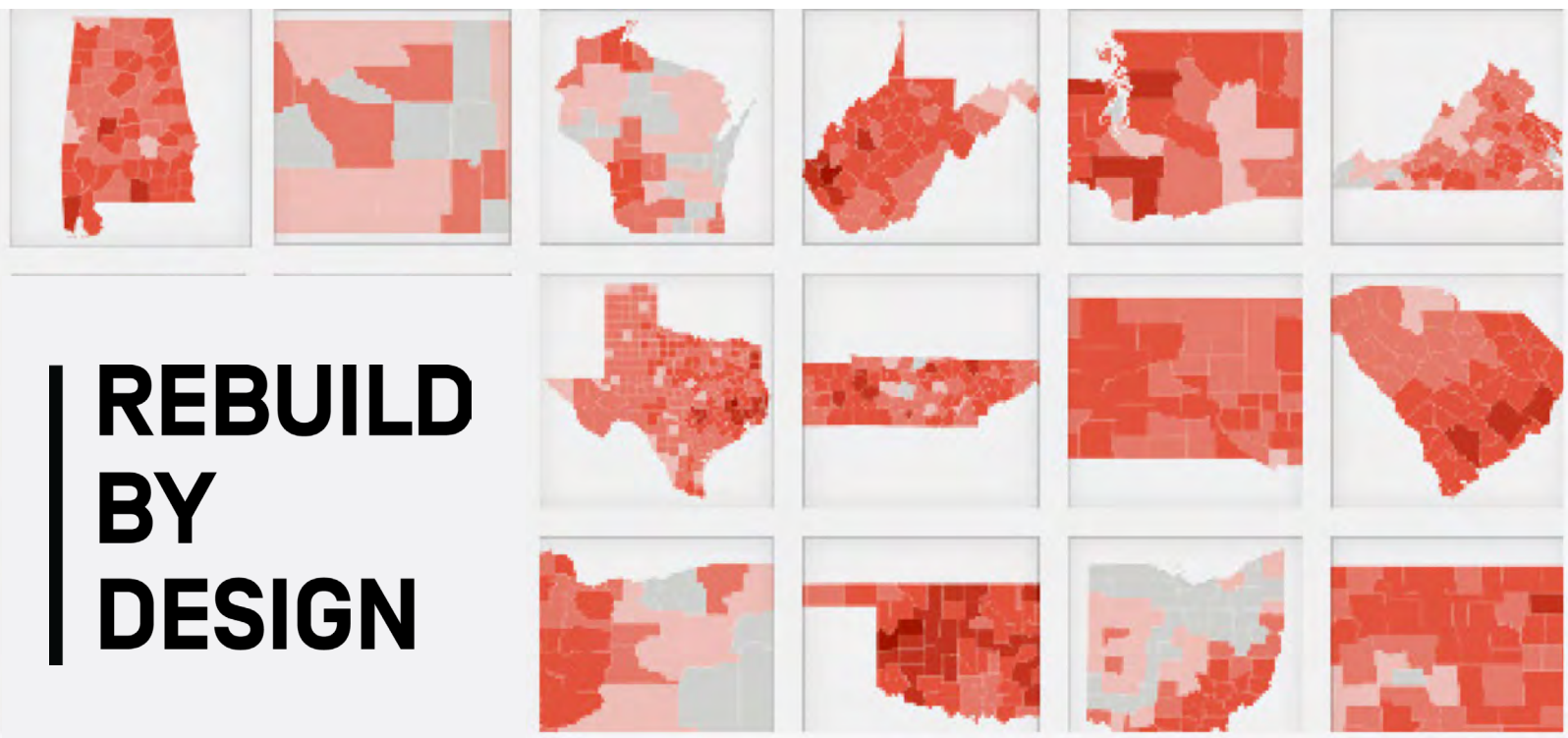


KENTUCKY

ATLAS OF DISASTER

May 2025



**REBUILD
BY
DESIGN**

KENTUCKY



EXECUTIVE SUMMARY

Extreme weather is reshaping Kentucky. In the first six months of 2025, **47 residents** of Kentucky died from extreme weather, adding to a growing pattern of loss and devastation. Between 2011 and 2024, Kentucky faced 23 federally declared major disasters, costing taxpayers over \$1.5 billion. The scale of the recovery needed reveals the financial and structural challenges that persist: communities face mounting risks from future disasters due to aging infrastructure, limited resources, and insufficient capacity to address vulnerabilities comprehensively. For many, rebuilding means more than replacing what was lost—it requires re-imagining infrastructure and planning systems to withstand increasingly frequent and severe weather events.¹ These challenges demand urgent action to safeguard residents and the state’s economy and industries.

Rebuild by Design’s Atlas of Disaster reveals that between 2011 and 2024:

- Kentucky faced **23 federally declared major disasters**, costing taxpayers over **\$1.5 billion**.
- The state had **five of the top 10 counties** in the nation for highest number of major disaster declarations between 2011 and 2024.
- **Twenty of these disasters were flood-related**, underscoring the urgency of flood mitigation.
- Counties with the most disaster declarations include **Franklin and Johnson County (16) and Lawrence, Magoffin, Clay, Lee, and Owsley counties (15 each)**.

These changing conditions are already impacting Kentucky’s agriculture sector, where heavy rainfall and cold temperatures during calving season pose a growing challenge. These conditions disrupt planting schedules, increase risks for livestock, and raise feeding costs. Average summer temperatures in Louisville have risen 3.4°F since 1970, and by 2050, **residents could face 46 days annually over 94.6°F**, compared to just seven days today. This heat increase threatens worker productivity in agriculture, construction, and emergency services, resulting in lost wages and economic strain.²

Similarly, bourbon—another Kentucky staple—relies on specific weather conditions, and extreme weather events threaten the factors that give it its distinct flavor. Temperature fluctuations essential for aging are disrupted by extreme cold or heat, while rising temperatures and increased rainfall jeopardizes crops like corn and rye, key bourbon ingredients. The growing demand for barrels also risks depleting the supply of American white oak. Facing these challenges, Kentucky distillers are turning to sustainable practices to ensure bourbon’s future. This industry must continue to adapt to protect the state’s agricultural and cultural legacies.³ The growing variability and unpredictability of weather conditions events highlight the need for businesses across the state to protect the state’s agricultural future.

Federal policies, have driven significant investments in upgrading Kentucky’s infrastructure and promoting clean energy and community resilience amid rising disasters. However, budget reductions may jeopardize the continuation of this crucial support.⁴ While these investments mark an important step toward safeguarding infrastructure against extreme weather and natural hazards, they are only a fraction of the billions required to fully address Kentucky’s growing vulnerabilities. The pressing need for increased funding and more comprehensive strategies remains undeniable.

We cannot wait any longer to protect the lives and livelihoods of Kentucky’s residents. Delaying action only increases the burden on taxpayers, with funds diverted to emergency responses, repairs, healthcare costs, and lost productivity. Kentucky must prioritize adaptive strategies to ensure a resilient future for its communities

¹ <https://www.kentucky.com/news/weather-news/article306626606.html>

² <https://climatecheck.com/kentucky/louisville>

³ <https://www.wave3.com/2023/10/13/behind-forecast-can-weather-change-bourbons-flavor/>

⁴ <https://www.politico.com/news/2025/01/21/trump-fight-biden-infrastructure-money-00199796>

