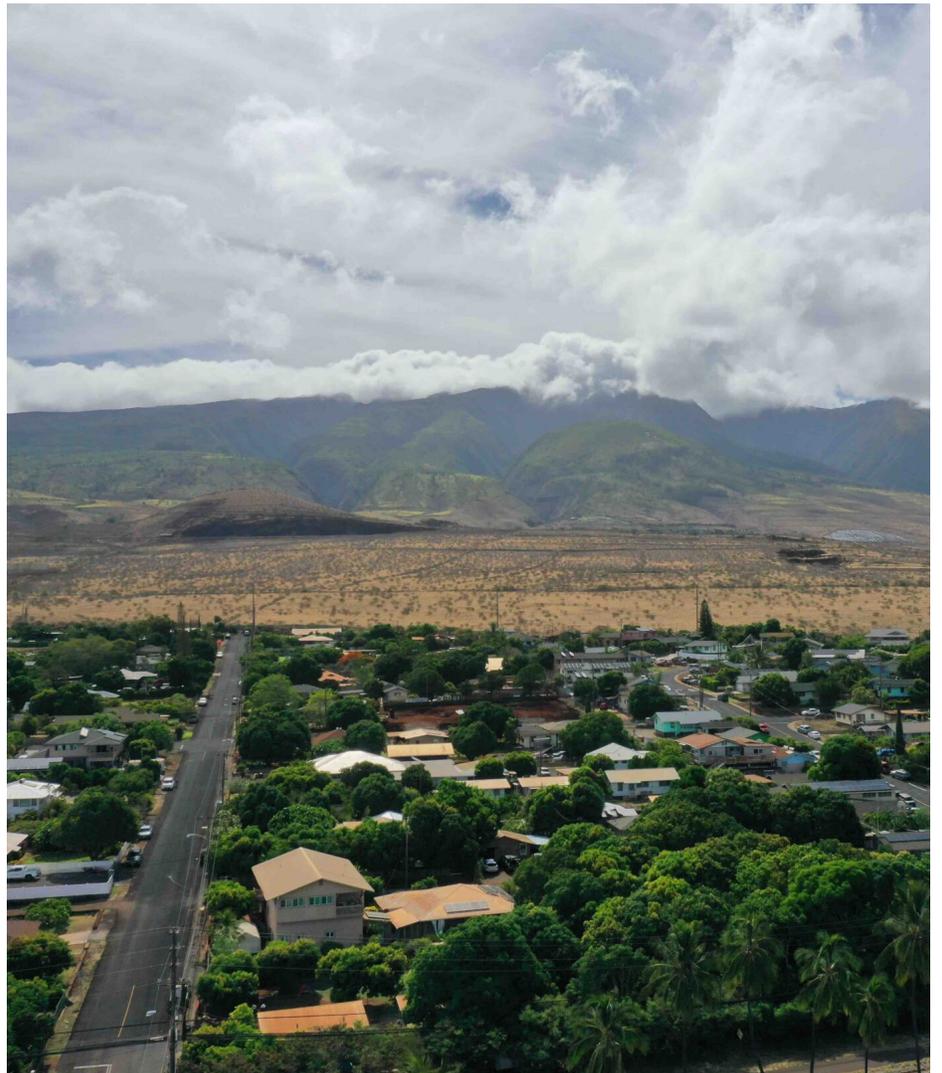
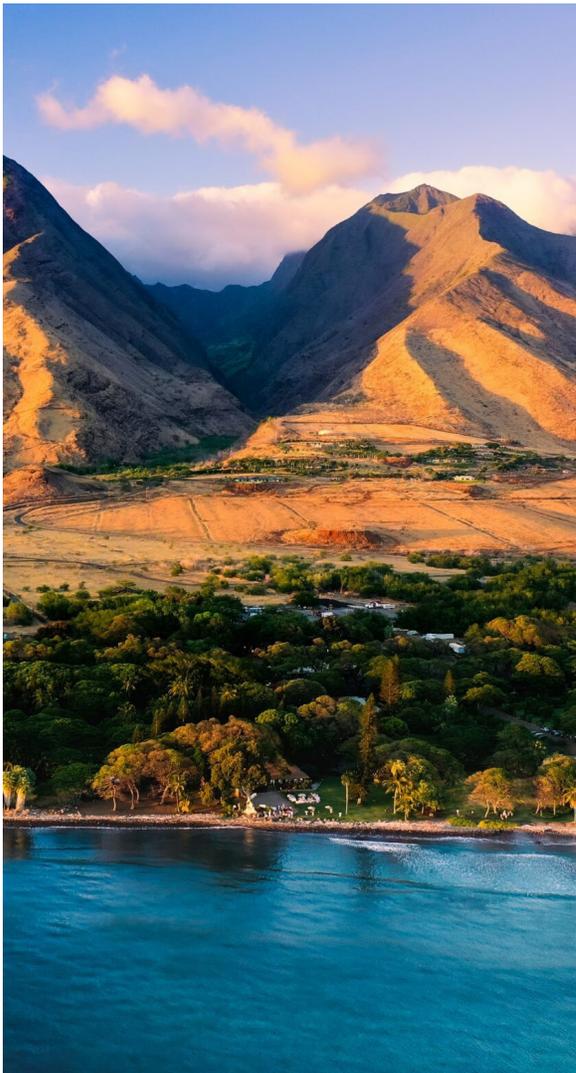


