help identify high-risk areas.

Learn more at [RedCross.org](https://www.redcross.org).



For people who need assistance with routine activities such as bathing, dressing or toileting, staying in a shelter is not a practical option. For other older adults, the simple logistics of packing supplies and necessities may be overwhelming, even if they know their caregiver assistance will be disrupted due to the disaster if they stay.

Often the question of whether to stay home or evacuate is not a choice at all.

Many older adults lack access to transportation; they shelter in place during a disaster (sometimes with fatal consequences) because they simply cannot get to someplace safer. For residents of congregate settings, group transportation may be provided, but in a fast-moving disaster, many could find themselves stranded.

For older adults who are temporarily or permanently relocated, long-lasting physical, emotional and mental trauma often follows, compounding existing health concerns.

Strategies for mitigating response risks:

1. Keep the power running

- After 12 residents of a Florida nursing home died of heat-related causes when Hurricane Irma knocked out the facility's air-conditioning,⁶² state authorities mandated that all such facilities acquire "a sufficient alternative power source such as a generator(s), maintained at the nursing home" to ensure an ambient temperature of no more than 81 degrees for a minimum of 96 hours after the loss of electrical power.⁶³ "Our organization fought hard for that," explains Victoria Funes, associate state director, AARP Florida, about the 2018 law.

- For older adults who live independently, AARP Florida has offered programs and workshops in partnership with the City of Orlando, the City of Kissimmee Emergency Management Office and the City of Tallahassee Fire and Rescue Department. That has included information about the safe use of generators.
- Backup generators are also needed in cold-weather climates, as is knowledge of how to safely use a fireplace or wood stove to heat one's home. It is important to remind residents how dangerous it can be to try to keep warm by using a gas kitchen stove, a charcoal grill, or a gas- or propane-powered heater. Part of the fallout of the weeklong power outage in Texas during the state's historic freeze in February 2021 were nearly 20 deaths and more than 1,400 emergency room and urgent care visits due to carbon monoxide poisoning.⁶⁴

2. Keep the phones working

- A cell phone can be a lifesaver — but not when its battery is drained, as will happen in the hours or days after an emergency event that knocks out electrical power. Even households that have kept their landline telephones can't necessarily rely on them when the electricity goes out. While traditional copper lines continue to function without electricity, most telecom providers have switched to fiber-optic systems, which don't. Alternative cell phone power sources include backup batteries, car chargers, solar chargers and hand-crank chargers.

3. Ensure that emergency shelters are safe and welcoming

- Plan for people of different physical and cognitive abilities, as well as those who come with pets, medical equipment or prescriptions with special requirements, like refrigeration.
- Consider creating a separate space for older adults or people with specific needs, so those who would feel more comfortable among peers or require specialized help won't get lost in the crowd. (Since walking long distances or climbing stairs might be a challenge or impossible, set aside a location that's both wheelchair accessible and near restrooms.)
- Provide information in a variety of ways. What languages are spoken by the evacuees? Will translators — and sign language interpreters — be needed? If the materials are printed, is the text legible? (People may have lost their prescription eyewear or readers.) Recognize that printed materials won't be useful to people with no vision. Similarly, audio announcements or TV monitors without closed captioning aren't suitable for people with hearing loss or impairments.
- Equip shelters with shelf-stable meals that are low in salt and sugar for evacuees who have medical conditions such as diabetes or high blood pressure.
- Provide medical services — including access to doctors, gerontologists, prescription medications, even dialysis care — on-site. In Florida, the Special Needs Shelter Program is available for anyone who, “during periods of evacuation or emergency,

requires sheltering assistance, due to physical impairment, mental impairment, cognitive impairment or sensory disabilities.” (While people with special medical needs do qualify, complex medical equipment or care is not available.)⁶⁵

4. Arrange evacuation aid in advance

- Targeted transportation alternatives may be needed for those who can't drive or safely walk to a transit stop. In Florida, residents with certain medical conditions who live at home can preregister to get transportation assistance and other help during an evacuation.⁶⁶
- Also in Florida, licensed health care facilities, including nursing homes and long-term care facilities, are required to have an approved comprehensive emergency management plan (a CEMP) and evacuation protocols on file with their county.⁶⁷

5. Consider short- and long-term relocation housing needs

- Ensure that housing options for people whose homes are uninhabitable after a disaster are suitable for older adults and people with disabilities. (For instance, a mobile or manufactured home isn't a suitable residence if the person who needs to live in it can't climb the entry steps.)
- Allow displaced people to be involved in deciding where they will reside after a disaster and how to eventually return home. (Ensure that the default solution isn't a congregate living facility if the displaced individuals wish to live independently and are able to do so.) ■

Strategy 5: Strengthen community-wide infrastructure

Hazard mitigation investments involving private land or public spaces — from fireproofing or elevating houses to building levees and enhancing stormwater systems — are an essential part of enhancing disaster resilience. So too are policies that seek to reduce risk, such as plans that direct development away from areas at high risk of flooding.