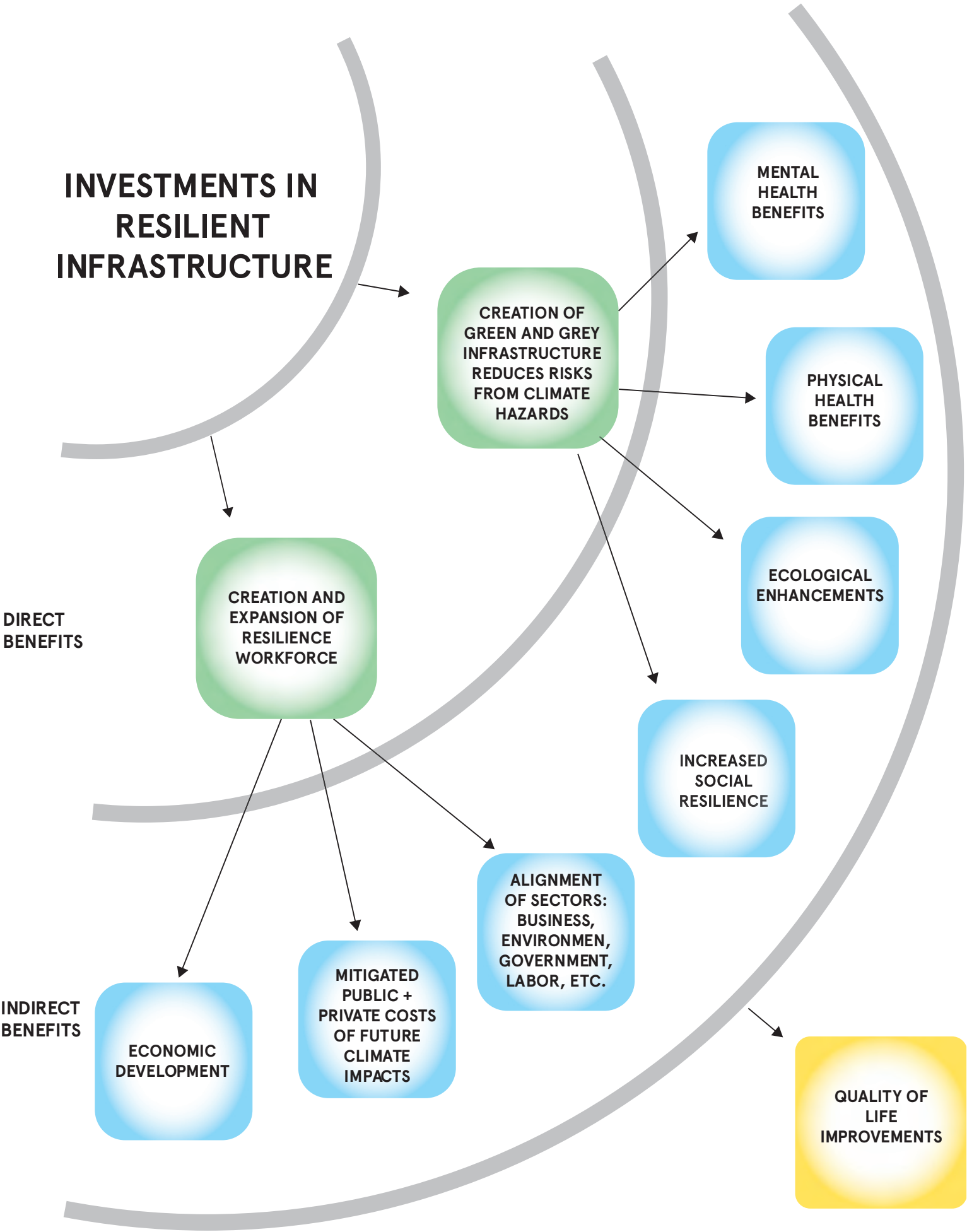
TOGETHER, WE CAN FIX THIS

Flooding in Kentucky has become an all-too-familiar crisis, forcing businesses and residents to choose between rebuilding in flood-prone areas or abandoning their homes. While some Kentuckians remain determined to rebuild after every flood, others are considering relocation after their homes and businesses have been repeatedly inundated. This cycle of devastation raises questions about the sustainability of staying in flood-prone communities, especially as damage continues to mount. Rising insurance costs further compound these challenges,⁵ with homeowners' premiums jumping 22% since 2022, driving Kentucky's average home insurance rate to nearly \$3,000 in 2023.⁶

Robust flood mitigation measures and funding for resilient infrastructure are vital. Given that Kentucky has yet to develop a statewide adaptation plan,⁷ it's critical to prioritize the creation of a comprehensive strategy and funding to guide and coordinate efforts across regions and sectors. Without significant investment in protecting these communities, the region may continue to face a painful cycle of destruction and rebuilding—until a more permanent solution is found.⁸

To effectively tackle these challenges, Kentucky must prioritize sustained investments, including funding for flood mitigation infrastructure, nature-based solutions, stormwater management systems, and enhanced drainage systems. Special emphasis should be placed on state planning and funding for resilient infrastructure in rural communities.⁹ Without targeted support, under-resourced communities remain disproportionately affected by disasters, widening existing inequities. Kentucky's path to resilience is achievable, but it demands a renewed commitment to collaboration and funding tailored to local needs. Together, we have the power to change this— if we act now.

⁵ <https://www.wkyt.com/2024/05/16/how-is-extreme-weather-impacting-home-insurance-rates-kentucky/>
⁶ <https://spectrumnews1.com/ky/louisville/news/2023/07/29/report--average-kentucky-home-insurance-rates-up-22-->
⁷ <https://www.georgetownclimate.org/adaptation/state-information/kentucky/overview.html>
⁸ <https://kypolicy.org/kentucky-must-do-more-to-increase-flood-resilience/>
⁹ <https://www.clevelandfed.org/publications/cd-reports/2023/20230927-resilience-and-recovery>



FUNDING OUR FUTURE

To secure a livable future, it is essential for Kentucky to establish sustainable, long-term funding for resilient adaptation infrastructure. This funding would act as a catalyst for innovative, data-driven, and community-led solutions to address extreme weather risks. A reliable state-level funding source, such as a statewide ballot measure or a surcharge on certain types of insurance, would support vital extreme weather adaptation projects.

The following are potential models that the State of Kentucky can employ to raise the funding needed to support local communities’ plans to prepare for extreme weather events.

RECENT VOTER-APPROVED BALLOT MEASURES

YEAR	LOCALITY	AMOUNT	PURPOSE	VOTER %
2024	CALIFORNIA	\$10 billion bond	Climate resilience, infrastructure, and adaptation	58%
2022	NEW YORK	\$4.2 billion bond	Ecological and climate resilience	68%
2022	RHODE ISLAND	\$50 million bond	Municipal climate resiliency and habitat protection	66%
2022	EL PASO, TX	\$272.5 million bond	Streets, parks, and climate projects	55%
2022	DENVER, CO	\$25 million bond	Outdoor learning spaces development	56%
2021	DENVER, CO	0.25% sales tax to raise \$40 million per year	Climate mitigation and adaptation for underserved communities	62%
2021	MAINE	\$100 million bond	Infrastructure adaptation for safety and resiliency	72%
2021	VIRGINIA BEACH, VA	\$567.5 million bond	Comprehensive flood protection measures	73%
2020	KEY BISCAWAYNE, FL	\$100 million bond	Sea level rise mitigation and infrastructure hardening	57%
2018	CALIFORNIA	\$4 billion bond	Environmental and recreational purposes	58%
2018	HARRIS COUNTY, TX	\$2.5 billion bond	Flood damage reduction projects	85%
2018	BAY AREA, CA	\$425 million bond	Seismic strengthening and flood protection projects	83%
2017	MIAMI, FL	\$400 million bond	Sea level rise and flood protection, public safety and affordable housing	55%



Develop a Statewide Ballot Measure

Voters nationwide have consistently shown support for funding infrastructure projects that enhance resilience and address environmental challenges. In Kentucky, residents play a key role in influencing these decisions by participating in the legislative process. By advocating for policies focused on sustainability and preparedness with elected representatives, Kentuckians can drive meaningful change.

Many cities and states have successfully passed similar measures, such as California’s **\$10 billion Climate Resilience Bond Act**, which focuses on wildfire protection, drought response, and flood protection. Additionally, New York State passed the **\$4.2 billion Environmental Bond Act** in 2022, which is already being used to upgrade infrastructure, improve disaster resilience, and support projects such as wastewater infrastructure, municipal stormwater projects, and other water quality improvements.¹⁹ One such project is the Shinnecock Canal Stormwater Remediation Improvements in Hampton Bays, Suffolk County, NY.

This project, led by Suffolk County and funded through the New York State Department of Environmental Conservation (DEC), has been awarded \$1,000,000 in Bond Act funding. The initiative aims to improve water quality by implementing bioretention areas and a hydrodynamic separator to prevent untreated stormwater from entering the Shinnecock Canal. Covering a 77-acre area, the project will effectively capture, store, and treat stormwater, protecting the vital ecosystems of the Shinnecock and Great Bay watersheds. By investing in such essential infrastructure, the Bond Act not only safeguards public health but also stimulates job creation and economic growth in rural areas.²⁰



Leverage a Modest Insurance Surcharge to Support Billions in Climate Infrastructure

The insurance industry faces mounting challenges, with annual insured losses exceeding \$100 billion. Growing populations, rising property values, and secondary hazards like floods and wildfires now pose greater risks than hurricanes. Severe weather is also becoming more unpredictable, impacting regions once considered safe.²¹

Insurers are reassessing risk models, adjusting coverage, and withdrawing from high-risk areas. Before Hurricanes Helene and Milton, insurers had already pulled out of nine states due to escalating weather threats.²² More than a dozen left Louisiana after storms in 2020 and 2021.²³ In 2022, Florida saw a 42% spike in premiums,²⁴ while Allstate warned New Jersey homeowners of a 55% rate hike due to inflation and extreme weather exposure.²⁵

Rebuild by Design’s 2022 Atlas of Disaster,

modeled the opportunity to levy a modest two-percent surcharge on certain lines of property and casualty insurance. This approach could generate **\$3.3 billion over 10 years** to fund critical disaster resilient infrastructure investments in Kentucky.