MAUI RECOVERY REPORT: HOUSING & JOBS

# ONE YEAR AFTER THE WILDFIRES: RISING POVERTY AND HOUSING INSTABILITY POINT TO ONGOING GAPS IN ASSISTANCE

OCTOBER 8, 2024





# UHERO

THE ECONOMIC RESEARCH ORGANIZATION  
AT THE UNIVERSITY OF HAWAII

---

**One year after the wildfires:  
Rising poverty and housing instability point to ongoing gaps in assistance**  
©2024 University of Hawaii Economic Research Organization.  
All rights reserved.

**Daniela Bond-Smith**  
UHERO Research Economist

**Jack Driggers**  
Undergraduate Assistant

**Trey Gordner**  
UHERO Data Scientist and Housing Researcher

**Rachel Inafuku**  
UHERO Research Economist

**Caleb Wood**  
UHERO Lead Software Developer & IT Specialist

**Victoria Rhinebolt**  
Graphic Design and Layout

# Executive Summary

---

The *Maui Recovery Survey: Housing & Jobs* monitors the housing and economic recovery of fire-impacted households on Maui. This initiative, launched one year after the devastating Maui wildfires of August 2023, provides monthly updates on the socioeconomic conditions in West Maui and Kula on a public [dashboard](#). The project is run by UHERO in partnership with the Council for Native Hawaiian Advancement (CNHA) and the Hawai'i Community Foundation (HCF).

The initial results from August 2024 include responses from 402 individuals representing 374 households who lived, worked, or owned businesses in West Maui or Kula at the time of the wildfires. The findings reflect the ongoing challenges fire-impacted households face in terms of housing stability, economic recovery, and access to critical resources. Poverty, unemployment, rent costs and housing instability have risen dramatically and these increases are persisting more than a year after the disaster. This suggests that gaps in assistance are still widespread and disproportionately affect the most vulnerable population groups.

Importantly, the (near) real-time and ongoing nature of this survey is critical to assessing the progress of Maui's recovery. For example, the poverty rate for the survey cohort is more than three times higher than the most recent available poverty data for Maui County in 2023 (U.S. Census Bureau, 2023). This staggering disparity underscores the importance of collecting data in real time and on an ongoing basis. Most of the existing data about the fire-affected community is held by federal and state agencies. It is often not publicly available, not updated on a frequent basis and not shared between agencies. This lack of transparency hampers public accountability and effective coordination among stakeholders. Most publicly available data is only released with a substantial time lag, limiting its usefulness for timely decision-making. The *Maui Recovery Survey* contributes to filling this data gap.