But it's also important to consider other aspects of community infrastructure that can enhance resilience. Housing density and design, walkability and transportation options, the accessibility of green spaces — all can have a major impact on the resiliency of older residents, including their ability to survive and recover from natural disasters. They can add to the financial and physical well-being of older adults, as well as enhance a community-wide sense of connectedness that can be a lifeline for people every day and especially in times of crisis.

FEMA itself recognizes the value of these livable and age-friendly approaches. In the *Guide to Expanding Mitigation: Making the Connection to Older Adults*, FEMA states:

“Communities that want to become more resilient and ‘age-friendly’ choose to build pedestrian-oriented, mixed-use downtowns and town centers; safe and accessible transportation options; a variety of housing options; and accessible public spaces and amenities — as well as systems that address the information and health needs of older adults.”

1. Expand high-speed internet access

- Internet access can be a critical information channel in times of disaster. In Portland, Oregon, a municipal program called Smart City PDX works to overcome the “digital divide” by providing devices, Wi-Fi service and training to local residents — including older people with disabilities, immigrants, low-income workers and people of color. (Learn more at SmartCityPDX.com.)
- AARP California is exploring how broadband infrastructure investments in communities and among older adults can improve their ability to react and act when there's an elevated risk of wildfires, which have had a disproportionately deadly impact on older adults.

2. Ensure mobility options

- Not everyone drives or has access to a car. Too many streets are unwalkable, and bus stops and transit stations are often too far for people to reach on their own, particularly if they have any physical constraints or are carrying a heavy load. And in many areas, public transit is nonexistent in any form. The ability of people to get where they need to go is fundamental to their ability to get out of harm's way, just as it's key to their ability to access food, work and health care.
- While exploring how to mitigate risk for residents of the U.S. Virgin Islands, project leaders who were implementing a FEMA hazard

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“Mitigation strategies that make communities more accessible to older adults benefit everyone and increase community resilience.”

— *Guide to Expanding Mitigation:
Making the Connection to Older Adults*
by FEMA with AARP

The Condo Conundrum

The collapse of the 12-story Champlain Towers South condominium in Surfside, Florida, in June 2021, killed 98 people and raised troubling questions about similar high-rises.

The 40-year-old structure shared several features with thousands of condo developments on both Florida coasts: It was built on reclaimed wetlands, facing an ocean that has risen about a foot in the past century.⁶⁸

The tower’s parking garage often flooded. A 2018 engineering report warned of “major structural damage,” and a few months before the disaster, the condo board and residents were warned about the urgency of starting the more than \$12 million of needed repairs.⁶⁹

In the Miami area, where Surfside is located, so-called nuisance, sunny day, high-tide or king tide flooding (fueled by surging tides rather than heavy rains) is now routine.

A 2016 study examining Miami Beach flooding between 1998 and 2013 found that “tide-induced events” increased by more than 400 percent after 2006.⁷⁰ Many local buildings require round-the-clock sump pumps to keep out salty groundwater, and the corrosion of building materials such as concrete and rebar is a constant threat.

Similar trends are emerging in low-lying coastal areas from Maine to California and around the Great Lakes — most notably in Chicago.

Fortifying condominium developments against sea-level rise and related dangers (as well as any other existing structural problems) can require massive financial outlays, with costs often exceeding the reserve funds set aside by the condominium or homeowners association for major building repairs and emergencies.

When that happens, homeowners are charged a “special assessment.” At Champlain Towers South, the assessment fees ranged from \$80,000 for a one-bedroom unit to \$336,000 for a penthouse.⁷¹

Only 11 states require condominium associations to fund reserves for major costs — but Florida, Illinois, Massachusetts, Ohio and Oregon allow associations to waive that requirement on the basis of a vote at an owners meeting.⁵³ One step toward preventing future condo disasters, advocates say, would be for more states to impose fund reserve requirements or tighten loopholes that make them easy to elude.

The disaster in Surfside also points to the need for broader changes: in inspection and infraction enforcement protocols for aging condo buildings; in construction standards for new projects (particularly in areas that are prone to flooding or other natural disasters); in zoning regulations for environmentally risky areas; and more. All of these needs can and should be part of a community’s efforts to enhance resilience for residents, including and especially for those in multifamily buildings.

mitigation grant realized that — in addition to reducing the risks to a hilltop hospital — the work needed to tackle how people get to and from the hospital. The location of the facility meant that planners needed to ensure that there were ways for older adults to get there, especially during a disaster, even if they were unable to drive or walk up and down the steep steps outside the hospital.

3. Protect needed natural resources

- Access to clean water is essential every day, but that becomes more difficult during a disaster. Preventing pollution of critical water sources, replacing lead-tainted water pipes and conserving water in areas struggling with drought all can help people live healthier lives and, when needed, adapt to and power through an emergency or disaster.
- Plant trees on public lands — and encourage residents to do so on their property — and preserve existing trees. Identify a wide range of locations (not just already-wooded areas) to enhance the tree canopy, including infill sites and sidewalk buffer strips.