A surcharge offers an economically progressive solution to create the needed funds to equitably adapt to major disasters. This model can achieve equitable outcomes because community members with more wealth have more insurance, while those with less resources are likely to have little or no insurance. Creating a dedicated funding mechanism, independent of the state’s general fund, ensures transparency and accountability. To maximize investments, the state would leverage these revenues through bonding, which will produce capital and ensure that bondholders would hold the state accountable for the funds being used for the intended purpose.

By implementing this surcharge, Kentucky can proactively invest in infrastructure to reduce risks and mitigate future costs before communities bear the brunt of extreme weather events. As extreme weather and hazard mitigation interventions are implemented, the risk of loss or damage will decline, reducing the property and casualty payouts for some insurers. Additionally, for communities in FEMA flood zones who take advantage of FEMA’s Community Rating System (CRS), community-wide infrastructure and policy investments could lower flood insurance payments by 5% - 45%,²⁶ magnifying the opportunity to decrease household insurance payments multifold.

As of October 2022, 37 Kentucky communities participate in the CRS. Integrating floodplain management into the state’s risk reduction strategy can further reduce losses and costs. For example, Richmond’s Class 8 CRS rating grants residents a 10% flood insurance discount. Expanding such efforts statewide could enhance resilience and lower insurance costs.²⁷

Shifting weather trends are already impacting Kentucky, and their effects are expected to worsen. If we do not act with urgency, Kentuckians will continue to face the devastating consequences of storms, flooding, rising temperatures, and droughts. With more frequent extreme weather events and rising insurance costs on the horizon, Kentucky can break the cycle of loss by securing sustainable funding to proactively design and implement resilient infrastructure to save lives. The time to act is now.

ECONOMIC IMPACT



27.7K

Properties in Louisville are at risk of flooding over the next 30 years, representing nearly 29% of all properties.²⁸

8.9K

Homes were damaged across 13 counties in the 2022 Eastern Kentucky floods, with rebuilding costs estimated between \$450 million and \$950 million.²⁹

\$3K

The average cost for homeowners' insurance in Kentucky in 2023 is \$3,000, a 22% increase from 2022 rates.³⁰

\$1B+

Since 1980, Kentucky has experienced 92 confirmed weather and climate disaster events, each resulting in economic losses exceeding \$1B each.³¹

DISPLACEMENT

107.9K

Adults in Kentucky have been displaced by disasters due to extreme weather (from 2024 data)—roughly 3.16% of the state’s adult population. This rate is nearly double the national average.

6.2K

Of 330,070 Kentuckians never returned home after being displaced, signaling long-term disruption and community destabilization.

59.9K

Kentuckians still reported “a lot” of loss of electricity a month after a disaster, a breakdown that severely hampers emergency response, healthcare, and everyday survival.³²



DISRUPTIONS

\$30K

Estimated cost of damages from the February 2025 flooding,³³ with the death toll reaching 23, including a mother and child in Hart County.³⁴

14K

Customers were without power, and multiple wastewater systems were inoperable due to the February 2025 flooding.³⁵

\$2.9B

Estimated reconstruction costs from the devastating tornado outbreak that hit Kentucky in December 2021.³⁶

DROUGHT

119

Of Kentucky's 120 counties experienced one of their top five hottest years on record, with more than half having their hottest year ever. This surpasses the previous record set in 1921.³⁷

460

Between 2020 and 2039, extreme heat is expected to cause an additional 300 deaths annually in Kentucky. By 2059, this number is projected to increase to 460 additional deaths each year.³⁸

SEVERE WEATHER

400

Structures destroyed, 24 lives were claimed, and hundreds were injured in the December 2021 tornado in Mayfield.³⁹

158

Tornadoes struck Kentucky from 2004 to 2023—67 more than the 91 recorded in the previous 20-year period from 1984 to 2003.⁴⁰

15K

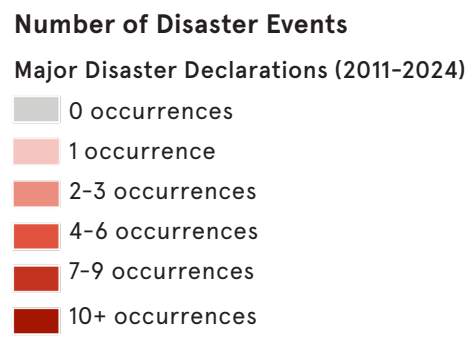
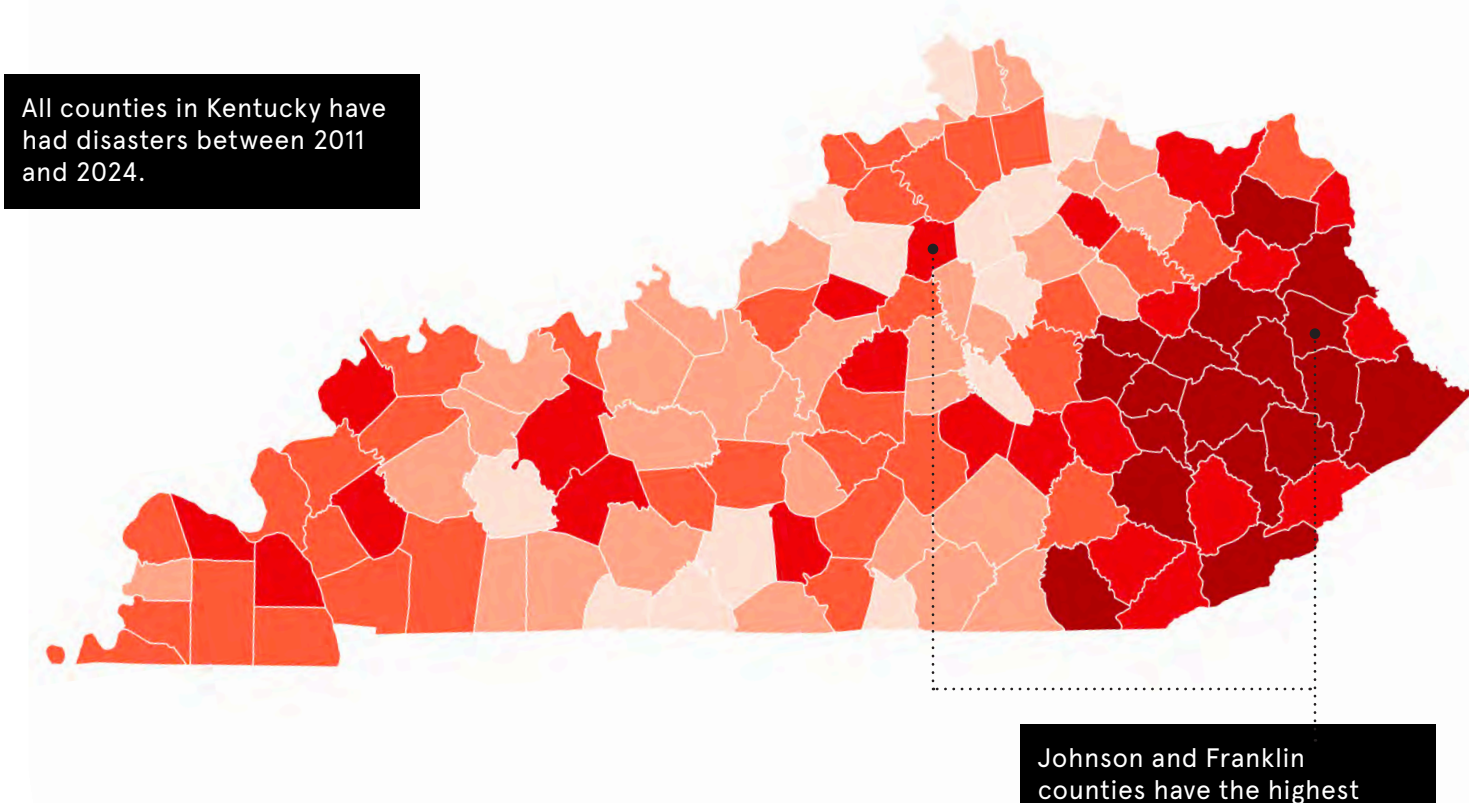
Buildings destroyed in the most disastrous tornado that hit Kentucky in 2021.⁴¹

DISASTER OCCURRENCES 2011-2024

FEDERALLY DECLARED MAJOR DISASTERS BY COUNTY



All counties in Kentucky have had disasters between 2011 and 2024.