Further key findings from the initial results include:

## Housing

- Households impacted by the fire are paying on average 43% more rent for the same or fewer bedrooms.
- At least 14% of surveyed households live in crowded conditions.
- The proportion of fire-affected households living with family/friends or unhoused has nearly doubled since the wildfires.
- 80% of West Maui residents from our sample were displaced from their homes and almost half had to leave West Maui.
- Displacement has not only affected residents of West Maui and Kula. More than a third of those who worked or owned businesses in West Maui or Kula, but lived elsewhere, were displaced from their homes following the disaster.
- Almost a third of households currently living outside of West Maui plan to move back within the next year.

## Economic Impact

- Nearly 1 in 5 survey participants have seen their income drop by more than half.
- 29% of fire-affected households now live below the poverty line, compared to 14% before the fires. This is more than three times higher than Maui County average for 2023.
- Fire-impacted individuals face reduced job stability. Many work fewer hours, earn less income, or have lost their jobs entirely.

- Only about 70% of the survey participants who were employed in the tourism industry before the fires still have jobs in the sector. Less than half kept their full-time employment in the tourism industry.
- Many survey respondents report ongoing unmet needs: over 45% require financial support, more than 30% need housing assistance, and over 20% lack adequate food.
- Gaps in assistance persist. Individuals who are not receiving government support are more likely to report unmet needs.

# Background

---

There is a pervasive data gap that hampers monitoring Maui's socioeconomic recovery after the devastating wildfires in August 2023. Most regularly collected administrative records (e.g. unemployment claims) and federal survey data are aggregated to the county level and are often only released with a substantial time lag, limiting their usefulness for timely decision-making. Most of the data about the fire-affected community is held by federal and state agencies. It is often not publicly available, not updated on a frequent basis and not shared between agencies. This lack of transparency hampers public accountability and effective coordination among stakeholders.

In response to this data gap, UHERO launched the *Maui Recovery Survey: Housing & Jobs* in partnership with the Council for Native Hawaiian Advancement (CNHA) and the Hawai'i Community Foundation (HCF). The project gathers and disseminates (near) real-time data on the housing and socioeconomic conditions of fire-impacted communities in West Maui and Kula. The monthly data is shared on a public [dashboard](#). We hope the data will help guide recovery efforts, while also ensuring public transparency and accountability. This (near) real-time data is critical to assessing the progress of Maui's recovery.

The survey focuses on people who lived, worked, or owned a business in West Maui or Kula during the Maui wildfires in August 2023. For the remainder of this report, we refer to this group as "fire-impacted," while recognizing that the wider Maui community has also been affected.

## The Survey

---

### Methodology

Participant recruitment is facilitated by community and government partners such as CNHA, the Maui Wildfire Exposure Study, and the County of Maui Office of Economic Development. Participants receive a \$20 gift card for the first survey and a \$10 gift card for each monthly follow-up survey that they take. It is not a closed cohort; i.e., eligible people can join anytime. The survey form is available online in six languages: English, Spanish, Tagalog, Ilocano, Tongan and Vietnamese. Recruitment primarily relies on multilingual email outreach, but is supplemented by physical flyers available in community spaces and at local events.

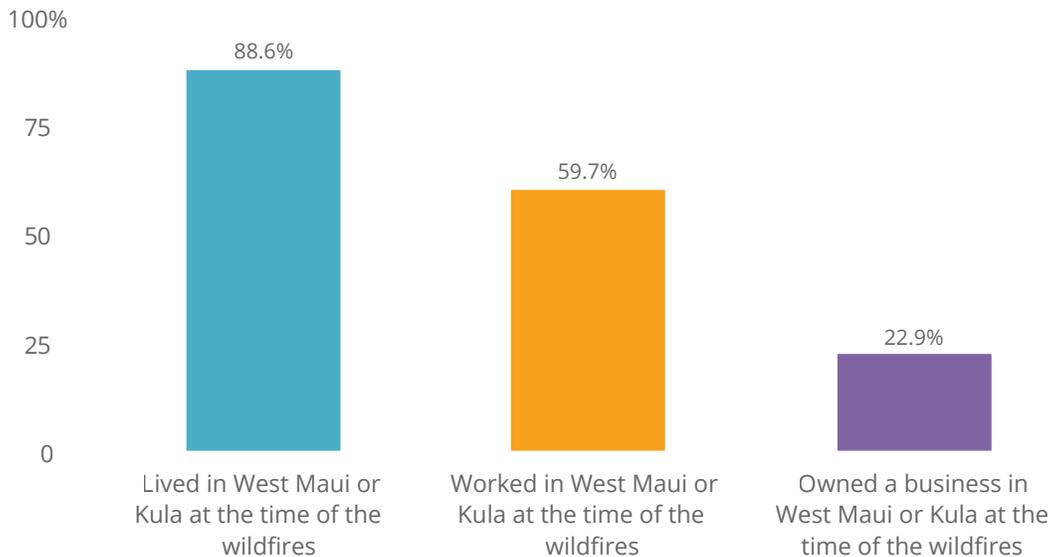
The survey questionnaire is designed to follow key indicators such as income, employment, housing type, rent, residential and job location over time. Participants are asked about their situation before the wildfires, followed by monthly updates on the same set of questions starting in August 2024. The survey questionnaire is available in the Appendix.