4. Help residents weather the weather

- Local leaders can help residents of all ages survive heat waves and cold snaps by, for instance, establishing utility discount programs or contributing to the cost of air-conditioners or safe space heaters. (Note: Many window-unit air-conditioners now have settings for both cooling and heating.)

- One simple but invaluable service that has the potential to help many people, and especially older people, is when a local government agency or nonprofit organization seasonally installs and removes window units for community members who can't lift heavy objects.
- Additionally, the 2021 Infrastructure Investment and Jobs Act includes funding for the Weatherization Assistance Program, established to reduce energy costs for more than 700,000 low-income households by increasing the energy efficiency of their homes.⁷²

5 Capitalize on every opportunity to invest in a more resilient future

- Before approving construction projects that are likely to serve older adults, public officials should ask whether design or operational changes would make the building or development function better in times of disasters.
- Zoning codes can be changed so homes cannot be built or rebuilt in locations that are at risk for repeated flooding or other hazards. (In such cases, property owners need to be adequately compensated for any related losses and offered relocation assistance.) After Hurricane Katrina nearly leveled the Bayou View West neighborhood in Gulfport, Mississippi, FEMA bought out the residents and gave the property to the local government. Funded by an AARP Community Challenge grant, the city's first dog park, the Bark Park, opened in 2017.⁷³ If the area floods again, homes won't be at risk. And once the park dries out, people and pups can immediately return.

Cool(ing) Ideas

Nature's Cooling Systems, a project of the Arizona chapter of the Nature Conservancy, has worked with residents of Phoenix's hardest-hit communities to develop customized heat-resiliency plans.

In 2018, a team of city planners, University of Arizona researchers and community-based organizations led workshops in three neighborhoods experiencing high surface temperatures, average-to-low vegetation, and a history of heat-related mortality and illness.

Attendees identified their communities' hot spots, discussed traditional methods for coping with heat (such as the water-filled clay jars known as ollas, used as evaporative coolers by indigenous peoples) and brainstormed solutions.

Among the proposals being implemented: planting vegetation in vacant lots to reduce dust, developing strategically placed tree canopies, and building shaded rest shelters and transit stops.

Another way to bolster heat resiliency, experts suggest, is to adapt approaches used in other disasters. At the federal level, for example, an agency could be assigned to oversee mitigation and responses to heat emergencies, as FEMA

does for storms and the U.S. Forest Service does for wildfires.

At the local level, communities can prepare for extreme heat events much as they do for hurricanes or other predictable disasters. When a heat wave is imminent, service providers can go to the places where the most vulnerable people (older adults, people living alone on a fixed income) reside. Emergency managers can provide generators for cooling. Local leaders can establish cooling centers. Advanced planning and action can be key.



▲ A healthy tree canopy provides shade and cooling along a residential street in downtown Phoenix, Arizona.

- Repairs or expansions of schools and community centers should include renovations that will support services that can be deployed during a disaster. Two examples include cooling centers and emergency shelters. These locations should also be considered when communities are expanding or improving transit systems, thereby ensuring that the destinations are accessible during crises as well as in noncrisis times.
- Operators of regional electric grids can and should properly communicate about planned outages and ensure that their service is secure, reliable and safe.
- Park managers and transportation officials should ensure that the assets they manage don't increase risks for older adults and instead help to reduce heat, flooding and other factors that hinder resilience. ■

IN CLOSING

The Responsibility for a More Resilient Future Lies With All of Us

The **AARP Disaster Resilience Tool Kit** identifies a range of issues that local leaders should consider as they work to enhance disaster resilience for their communities and especially for older adults.

If we create communities that reduce risks for older adults, it means we have created safer places not only for them but for residents of all ages.

This publication highlights ways to achieve that goal, from the municipal to the national level. It suggests resources that can be useful for local leaders who want to develop age-friendly approaches to disaster mitigation, preparation, response and recovery.

As stated earlier, this guide is meant to spur community-specific activities — including discussions, debates and further investigation — from which solutions can emerge. As with any set of tools, the successful application will be determined by the skills, care and commitment of the users.

By evaluating and reevaluating disaster response and emergency management plans from the perspective of older residents, communities can better ensure that *all* residents are better protected.

If past is prologue, the nation is likely to face more intense, frequent and destructive disasters in the future. There are clear and actionable steps that communities can take now to lower the risks that older adults and people of *all* ages face.

The work requires making connections to ensure that the people responsible for disaster management truly understand the needs of older adults.

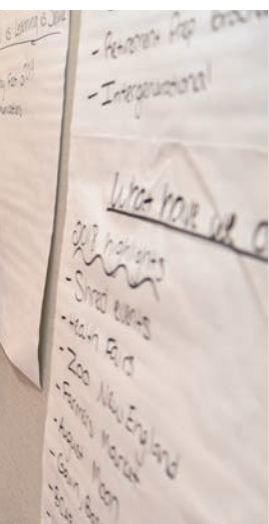
Local leaders, residents and those who serve older adults need to understand how emergency and disaster planning is done — and to weigh in at critical points to ensure that the plans fully account



for the needs of all people in a community, of all ages and abilities.