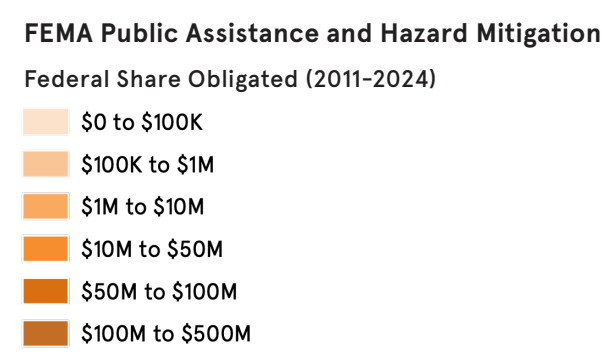
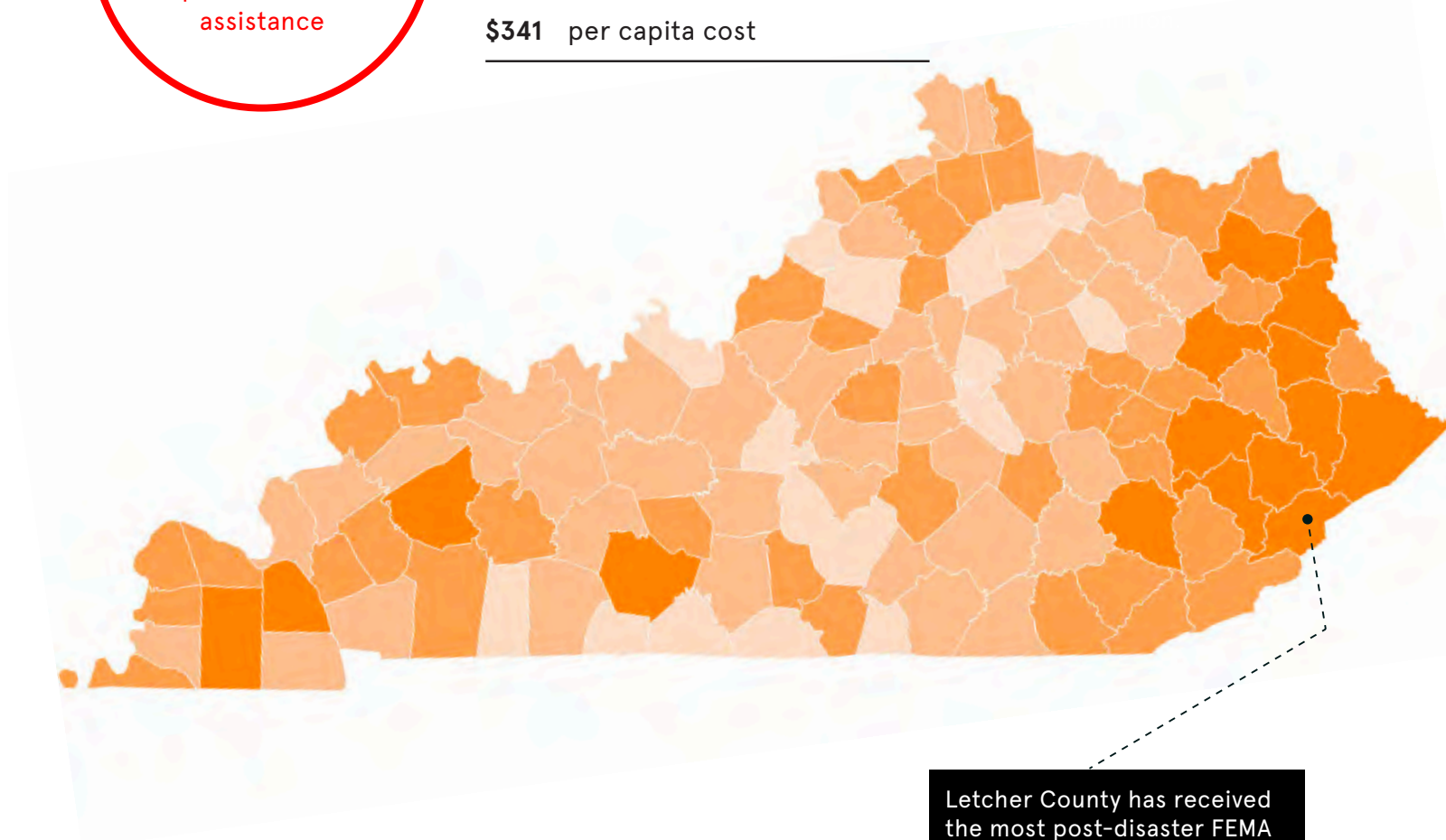
MAP MADE BY REBUILD BY DESIGN
FEMA DATA COURTESY OF IPARAMETRICS

FEDERAL ASSISTANCE 2011-2024

POST-DISASTER PUBLIC ASSISTANCE AND HAZARD MITIGATION FUNDS
OBLIGATED BY COUNTY FOR CLIMATE DISASTERS



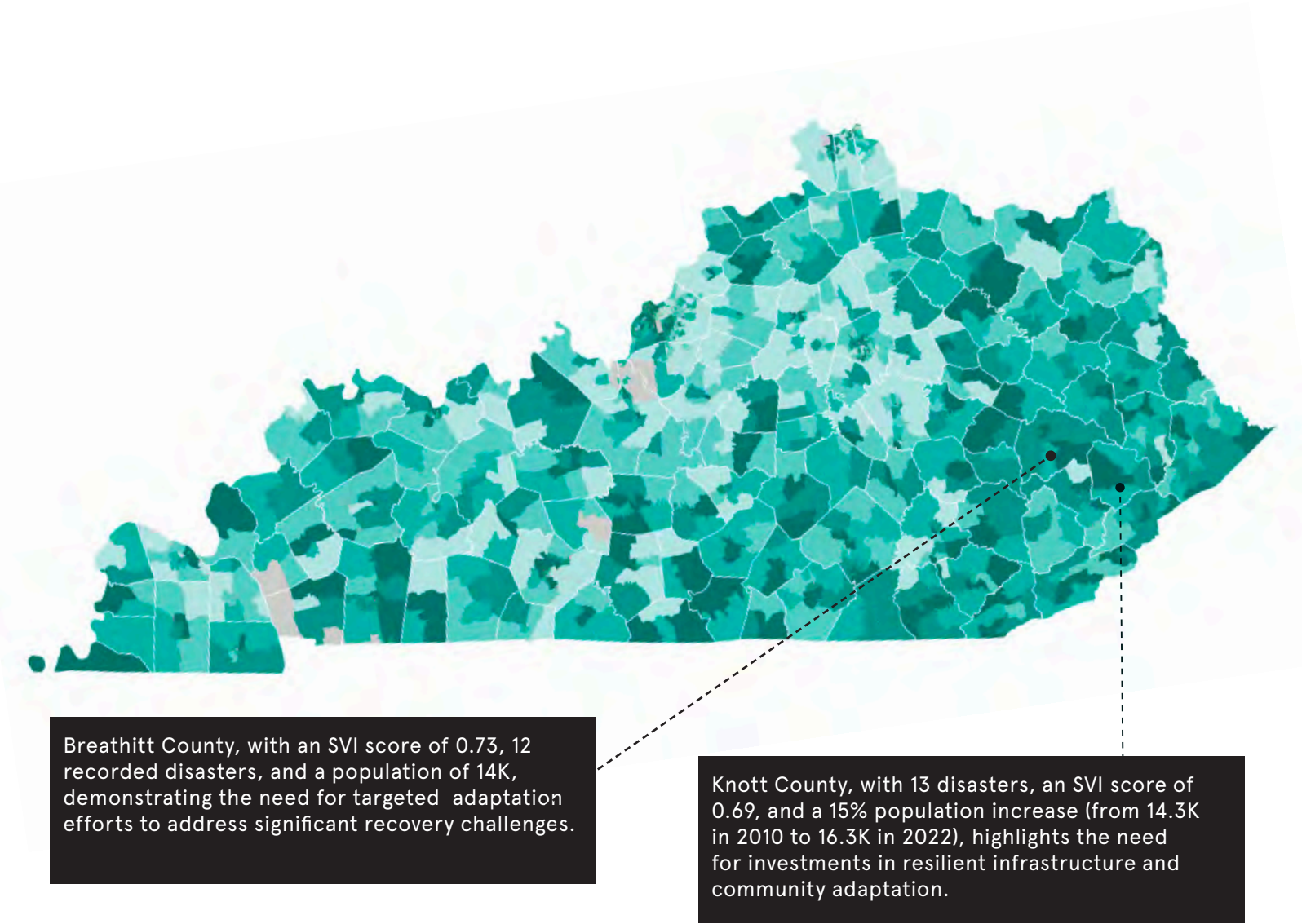
\$1.14B	FEMA obligations
\$386M	HUD CDBG-DR Funds
\$1.53B	FEMA + HUD assistance
\$341	per capita cost