We use a wide range of data verification checks and individual participant follow-up to eliminate fraudulent responses from the data. We are confident that this data represents real fire-impacted people. After data cleaning, the August sample had 402 respondents from 374 households. All housing and income-related data is reported on a household basis whereas employment and needs data is based on individual-level records.

## Characteristics of the survey cohort

The survey cohort is broadly representative of the wider West Maui and Kula population. To be eligible for the survey, fire-impacted individuals had to have either lived, worked or owned a business in West Maui or Kula at the time of the wildfires (August 2023). 88% of survey participants lived in West Maui or Kula at the time of the wildfires, while 60% of respondents worked in West Maui or Kula when the fires happened, and almost a quarter owned a business there.

### Survey Inclusion Criteria



*Participants can meet multiple inclusion criteria, e.g. lived and worked in West Maui or Kula at the time of the wildfires*

More specifically, over 80% of survey respondents resided in West Maui before the fires. The remaining participants are primarily concentrated in Upcountry Maui. Some respondents also lived in Central and South Maui. Those who lived outside West Maui at the time of the wildfires, either worked or owned a business there. Most of the survey respondents are long-time residents of Maui. 70% have lived on the island for over ten years. Only 3% have been on Maui for a year or less.

The survey includes a slightly higher proportion of middle-aged individuals (aged 35 to 54) and fewer people over 65 compared to the general population. This may be because the survey was sent out via email, and older people tend to use computers less than younger age groups. There is also a somewhat higher share of larger households of four or more people.

The survey sample has a larger share of low-income individuals than the general population. A third of participants were just above the poverty line before the wildfires compared to about 11% in the general West Maui and Kula populations. This may affect some of the survey results. However, it is particularly important to monitor the recovery outcomes for low-income individuals, because they are likely to be more vulnerable and have fewer safety nets.

Since the cohort is disproportionately lower-income individuals, survey participants were less likely to own their homes compared to the overall population of West Maui and Kula. While under half of the survey respondents were homeowners, over half of the general population in these areas owned their homes. This discrepancy may also be related to the survey's distribution through disaster relief organizations, which primarily target individuals in more precarious housing situations, such as renters or those with unstable housing. These groups may not have benefited from homeowners insurance, making them more reliant on disaster assistance.

At the same time, survey participants had a lower unemployment rate before the wildfires compared to the total population of West Maui and Kula. Only 2% of the survey participants were unemployed, compared to 4% of the total population. Additionally, a smaller share of the survey participants were retired or not seeking employment than in the overall population.