A greater integration of emergency management professionals and advocates for older adults — and an increased focus on mitigation in addition to preparedness — will promote resilience and more-livable communities. ■

Enlisting older adults as volunteers and participants in planning efforts is an important way to build a link toward a more resilient future.



◀ AARP staff and volunteers are active and engaged members of their communities. AARP has offices in every state as well as Puerto Rico, the U.S. Virgin Islands and Washington, D.C.



TOP: AARP DISTRICT OF COLUMBIA | AARP WISCONSIN | BOTTOM: AARP MASSACHUSETTS | AARP VIRGINIA

Learn More

Organizations: By engaging with the organizations and offices listed here, local leaders and emergency managers can expand their collaborative efforts and effectiveness at serving, representing and advocating for older adults. Outreach and partnership efforts can also include disability advocacy and faith-based organizations, neighborhood and civic associations, and nonprofit community centers.

- **AARP State Offices** ([AARP.org/States](https://www.aarp.org/states)): Locations in 50 states, Puerto Rico, the U.S. Virgin Islands and the District of Columbia
- **Area Agencies on Aging** ([Eldercare.gov](https://www.eldercare.gov)): Regional and local public or private nonprofits that address the needs of older adults
- **Habitat for Humanity** ([Habitat.org](https://www.habitat.org)): Nonprofit organization dedicated to housing and health equity
- **National Indian Council on Aging** ([NICOA.org](https://www.nicoba.org)): Nonprofit focused on the needs of American Indian and Alaska Native elders
- **National Resource Center on Native American Aging** ([NRCNAA.org](https://www.nrcnaa.org)): Nonprofit serving Native American elders
- **Rebuilding Together** ([RebuildingTogether.org](https://www.RebuildingTogether.org)): Nonprofit providing essential home repairs and reconstruction after disasters
- **Silver Jackets** ([SilverJackets.NFRMP.us](https://www.SilverJackets.NFRMP.us)): State-based teams supported by the U.S. Army Corps of Engineers to enhance preparedness, mitigation, and response and recovery efforts

Websites: Resources from the following organizations, agencies and offices provide useful ways to learn more.

- **Department of Homeland Security** ([DHS.gov](https://www.DHS.gov))
 - Center for Faith-Based and Neighborhood Partnerships** ([DHS.gov/Faith](https://www.DHS.gov/Faith))
- **Enterprise Community Partners** ([EnterpriseCommunity.org/Impact-Areas/Resilience/Building-Resilient-Futures](https://www.EnterpriseCommunity.org/Impact-Areas/Resilience/Building-Resilient-Futures))
- **Federal Emergency Management Agency** ([FEMA.org](https://www.FEMA.org))
 - Hazard Mitigation Planning Program** ([FEMA.gov/Emergency-Managers/Risk-Management/Hazard-Mitigation-Planning](https://www.FEMA.gov/Emergency-Managers/Risk-Management/Hazard-Mitigation-Planning))
 - Office of Disability Integration and Coordination** ([FEMA.gov/About/Offices/Disability](https://www.FEMA.gov/About/Offices/Disability))
 - Office of Equal Rights** ([FEMA.gov/About/Offices/Equal-Rights](https://www.FEMA.gov/About/Offices/Equal-Rights))
 - Resilient Nation Partnership Network** ([FEMA.gov/Business-Industry/Resilient-Nation-Partnership-Network](https://www.FEMA.gov/Business-Industry/Resilient-Nation-Partnership-Network))
- **Institute for Diversity and Inclusion in Emergency Management** ([I-DIEM.org](https://www.I-DIEM.org))
- **Urban Institute** ([Urban.org/tags/Disaster-Recovery-and-Mitigation](https://www.Urban.org/tags/Disaster-Recovery-and-Mitigation))
- **U.S. Census Bureau** ([Census.gov](https://www.Census.gov))
- **U.S. Housing and Urban Development Disaster Assistance** ([HUD.gov/Info/DisasterResources](https://www.HUD.gov/Info/DisasterResources))

Publications: Find the following resources by visiting the indicated website and placing the title in the search box.

- **Building Alliances for Equitable Resilience** ([FEMA.gov](https://www.FEMA.gov))
- **Community Resilience Toolkit** ([HUDEXchange.info](https://www.HUDEXchange.info))
- **Engaging Faith-Based and Community Organizations** ([FEMA.gov](https://www.FEMA.gov))
- **Establishing and Maintaining Inclusive Emergency Management With Immigrant and Refugee Populations** ([WelcomingAmerica.org](https://www.WelcomingAmerica.org))
- **Guide to Expanding Mitigation: Making the Connection to Equity** ([FEMA.gov](https://www.FEMA.gov))
- **Guide to Expanding Mitigation: Making the Connection to Older Adults** ([FEMA.gov](https://www.FEMA.gov))
- **Guide to Expanding Mitigation: Making the Connection to People With Disabilities** ([FEMA.gov](https://www.FEMA.gov))
- **Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards** ([FEMA.gov](https://www.FEMA.gov))
- **Pre-Disaster Recovery Planning for Local Governments** ([FEMA.gov](https://www.FEMA.gov))