MAP MADE BY REBUILD BY DESIGN
FEMA DATA COURTESY OF IPARAMETRICS

SOCIAL VULNERABILITY INDEX 2022

AREAS OF GREATEST SOCIAL VULNERABILITY



Social Vulnerability Index
CDC (2022)

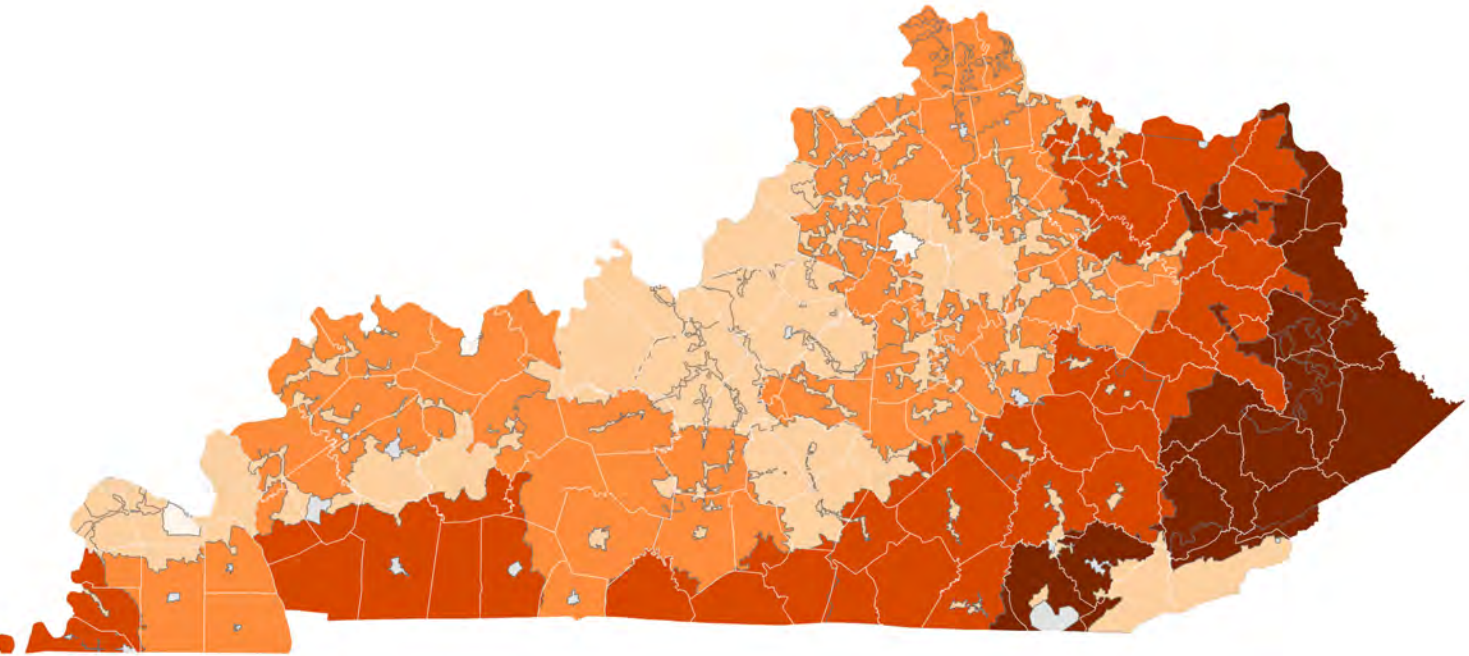
- No Value
- 0.0 - 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0

MAP MADE BY REBUILD BY DESIGN
DATA SOURCE: CDC/ATSDR 2022 SVI

ENERGY RELIABILITY 2011-2021

COUNTIES AT GREATEST RISK OF POWER OUTAGES

Eighteen counties in Kentucky have high social vulnerability and low energy reliability.



Aggregated Annual Electric Outage Duration
Including major events - SAIDI_W_MED

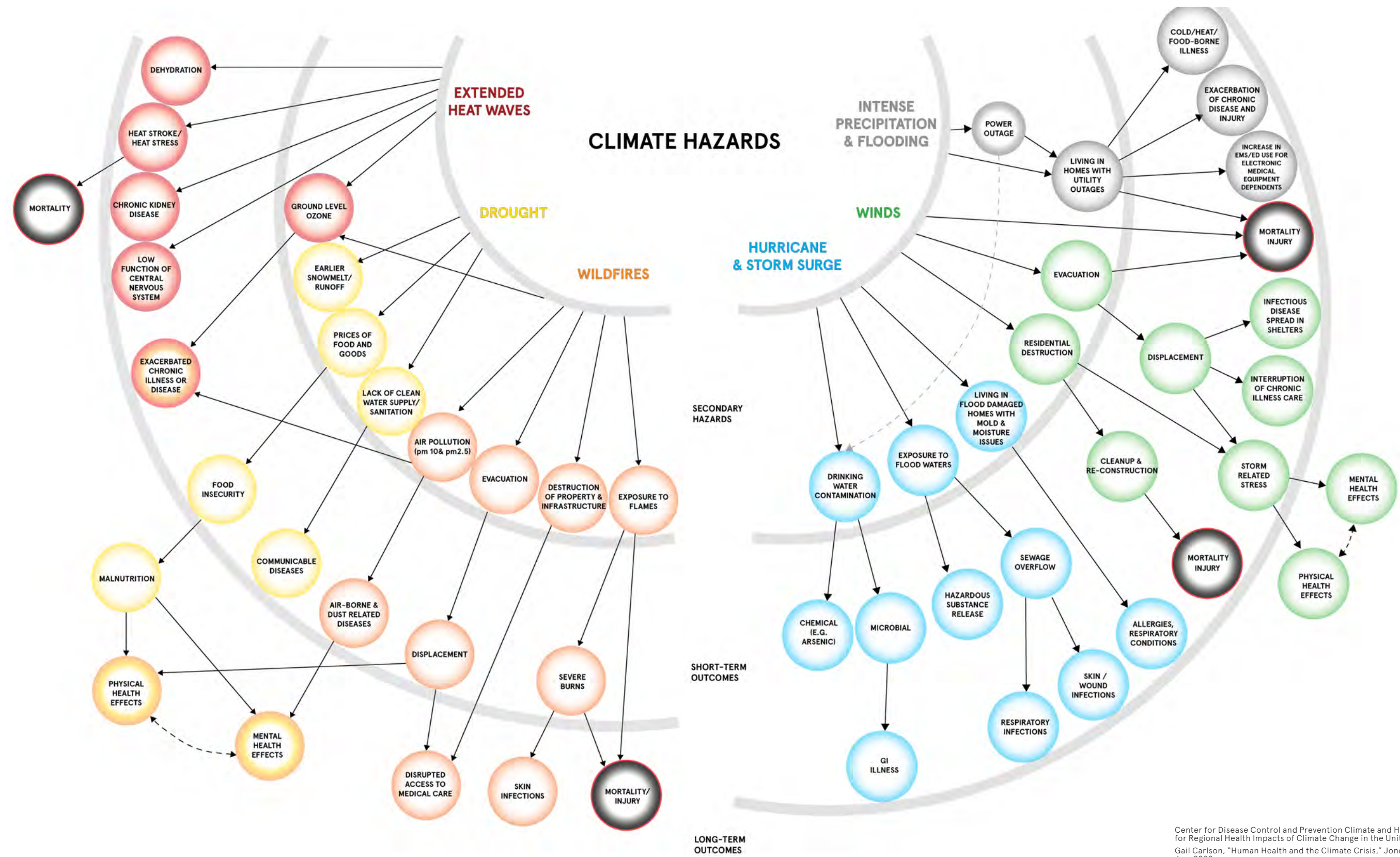
- missing electric outage data
- 0 - 60 minutes
- 60 - 120 minutes
- 120 - 240 minutes
- 240 - 456 minutes
- 456 - 7,700 minutes