## Housing

### Key Points

- Fire-affected households face a housing crisis: Compared to before the fires, they typically pay 43% more rent for a home with the same or fewer bedrooms. The price paid for larger units with 3 or more bedrooms has increased the most, with rents rising by over 80%.
- At least 14% of surveyed households live in crowded conditions.
- 80% of West Maui residents from the sample were displaced from their homes and almost half had to leave West Maui.
- Housing stability has declined. The proportion of fire-affected households living with family/friends or unhoused has nearly doubled since the wildfires. Among those affected, 15% of former homeowners and 9% of renters no longer have stable housing.
- Further displacement remains a threat. Half of respondents are currently in temporary housing. Of those, almost 40% are staying with friends and family, are unhoused, or in temporary units without assistance. In light of increasing rents and a weak job market, these households may struggle to find permanent housing and remain on Maui.
- Displacement has not only affected residents of West Maui and Kula but also those from other parts of the island. More than a third of those who worked or owned businesses in West Maui or Kula, but lived outside of these areas, have been displaced from their homes since the disaster. Many have been forced to relocate to less stable housing, likely due to affordability issues.
- Most people intend to stay or return to West Maui. Almost a third of households living outside of West Maui plan to move back next year. But these expectations do not align with the multi-year timeline to rebuild permanent housing or the availability of temporary housing units in the area.

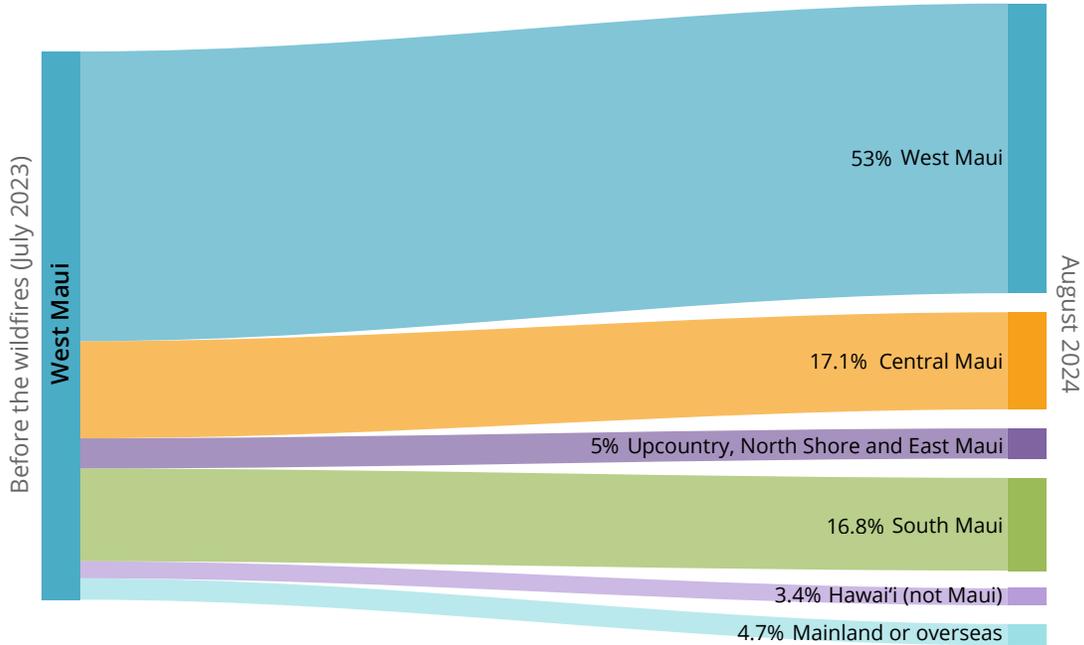
### Location

The Lahaina wildfires displaced many residents, particularly in the direct burn area where over 90% of survey respondents were forced to leave their homes and more than half were also displaced from West Maui. Even outside this immediate burn zone, nearly a third of Lahaina residents had to leave their homes and 18% had to move away from West Maui. In Kula, about a third of respondents were displaced. The majority of displaced residents from Kula stayed in the Upcounty or North Shore area.

The fires also had a broader impact on Maui's economy. More than a third of respondents from other parts of the island were displaced. Some may have lost their jobs or businesses in West Maui or Kula and moved closer to their new work location. But we also find that the majority of displaced residents from other parts of Maui (not West Maui or Kula) stayed in the same area. Many of them have lost income and were forced to move to less stable housing (e.g. losing homeownership or moving in with family/friends).