Endnotes

- 1 “An Aging Nation: Projected Number of Children and Older Adults,” U.S. Census Bureau, March 13, 2018: <https://www.census.gov/library/visualizations/2018/comm/historic-first.html>
- 2 AARP Public Policy Institute analysis based on data from the U.S. Census Bureau: <https://data.census.gov/cedsci/table?q=B26101%3A%20GROUP%20QUARTERS%20TYPE%20%283%20TYPES%29%20BY%20SEX%20BY%20AGE&d=ACS%201-Year%20Estimates%20Detailed%20Tables&tid=ACSDT1Y2019.B26101> and Centers for Disease Control and Prevention: https://www.cdc.gov/nchs/data/series/sr_03/sr03_43-508.pdf
- 3 “AARP and FEMA Partner on Disaster Preparedness, Response and Recovery,” Federal Emergency Management Agency, August 12, 2013, Release Number HQ-13-092: https://www.legistorm.com/stormfeed/view_rss/352119/organization/95589/title/aarp-and-fema-partner-on-disaster-preparedness-response-and-recovery.html
- 4 AARP Policy Book 2021–2022, Livable Communities Principles: <https://policybook.aarp.org/policy-book/livable-communities/aarp-livable-communities-principles>
- 5 DHS Risk Lexicon 2010 Edition: <https://www.dhs.gov/xlibrary/assets/dhs-risk-lexicon-2010.pdf>
- 6 “Hazard Mitigation Planning,” <https://www.fema.gov/emergency-managers/risk-management/hazard-mitigation-planning>
- 7 “Building Alliances for Equitable Resilience,” <https://www.fema.gov/business-industry/resilient-nation-partnership-network/building-alliances>
- 8 “Profile of General Demographic Characteristics: 2000 — New Orleans City, Orleans Parish, Louisiana,” U.S. Census Bureau: <https://data.census.gov/cedsci/table?q=New%20Orleans%20city,%20Orleans%20Parish,%20Louisiana&y=2000&tid=DECENNIALDPF42000.DP1>
- 9 “Hurricane Katrina Deaths, Louisiana, 2005,” Table 2: Demographic Data for Katrina-Related Deaths: Louisiana, 2005, Joan Brunkard, Gonza Namulanda, Raoul Ratard, *Disaster Medicine and Public Health Preparedness*, August 28, 2008: <https://pubmed.ncbi.nlm.nih.gov/18756175/>
- 10 “Camp Fire: List of Identified Victims,” *ActionNewsNow.com*, posted November 27, 2018, updated September 9, 2019
- 11 “Mapping Hurricane Sandy’s Deadly Toll,” *The New York Times*, November 12, 2012: <https://archive.nytimes.com/www.nytimes.com/interactive/2012/11/17/nyregion/hurricane-sandy-map.html>
- 12 “February 2021 Winter Storm-Related Deaths — Texas,” Texas Department of Health and Human Services, December 21, 2021, and “A Vivid View of Extreme Weather: Temperature Records in the U.S. in 2021,” Krishna Karra and Tim Wallace, *The New York Times*, January 11, 2022: <https://www.nytimes.com/interactive/2022/01/11/climate/record-temperatures-map-2021.html>
- 13 “2020 Profile of Older Americans,” Administration for Community Living, May 2021: https://acl.gov/sites/default/files/Aging%20and%20Disability%20in%20America/2020ProfileOlderAmericans.Final_.pdf
- 14 “2021 Tech Trends and the 50-Plus: Top 10 Biggest Trends,” Brittne Kakulla, AARP Research, April 2021: https://www.aarp.org/content/dam/aarp/research/surveys_statistics/technology/2021/2021-tech-trends-older-adults.doi.10.26419-2Fres.00420.001.pdf
- 15 “2020 Profile of Older Americans,” Administration for Community Living, Administration on Aging, U.S. Department of Health and Human Services, May 2021: <https://acl.gov/aging-and-disability-in-america/data-and-research/profile-older-americans>
- 16 “Half of Adults Don’t Have Emergency Savings, AARP Finds,” Kenneth Terrell, AARP, October 8, 2019: <https://www.aarp.org/money/budgeting-saving/info-2019/emergency-funds.html>
- 17 “Climate Change Impacts Seniors Living Near the Coast,” Climate Central, March 3, 2021: <https://medialibrary.climatecentral.org/resources/climate-change-impacts-seniors-living-near-the-coast>
- 18 *Coming Storms: Climate Change and the Rising Threat to America’s Coastal Seniors*, Climate Central, 2021: https://medialibrary.climatecentral.org/uploads/general/Seniors_and_SLR_-_Full.pdf
- 19 “Climate Change Impacts Seniors Living Near the Coast,” Climate Central, March 3, 2021: <https://medialibrary.climatecentral.org/resources/climate-change-impacts-seniors-living-near-the-coast>
- 20 “As Waters Rise, Miami Beach Builds Higher Streets and Political Willpower,” Greg Allen, *All Things Considered*, NPR, May 10, 2016: <https://www.npr.org/2016/05/10/476071206/as-waters-rise-miami-beach-builds-higher-streets-and-political-willpower>
- 21 “Community Resilience,” U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response, Public Health Emergency: <https://www.phe.gov/Preparedness/planning/abc/Pages/community-resilience.aspx>
- 22 “Issue Insight: Older Individuals,” Center for Disaster Philanthropy: <https://disasterphilanthropy.org/issue-insight/older-individuals/>
- 23 “A Vivid View of Extreme Weather: Temperature Records in the U.S. in 2021,” Krishna Karra and Tim Wallace, *The New York Times*, January 11, 2022: <https://www.nytimes.com/interactive/2022/01/11/climate/record-temperatures-map-2021.html>
- 24 “Older Consumers: Especially Vulnerable to Utility Price Increases,” AARP Public Policy Institute, William Shiflett, Lori A. Trawinski, September 25, 2018: <https://www.aarp.org/ppi/info-2018/older-consumers-especially-vulnerable-to-utility-price-increases.html>
- 25 “Weather Related Fatality and Injury Statistics,” National Weather Service: <https://www.weather.gov/hazstat/>
- 26 “Climate Change Indicators: Heat-Related Deaths,” U.S. Environmental Protection Agency: <https://www.epa.gov/climate-indicators/climate-change-indicators-heat-related-deaths>
- 27 “The Effects of Heat Exposure on Human Mortality Throughout the United States,” Drew Shindell, Yuqiang Zhang, Melissa Scott, Muye Ru, Krista Stark, Kristie L. Ebi, *GeoHealth*, April 2020: <https://doi.org/10.1029/2019GH000234> and “Seniors at Risk: Heat and Climate Change,” Climate Central, June 24, 2020: <https://www.climatecentral.org/news/2020-Heat-and-Seniors>
- 28 “Extreme Heat Is Killing People in Arizona’s Mobile Homes,” Karen Peterson, *The Washington Post*, July 2, 2021: <https://www.washingtonpost.com/climate-environment/2021/07/02/arizona-mobile-home-deaths/>
- 29 “Manufactured Housing as an Affordable Option for Older Adults,” Shannon Guzman, Jennifer Skow, AARP Public Policy Institute, July 2019: <https://www.aarp.org/content/dam/aarp/ppi/2019/06/manufactured-housing.doi.10.26419-2Fppi.00070.001.pdf>
- 30 Ibid.
- 31 Ibid.
- 32 “Majority of Oregon Heat Deaths Involved Older People,” Ardeshir Tabrizian, Jamie Goldberg, *The Oregonian/Oregon Live*, August 8, 2021, updated December 1, 2021: <https://www.oregonlive.com/weather/2021/08/majority-of-oregon-heat-deaths-involved-older-people.html>
- 33 “Residential Housing Segregation and Urban Tree Canopy in 37 Cities,” Dexter H. Locke, Billy Hall, J. Morgan Grove, Steward T.A. Pickett, Laura A. Ogden, Carissa Aoki, Christopher G. Boone, Jarlath P.M. O’Neil-Dunne, *npj Urban Sustainability*, March 2021: <https://www.nature.com/articles/s42949-021-00022-0>
- 34 “City Infrastructure Must Evolve to Protect Residents From Extreme Heat,” *All Things Considered*, NPR, September 17, 2021: <https://www.npr.org/2021/09/17/1038395128/city-infrastructure-must-evolve-to-protect-residents-from-extreme-heat>
- 35 “Using Trees and Vegetation to Reduce Heat Islands,” U.S. Environmental Protection Agency: <https://www.epa.gov/heatislands/using-trees-and-vegetation-reduce-heat-islands>
- 36 “Weekly Updates by Select Demographic and Geographic Characteristics: Provisional Death Counts for Coronavirus Disease 2019 (COVID-19),” data as of December 8, 2021, National Center for Health Statistics: https://www.cdc.gov/nchs/nvss/vsrr/covid_weekly/index.htm#SexAndAge (accessed December 14, 2021)