Source: U.S. Energy Information
Administration
Maps courtesy of APTIM

KENTUCKY

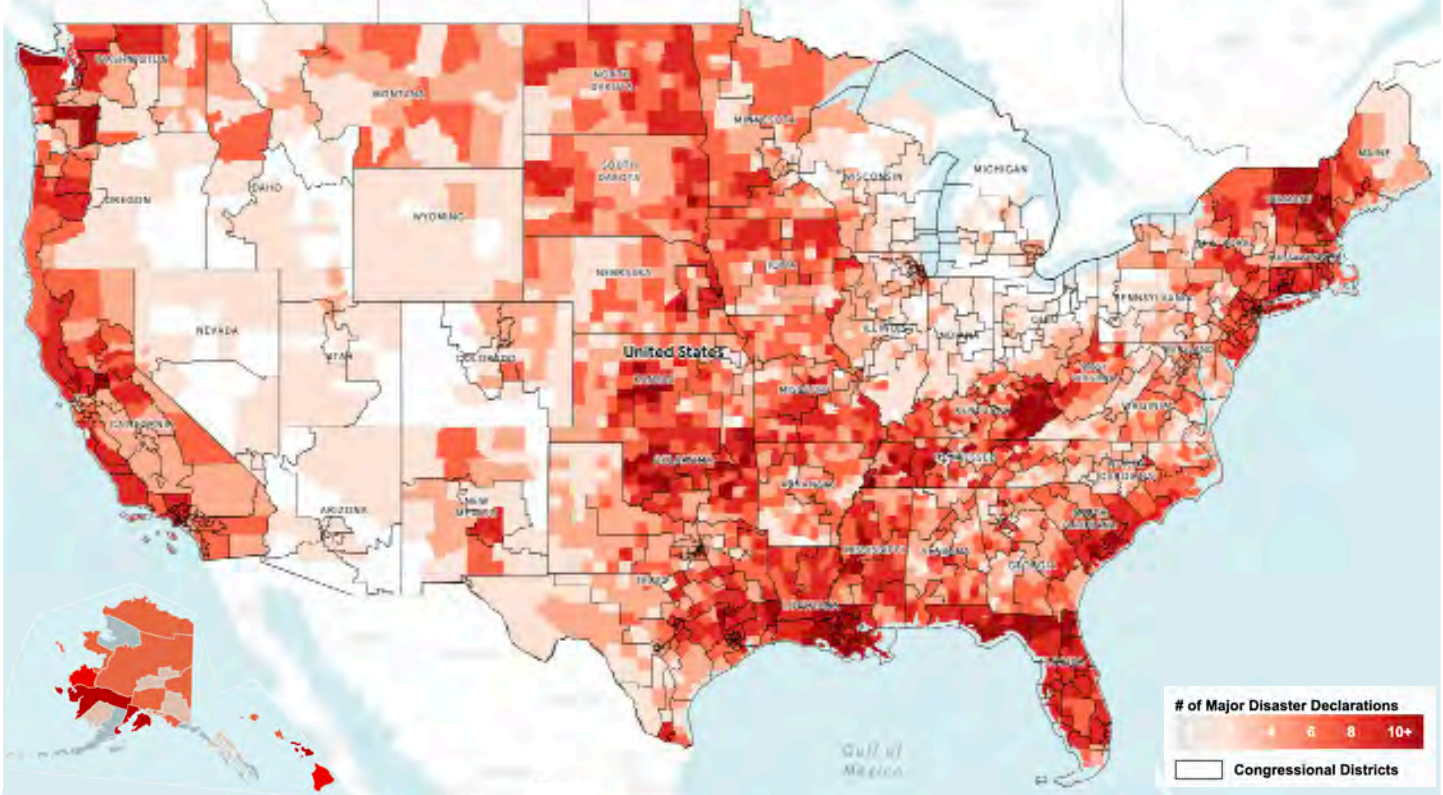
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CASCADING IMPACTS OF CLIMATE EVENTS



ATLAS OF ACCOUNTABILITY

COUNTY-LEVEL DISASTER DECLARATIONS AND CONGRESSIONAL DISTRICTS (2011-2024)



As extreme weather continues to impact the U.S., Rebuild by Design launches the Atlas of Accountability, a mapping tool designed to help communities and policymakers understand their localized, climate-fueled exposure to extreme weather disasters. The tool builds on Rebuild by Design’s 2022 report, “[Atlas of Disaster](#),” which analyzes county-level extreme weather disaster declarations and post-disaster federal assistance. The analysis highlights the urgency of bipartisan cooperation and the need to unite across the urban-rural divide.

99.5% OF CONGRESSIONAL DISTRICTS include a county that received a major disaster declaration for extreme weather between 2011 and 2024, amounting to \$117.9 BILLION in federal post-disaster assistance from FEMA and HUD CDBG-DR.

FINDINGS

80% OF STATES	EXPERIENCED 10 OR MORE MAJOR DISASTER DECLARATIONS
28 STATES	HAD EVERY COUNTY IMPACTED BY A MAJOR DISASTER DECLARATION
39 DISASTERS	CALIFORNIA HAD THE HIGHEST COUNT IN THE U.S., SOME OF WHICH INCLUDED DECLARATIONS FOR TRIBAL GOVERNMENTS
22 DISASTERS	WASHINGTON COUNTY IN VERMONT, RECORDED THE HIGHEST NUMBER OF MAJOR DISASTER DECLARATIONS
HIGHEST PER CAPITA	STATES WITH THE HIGHEST PER CAPITA POST-DISASTER ASSISTANCE SPAN ACROSS BOTH POLITICAL AFFILIATIONS: LOUISIANA, HAWAII, NEW YORK, VERMONT AND NEW JERSEY.

AT A GLANCE

REBUILD
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STATES WITH HIGHEST DISASTER DECLARATIONS

STATE	# OF DISASTERS
CALIFORNIA*	39
OKLAHOMA*	30
TENNESSEE	30
IOWA*	26
ALASKA	25
MISSISSIPPI	25
VERMONT	25
KENTUCKY	23
NEW YORK	23
WASHINGTON*	23

* In instances where tribal land is affected, federal disaster declarations may count the same event twice.

COUNTIES WITH HIGHEST DISASTER DECLARATIONS

COUNTY	# OF DISASTERS
WASHINGTON, VT	22
MERRIMACK, NH	19
LAMOILLE, VT	17
FRANKLIN, KY	16
JOHNSON, KY	16
ESSEX, VT	16
ORLEANS, VT	16
CLAY, KY	15
LAWRENCE, KY	15
LEE, KY	15

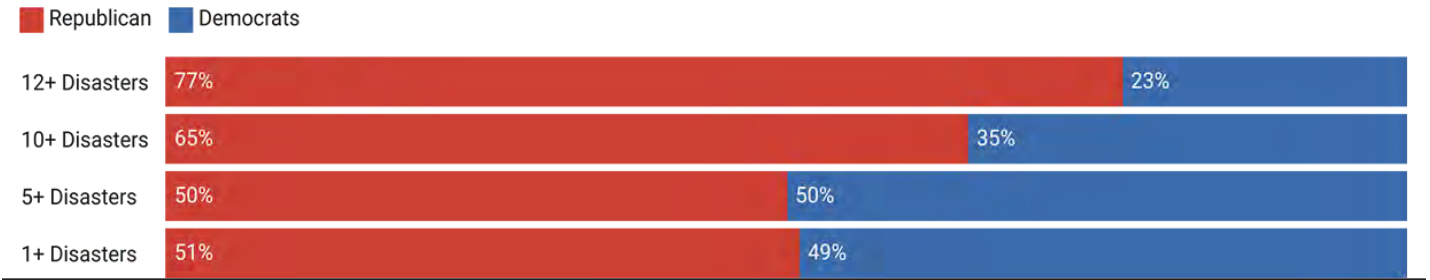
METHODOLOGY
Disaster declarations for climate events (2011-2024) from iParameters; geographic boundaries from U.S. Census TIGER/Line Shapefiles (2023); congressional representation boundaries from USDOT BTS (2024); population data from U.S. Census ACS (2018-2022, 5-Year Estimate). Congressional districts were assigned to counties using spatial analysis, with a minimum 5% area overlap threshold between county and district boundaries.

TOP 10 COUNTIES BY POST-DISASTER FEMA FUNDS BETWEEN 2011-2024

COUNTY	TOTAL FEMA FUNDS*	CONGRESSIONAL DISTRICTS
NEW YORK, NY	9.1 BILLION	NY-10, NY-12, NY-13
NASSAU, NY	2.6 BILLION	NY-02, NY-03, NY-04
HARRIS, TX	1.6 BILLION	TX-02, TX-07, TX-08, TX-09, TX-18, TX-29, TX-36, TX-38
CALCASIEU, LA	1.3 BILLION	LA-03, LA-04
QUEENS, NY	1.1 BILLION	NY-03, NY-05, NY-06, NY-07, NY-14
BAY, FL	978.1 MILLION	FL-02
TERREBONNE, LA	730.9 MILLION	LA-03
SUFFOLK, NY	599.1 MILLION	NY-01, NY-02
LEE, FL	590.4 MILLION	FL-17, FL-19

* FEMA funds refers to Public Assistance (PA) and Hazard Mitigation (HM) only.

ACROSS ALL DISTRICTS



WE WANT TO WORK WITH YOU! Rebuild by Design partners with communities and policymakers to design regional and local processes that create and implement climate-adaptive infrastructure with multiple co-benefits. Contact us at info@rebuildbydesign.org.