- 37 "Community Resilience," U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response, Public Health Emergency: <https://www.phe.gov/Preparedness/planning/abc/Pages/community-resilience.aspx>
- 38 "Study of Hurricane Katrina's Dead Show Most Were Old, Lived Near Levee Breaches," Mark Schleifstein, NOLA.com/The Times-Picayune, August 28, 2009: https://www.nola.com/news/weather/article_35741734-68e1-575e-86d0-29366eed38e5.html
- 39 "The Emerging Crisis of Aged Homelessness," Dennis Culhane, Dan Teglia, et al., University of Pennsylvania, January 2019: <https://aisp.upenn.edu/wp-content/uploads/2019/01/Emerging-Crisis-of-Aged-Homelessness-1.pdf>
- 40 "Geriatric Conditions in a Population-Based Sample of Older Homeless Adults," R.T. Brown, et al., *The Gerontologist*, 57(4), 2017: <https://academic.oup.com/gerontologist/article/57/4/757/2631974> and "Geriatric Syndromes in Older Homeless Adults," R.T. Brown, et al., *Journal of General Internal Medicine*, 2012: <https://pubmed.ncbi.nlm.nih.gov/21879368/>
- 41 *Disaster Preparedness to Promote Community Resilience: Information and Tools for Homeless Service Providers and Disaster Professionals*: <https://www.va.gov/HOMELESS/nchav/resources/docs/safety/natural-disasters/Disaster-Preparedness-to-Promote-Community-Resilience-Introduction-to-Promoting-Community-Resilience-508.pdf>
- 42 "Effects of Hurricane Katrina on Nursing Facility Resident Mortality, Hospitalization, and Functional Decline," David Dosa, Zhanlian Feng, Kathy Hyer, Lisa M. Brown, Kali Thomas, Vincent Mor, *Disaster Medicine and Public Health Preparedness*, September 2010: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3773950/>
- 43 "Association Between Exposure to Hurricane Irma and Mortality and Hospitalization in Florida Nursing Home Residents," David M. Dosa, Julianne Skarha, Lindsay J. Peterson, et al., *JAMA Network Open*, October 6, 2020: <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2771392>
- 44 "15 Dead Among Nursing Home Evacuees Taken to Tangipahoa Warehouse," Greg LaRose, WDSU.com, September 23, 2021: <https://www.wdsu.com/article/15-dead-among-nursing-home-evacuees-taken-to-tangipahoa-warehouse/37708639#>
- 45 "To Evacuate or Shelter in Place: Implications of Universal Hurricane Evacuation Policies on Nursing Home Residents," David Dosa, Kathryn Hyer, Kali Thomas, Shailender Swaminathan, Zhanlian Feng, Lisa Brown, Vincent Mor, *Journal of the American Medical Directors Association*, August 2011: <https://www.sciencedirect.com/science/article/abs/pii/S1525861011002684>
- 46 "Wildfire Recovery: Evaluating the Issues Around Rebuilding After a Natural Disaster," AARP survey of 910 current and former residents of Jackson County, Oregon (2021): <https://www.aarp.org/research>
- 47 "2021 AARP Home and Community Preferences Survey," Joanne Binette, AARP Research: <https://www.aarp.org/research/topics/community/info-2021/2021-home-community-preferences.html>
- 48 "Inability to Drive: Lack of Transportation Options Are Major Concerns for Older Adults, People With Disabilities and Caregivers," National Aging and Disability Transportation Center, December 2018: <https://www.prnewswire.com/news-releases/new-national-poll-inability-to-drive-lack-of-transportation-options-are-major-concerns-for-older-adults-people-with-disabilities-and-caregivers-300761774.html>
- 49 "The Impact of Hurricanes Katrina and Rita on People With Disabilities: A Look Back and Remaining Challenges," National Council on Disability, August 2006: <https://ncd.gov/publications/2006/aug072006>
- 50 "Saving Lives: Including People With Disabilities in Emergency Planning," National Council on Disability, April 2005: <https://ncd.gov/publications/2005/saving-lives-including-people-disabilities-emergency-planning>
- 51 *FEMA National Advisory Council*: <https://www.fema.gov/about/offices/national-advisory-council>
- 52 *Guide to Expanding Mitigation: Making the Connection to People With Disabilities*: https://www.fema.gov/sites/default/files/documents/fema_r2-making-connection-people-disabilities.pdf
- 53 "Hazard Mitigation Planning": <https://www.fema.gov/emergency-managers/risk-management/hazard-mitigation-planning>