DISASTER DECLARATIONS

ALL 50 STATES (2011-2024)

STATE	TOTAL DISASTERS	STATE	TOTAL DISASTERS
California*	39	Georgia	15
Oklahoma*	30	New Jersey	14
Tennessee	30	Oregon*	14
Iowa*	26	New Mexico*	14
Vermont	25	Virginia	14
Alaska	25	Maine	14
Mississippi	25	Hawaii	13
New York	23	South Carolina	11
West Virginia	23	Connecticut	11
Kentucky	23	Massachusetts	11
Washington*	23	Arizona*	11
South Dakota*	22	Pennsylvania	10
New Hampshire	22	Maryland	10
Florida*	21	Idaho	10
Nebraska*	21	Wisconsin	10
Texas	20	Illinois	9
Arkansas	20	Colorado	8
Kansas	20	Rhode Island	8
Louisiana	19	Utah	8
Alabama	19	Michigan	7
North Dakota*	18	Ohio	7
Montana	18	Wyoming	6
North Carolina*	17	Delaware	5
Missouri	17	Indiana	5
Minnesota	16	Nevada	4

*In instances where tribal land is affected, federal disaster declarations may count the same event twice.

FEMA AND HUD COST PER CAPITA

ALL 50 STATES (2011-2024)

COUNTY	PER CAPITA*	COUNTY	PER CAPITA*
Louisiana	\$2,953	Tennessee	\$149
Hawaii	\$1,772	Georgia	\$145
New York	\$1,385	Arkansas	\$135
Vermont	\$902	Montana	\$116
New Jersey	\$854	Massachusetts	\$77
North Dakota	\$846	New Hampshire	\$77
Alaska	\$770	Kansas	\$77
Florida	\$571	Virginia	\$72
Texas	\$531	Illinois	\$67
West Virginia	\$531	Maine	\$62
Nebraska	\$453	Minnesota	\$61
North Carolina	\$428	Washington	\$61
Kentucky	\$341	Rhode Island	\$61
South Dakota	\$339	Pennsylvania	\$58
South Carolina	\$336	Maryland	\$41
Iowa	\$329	Idaho	\$38
Alabama	\$314	Michigan	\$33
Oregon	\$294	Wyoming	\$30
Oklahoma	\$274	Wisconsin	\$27
Mississippi	\$272	Utah	\$23
New Mexico	\$256	Delaware	\$20
California	\$224	Ohio	\$19
Missouri	\$187	Nevada	\$11
Connecticut	\$158	Indiana	\$10
Colorado	\$157	Arizona	\$3

*Per capita is calculated using FEMA (PA+HM) & HUD CDBG-DR federal post-disaster funds.

DISASTER DECLARATIONS

TOP 50 CONGRESSIONAL DISTRICTS (2011-2024)

DISTRICT	REPRESENTATIVE	DISTRICT	REPRESENTATIVE
VT-AT-LARGE	Becca Balint (D)	KS-01	Tracey Mann (R)
NH-01	Chris Pappas (D)	KS-04	Ron Estes (R)
NH-02	Maggie Goodlander (D)	LA-06	Cleo Fields (D)
KY-05	Harold Rogers (R)	OK-03*	Frank Lucas (R)
KY-06	Andy Barr (R)	SD-AT-LARGE*	Dusty Johnson (R)
LA-01	Steve Scalise (R)	WA-03*	Marie Perez (D)
LA-02	Troy Carter (D)	CA-03*	Kevin Kiley (R)
LA-03	Clay Higgins (R)	CA-06*	Ami Bera (D)
LA-05	Julia Letlow (R)	CA-07*	Doris Matsui (D)
MO-03	Robert Onder (R)	CT-01	John Larson (D)
NE-02*	Don Bacon (R)	CT-03	Rosa DeLauro (D)
KY-04	Thomas Massie (R)	CT-04	James Himes (D)
MS-02	Bennie Thompson (D)	CT-05	Jahana Hayes (D)
MS-03	Michael Guest (R)	FL-04*	Aaron Bean (R)
NE-03*	Adrian Smith (R)	FL-05*	John Rutherford (R)
OK-02*	Josh Brecheen (R)	FL-06*	Michael Waltz (R)
TN-05	Andrew Ogles (R)	KY-01	James Comer (R)
TN-06	John Rose (R)	SC-01	Nancy Mace (R)
TN-07	Mark Green (R)	SC-06	James Clyburn (D)
TX-08	Morgan Luttrell (R)	TN-08	David Kustoff (R)
TX-17	Pete Sessions (R)	TN-09	Steve Cohen (D)
WV-01	Carol Miller (R)	TX-36	Brian Babin (R)
CA-04*	Mike Thompson (D)	WA-06*	Emily Randall (D)
FL-02*	Neal Dunn (R)	CA-01*	Doug LaMalfa (R)
FL-03*	Kat Cammack (R)	CA-02*	Jared Huffman (D)

*In instances where tribal land is affected, federal disaster declarations may count the same event twice.

TOGETHER, WE CAN FIX THIS

- 1 **Shifting post-disaster federal dollars** for pre-disaster funding so communities can invest infrastructure before they suffer.
- 2 **Creating new sources of dedicated funding** such as investigating state voter referendums, surcharges on certain types of insurance coverage (e.g., property and casualty), and state-level superfund laws.
- 3 **Mandating that U.S. insurance companies** take into account mitigation measures when pricing insurance policies, giving policyholders incentives to take small actions that will save all taxpayers money, just as FEMA does with the National Flood Insurance Program’s Community Rating System.
- 4 **Creating better infrastructure:** ensuring that every piece of new infrastructure is built to withstand climate events to the life cycle of that infrastructure; is designed infrastructure to address both physical and social vulnerabilities, thus multiplying taxpayers investments.
- 5 **Amending the Stafford Act** to ensure that heat waves are treated the same as other federal disasters, deploying resources to communities who have been suffering with no end in sight.



IMAGE SOURCE: VPIRG | STUDENT CLIMATE RALLY 2019

CLIMATE CHANGE INCREASES INEQUITIES

The impacts of storms and flooding disproportionately affect the most vulnerable people. Disasters are not created by natural events alone; rather, they are the product of natural events and a combination of social, political, and economic stressors. Therefore, as climate change increases the frequency of flooding, it will further reinforce underlying vulnerabilities and

DURING A FLOOD

Low-income communities experience greater challenges evacuating due to the cost of transportation and relocation, placing them at a greater risk of injury, disease, or death.

Residents who do not leave during a storm have increased health risks, such as exposure to contaminated water, interrupted access to medical care, and difficulty acquiring food.

Low-income and minority populations, as well as elderly nursing home residents, are more likely to have chronic health problems, increasing their vulnerability to other storm hazards.¹

AFTER A FLOOD

A medium-sized natural disaster leads to a 5% increase in the share of people with debt collections after one year, which doubles to 10% after four years.²

People in poverty are less likely to have flood insurance or to maintain flood insurance payments.

The Urban Institute has found that after 4 years, a medium-sized disaster causes an average 31-point decline in credit scores for people living in communities of color, whereas people living in majority-white communities experienced a 41-point decline.³

FEMA funding largely focuses on homeowners; meanwhile renters typically face rent hikes and mass evictions.

Lower income households may not have the financial and educational resources to advocate for fair buyouts, repair damages, and afford temporary housing.

After federal aid has been distributed to communities that have experienced a disaster, predominantly white, well-educated homeowners experience a significant increase in wealth. Conversely, communities of color, particularly those who are less educated renters, experience a decline in wealth.⁴

1. Lane et. al, "Health Effects of Coastal Storms and Flooding in Urban Areas: A Review and Vulnerability Assessment," 2013.
2. Urban Institute, "Insult to Injury: Natural Disasters and Residents' Financial Health," 2019.
3. Urban Institute, 2019.
4. Howell & Elliott, "Damages done, the Longitudinal Impacts of Natural Hazards on Wealth Inequality in the United States," 2018; Muñoz & Tate, "Unequal Recovery? Federal Resource Distribution after Midwest Flood Disaster," 2016.

THE COST OF DISASTERS

Benefit - Cost Ratio for Investing in Hazard Mitigation Infrastructure

13:1

The US Chamber of Commerce found that \$13 was the amount saved in economic impact and cleanup costs for every \$1 invested in resilience.⁶

Economic Impacts for the USA



HAZARD MITIGATION FUNDING IS A STRATEGIC INVESTMENT IN OUR FUTURE, REDUCING RISKS AND COSTS ASSOCIATED WITH CLIMATE CHANGE WHILE BUILDING MORE RESILIENT AND SUSTAINABLE COMMUNITIES.

Project types range from green infrastructure, such as wetlands restoration or bioswales for stormwater management, to grey infrastructure, such as right-sizing a dam or bridge.

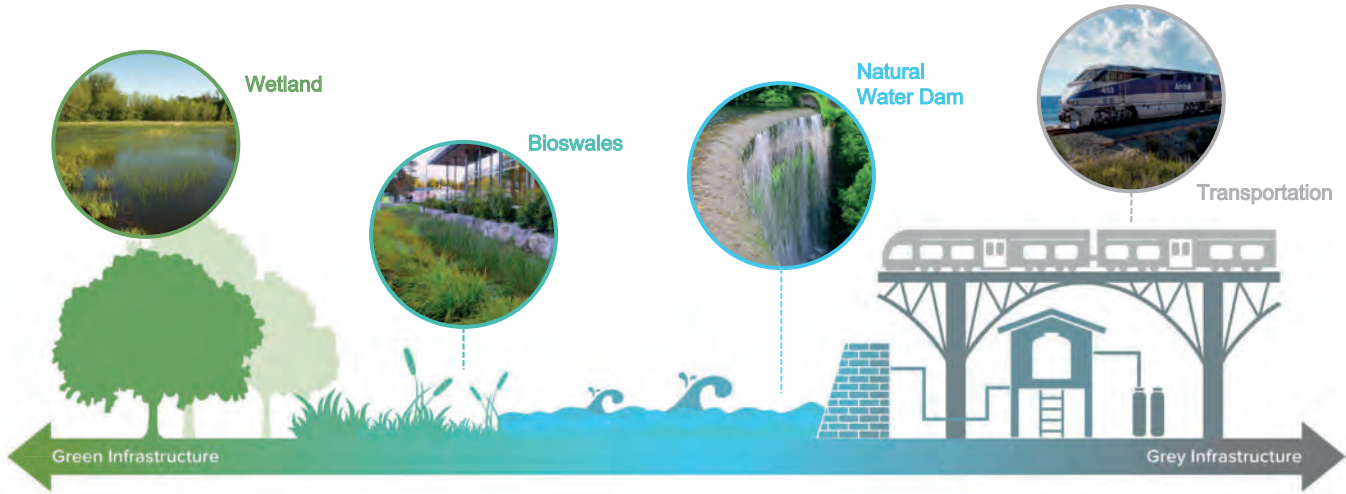


IMAGE SOURCE: BURO HAPPOLD

6. <https://www.uschamber.com/security/the-preparedness-payoff-the-economic-benefits-of-investing-in-climate-resilience>

Endnotes

1. <https://climatecheck.com/kentucky/louisville>

2. <https://climatecheck.com/kentucky/louisville#:~:text=Precipitation%20and%20heat%20risk%20in,for%20these%20buildings%20is%20high.>

3. <https://www.wkyt.com/2024/05/16/how-is-extreme-weather-impacting-home-insurance-rates-kentucky/>

4. <https://spectrumnews1.com/ky/louisville/news/2023/07/29/report--average-kentucky-home-insurance-rates-up-22--#:~:text=The%20insurance%20comparison%20platform%2C%20QuoteWizard%2C%20said%20their%20analysts%20found%20Kentucky's,home%20values%20have%20gone%20up.>

5. <https://www.wave3.com/2025/02/20/extreme-weather-challenges-kentucky-farmers-with-flooded-fields-cold-during-calving-season/>

6. <https://www.wave3.com/2023/10/13/behind-forecast-can-weather-change-bourbons-flavor/>

7. <https://kentuckylantern.com/briefs/kentucky-among-the-most-vulnerable-states-to-climate-change-impacts-according-to-new-research/>

8. <https://www.census.gov/data/tables/2024/demo/hhp/cycle09.html#tech>

9. <https://www.georgetownclimate.org/adaptation/state-information/kentucky/overview.html#:~:text=Kentucky%20has%20not%20developed%20a,climate%20change%2C%20are%20highlighted%20below.>

10. <https://kypolicy.org/kentucky-must-do-more-to-increase-flood-resilience/#:~:text=To%20make%20meaningful%20changes%20that,response%20to%20the%20latest%20tragedy.>

11. <https://www.housingcantwait.org/about>

12. <https://www.wymt.com/2024/09/27/officials-monitor-stream-gauges-levels/>

13. <https://www.clevelandfed.org/publications/cd-reports/2023/20230927-resilience-and-recovery>

14. <https://www.kentucky.com/news/weather-news/article300476919.html>

15. <https://kypolicy.org/federal-investments-are-funding-improvements-and-creating-jobs-in-nearly-all-kentucky-counties/>

16. <https://www.politico.com/news/2025/01/21/trump-fight-biden-infrastructure-money-00199796>

17. <https://kypolicy.org/federal-investments-are-funding-improvements-and-creating-jobs-in-nearly-all-kentucky-counties/>

18. <https://www.kentucky.com/news/weather-news/article300476919.html>

19. <https://rebuildbydesign.org/work/research-and-policy/economic-impacts-of-the-new-york-state-environmental-bond-act/>

20. https://experience.arcgis.com/experience/0c6033933b614d9a8ff9a96eedb086bd/#data_s=id%3AdataSource_3-18ef3f69e18-layer-3%3A340&widget_119=active_datasource_id:dataSource_3

21. <https://riskandinsurance.com/natural-disaster-risks-reshape-insurance-landscape-sustainability/>

22. <https://www.newsweek.com/map-shows-9-states-where-homeowners-are-losing-their-insurance-1875252>

23. <https://insideclimatenews.org/news/20072024/louisiana-climate-response-canceled-home-insurance/#:~:text=Companies%20Flee%20Louisiana,hurricanes%20in%202020%20and%202021.>

24. <https://www.nbcmiami.com/responds/new-insurance-companies-enter-florida-market-amid-ongoing-crisis-and-regulatory-changes/3098573/>

25. <https://www.nj.com/news/2024/02/homeowners-insurance-could-go-up-more-than-55-due-to-severe-weather-inflation-allstate-warns.html>

26. <https://www.fema.gov/floodplain-management/community-rating-system>

27. <https://buildrichmondky.com/stormwater-floodplain-management/>

28. https://firststreet.org/city/louisville-ky/2148000_fsid/flood

29. <https://nlihc.org/resource/new-report-2022-kentucky-floods-highlights-impact-disasters-affordable-housing#:~:text=Across%20the%2013%20counties%2C%20the,those%20of%20low%20income%20residents.>

30. [https://spectrumnews1.com/ky/louisville/news/2023/07/29/report--average-kentucky-home-insurance-rates-up-22--#:~:text=%20The%20insurance%20comparison%20platform%2C%20QuoteWizard%20said,annual%20premium%20in%202023%20increased%20to%20\\$2%2C936.](https://spectrumnews1.com/ky/louisville/news/2023/07/29/report--average-kentucky-home-insurance-rates-up-22--#:~:text=%20The%20insurance%20comparison%20platform%2C%20QuoteWizard%20said,annual%20premium%20in%202023%20increased%20to%20$2%2C936.)

31. [https://www.ncei.noaa.gov/access/billions/state-summary/KY#:~:text=From%201980%E2%80%932024%20\(as%20of,and%2012%20winter%20storm%20events.](https://www.ncei.noaa.gov/access/billions/state-summary/KY#:~:text=From%201980%E2%80%932024%20(as%20of,and%2012%20winter%20storm%20events.)

32. <https://www.census.gov/data/tables/2024/demo/hhp/cycle09.html#tech>

33. <https://spectrumnews1.com/ky/louisville/news/2025/02/26/flooding-update-eastern-kentucky>

34. <https://spectrumnews1.com/ky/louisville/news/2025/02/26/flooding-update-eastern-kentucky>

35. [https://pacinst.org/the-growing-threat-of-catastrophic-flooding-in-rural-america/#:~:text=The%20floods%20caused%20widespread%20damage,of%20February%2025%2C%202025\).](https://pacinst.org/the-growing-threat-of-catastrophic-flooding-in-rural-america/#:~:text=The%20floods%20caused%20widespread%20damage,of%20February%2025%2C%202025).)

36. <https://www.propertycasualty360.com/2021/12/16/costs-from-fridays-tornado-outbreak-could-reach-3-7-billion/?slreturn=20250308-41023>

37. <https://www.lpm.org/news/2025-02-17/for-all-but-one-kentucky-county-2024-was-one-of-the-five-hottest-years-on-record>

38. <https://www.lpm.org/news/2015-07-28/report-breaks-down-climate-changes-impending-effect-on-kentuckys-economy>

39. <https://spectrumnews1.com/ky/louisville/news/2024/07/05/recovery-downtown-mayfield>

40. <https://my1053wjlt.com/high-intensity-tornadoes-rise-kentucky/>

41. <https://www.groundzeroshelters.com/blog/kentucky-tornado-averages>

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