- 54 "2020 Profile of Older Americans," Administration for Community Living, Administration on Aging, U.S. Department of Health and Human Services, May 2021: <https://acl.gov/aging-and-disability-in-america/data-and-research/profile-older-americans>
- 55 Ibid.
- 56 *Have Not Our Weary Feet Come to the Place for Which Our Fathers Sighed? Heirs' Property in the Southern United States*, Cassandra Johnson Gaither, U.S. Department of Agriculture, October 2016: https://www.srs.fs.usda.gov/pubs/gtr/gtr_srs216.pdf
- 57 "The Lack of Proof of Ownership in Puerto Rico Is Crippling Repairs in the Aftermath of Hurricane Maria," Ivis Garcia, *Human Rights Magazine*, May 2021, American Bar Association: https://www.americanbar.org/groups/crsj/publications/human_rights_magazine_home/vol--44--no-2--housing/the-lack-of-proof-of-ownership-in-puerto-rico-is-crippling-repai/
- 58 Ibid.
- 59 "FEMA Makes Changes to Individual Assistance Policies to Advance Equity for Disaster Survivors," Federal Emergency Management Agency, Press Release HQ-21-193, September 2, 2021: <https://www.fema.gov/press-release/20210902/fema-makes-changes-individual-assistance-policies-advance-equity-disaster>
- 60 "Roads and Bridges Have Been Rebuilt, but Lyons Still Struggles to Recover Community Lost in the Floods," Michael Elizabeth Saks, Colorado Public Radio, September 13, 2018: <https://www.cpr.org/show-segment/roads-and-bridges-have-been-rebuilt-but-lyons-still-struggles-to-recover-community-lost-in-the-floods/>
- 61 "Reserve Requirements and Funding" and "Chart of State Condominium Reserve Study/Funding Laws," July 2021, Community Associations Institute: <https://www.caionline.org/Advocacy/Priorities/ReserveStudy/Pages/default.aspx>
- 62 "Vital Voices: Issues That Impact Florida Adults Age 45 and Older," AARP Research, survey fielded August 2019, published 2020: <https://doi.org/10.26419/res.00351.005>
- 63 "Inside the Nursing Home Where 12 Died During Hurricane Irma: 99 Degrees," Megan O'Matz, *Sun Sentinel*, December 28, 2017: <https://www.sun-sentinel.com/local/broward/fl-reg-nursing-home-dehydration-20171227-story.html>
- 64 "59A-4.1265 Emergency Environmental Control for Nursing Homes," Florida Agency for Health Care Administration: https://ahca.myflorida.com/mchq/emergency_activities/epp.shtml
- 65 "Texas Enabled the Worst Carbon Monoxide Poisoning Catastrophe in Recent U.S. History," *The Texas Tribune*, ProPublica.com, NBC News, April 29, 2021, updated August 17, 2021: <https://www.texastribune.org/2021/04/29/texas-carbon-monoxide-poisoning/>
- 66 "Special Needs Shelter Program," Florida Health: <https://www.floridahealth.gov/programs-and-services/emergency-preparedness-and-response/disaster-response-resources/spns-index.html>
- 67 Ibid.
- 68 "Sea Level Trends," *Tides & Currents*, National Oceanic and Atmospheric Administration: https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=8723170
- 69 "Months Before Florida Condo Collapsed, Residents and the Board Sparred Over Repairs," Russell Lewis, NPR, July 2, 2021: <https://www.npr.org/sections/live-updates-miami-area-condo-collapse/2021/07/02/102373938months-before-florida-condo-collapse-residents-and-board-sparred-over-repairs>
- 70 "Increasing Flooding Hazard in Coastal Communities Due to Rising Sea Level: Case Study of Miami Beach, Florida," Shimon Wdowinski, Ronald Bray, Ben P. Kirtman, Zhaohua Wub, *Ocean & Coastal Management*, June 2016: <https://doi.org/10.1016/j.ocecoaman.2016.03.002>
- 71 "Condo Wars': Surfside Association Fighting in Florida Was Extreme, but It's a Familiar Battle for HOAs," Kevin McCoy, *USA Today*, July 10, 2021, updated July 11, 2021: <https://www.usatoday.com/story/news/2021/07/10/surfside-condo-building-collapse-associations-fights-plans/7840468002/>
- 72 "Factsheet: Top 10 Programs in the Bipartisan Infrastructure Investment and Jobs Act That You May Not Have Heard About," The White House, Statements and Releases, August 3, 2021: <https://www.whitehouse.gov/briefing-room/statements-releases/2021/08/03/fact-sheet-top-10-programs-in-the-bipartisan-infrastructure-investment-and-jobs-act-that-you-may-not-have-heard-about/>
- 73 "Transforming a Floodplain Into a Dog Park," 2017 AARP Community Challenge, AARP Livable Communities: <https://www.aarp.org/livable-communities/about/info-2017/2017-community-challenge-gulfport-mississippi.html>

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AARP Disaster Resilience Tool Kit

A guide for how local leaders can reduce risks and better protect older adults

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Are you a state, local, tribal or territorial official interested in making the connection between older adults and hazard mitigation? Are you an advocate for older adults and interested in connecting with local officials to reduce risk from hazards?

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▲ **DISASTER IMPACTS FROM COAST TO COAST:** Flash flooding in Philadelphia, Pennsylvania; wind damage (and power outages) near Denver, Colorado; wildfire evacuations in Southern California.

The U.S. Census Bureau projects that by 2034 people age 65 or older will outnumber those under 18 — a first in the nation’s history. That trend has profound implications for emergency management, especially as floods, droughts, wildfires, tornadoes, heat waves, hurricanes and other weather-related hazards and disruptive events become more common and severe.

A growing body of evidence confirms that older adults are disproportionately impacted during disasters.

A key to ensuring that older adults are properly served by disaster preparedness and emergency planning is acknowledging — and addressing — the gaps that exist between local emergency management teams and the organizations and government agencies that work with and on behalf of older community members.

Better integrated disaster planning — and a better understanding of older adults’ needs — can help local governments better protect all older residents.

The **AARP Disaster Resilience Tool Kit** has been created for local leaders, government staff, aging-services professionals and community volunteers. It is a companion resource to the **Guide to Expanding Mitigation: Making the Connection to Older Adults**, a publication by the Federal Emergency Management Agency for emergency managers and planners, local officials and community members.

When emergency managers, state and local officials, and other community leaders understand the diverse needs of older adults — by working with them and one another — the plans, projects and procedures they design and deploy are more effective at protecting residents from harm and saving lives.

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