Half of the survey respondents still live in temporary housing. The majority of them have been at their current address for a relatively short period. In fact, 60% of participants have lived in their current temporary housing for less than six months. This means that most fire-affected individuals living in temporary housing had to move more than once since the wildfires. This is particularly concerning because housing instability is known to negatively affect outcomes across all areas of life, e.g. mental health, employment and children’s education (Carrere et al., 2020; Hock et al., 2024; Markal et al., 2023).

Change in Residential Location



A slim majority (53%) of respondents who lived in West Maui before the fires still live in West Maui today, and over 90% remain on island. Of the relatively small group of respondents (7%) that relocated off-island, roughly 2 in 5 remain in Hawai'i, with the rest on the mainland or overseas. However, since the survey was distributed via aid providers, we were likely less successful in reaching people who have already relocated elsewhere. This means that the survey likely underestimates the number of people who left Maui. Those that are in less stable situations such as living with friends/family or temporary housing without assistance may have to relocate again within 1-2 years. Overall, spiking rents coupled with a slow labor market recovery will continue to place pressure on all Maui households, but particularly fire-affected ones.

For survey participants who resided in other parts of Maui (not West Maui) at the time of the fire, more than 80% remain in the same area. Some people in Kula have lost their homes in the fires. But most people from this group who moved likely did so in response to job changes and rising housing costs.

Looking ahead, fewer than 1 in 10 respondents currently living in West Maui expect to relocate in the next year. However, many express uncertainty about whether they will be able to stay. In addition, nearly 1 in 3 respondents living in other parts of Maui anticipate returning to West Maui next year. Moreover, most of those living elsewhere in Hawai'i expect to return to Maui within the year. Public officials have acknowledged that rebuilding permanent housing in the burn area may take several years (Clark, 2024). While roughly 700 temporary housing units are nearing completion (Perry, 2023), our data provides further evidence that this may not be enough to house residents who wish to stay or return to (West) Maui.

## Housing conditions

One year after the fires, 15% of respondents from West Maui or Kula have moved into a permanent new home, while less than a quarter remain in the same house they lived in before the disaster. Meanwhile, more than 60% of survey respondents are still in temporary housing or do not have their own home at all (i.e. living with friends, family, or being unhoused). This is concerning, since housing instability is a risk factor for many negative health and life outcomes. It may weaken education, employment and physical and mental health (Carrere et al., 2020; Hock et al., 2024; Markal et al., 2023; Stahre et al., 2015).

In terms of types of temporary housing, 1.5% of survey respondents from West Maui or Kula report that they still live in a hotel. The largest share of displaced residents are living in other types of temporary housing and receive some form of assistance, either from the Federal Emergency Management Agency (FEMA), the State of Hawai'i, or community organizations. Additionally, 18% are in temporary housing without assistance and 20% are staying with family and friends or are currently unhoused. This data shows that a year after the fires, there is a still significant gap in housing assistance.

Many displaced residents are now living with family, friends, or in smaller accommodations than they had before the fire. As a result, many respondents now live in crowded conditions. Depending on the definition of crowding used, crowding may affect between 14% (based on the Canadian National Occupancy Standard) and 56% (based on the American Crowding Index) of fire-impacted people (Canadian Mortgage and Housing Corporation, 2024; WHO, 2018). Given larger and multigenerational households are more common in Hawai'i for both cultural and economic reasons, the 14% estimate based on the Canadian standard might be a more appropriate crowding measure in the Hawai'i context. However, this is still concerning, especially since it is up from 10% of households living in crowded conditions before the wildfires. Crowding is linked to health issues, such as the spread of infectious diseases and mental health problems (Lepore, 2012; Solari et al., 2012). It has also been shown that crowding risks lower educational outcomes for children (Lopoo et al., 2016; Solari et al., 2012)

## Rents

Half of survey respondents were renting before the fires, but the proportion has jumped to nearly 2 in 3 since then. Most of the increase comes from households who previously owned homes. However, a notable minority of new renters were previously living with family or friends, suggesting that access to disaster assistance may have improved housing stability for some households. More concerning, though, is the possibility that the relative scarcity of larger units may have required larger households to split up. The proportion of fire-affected households living with family/friends or unhoused has nearly doubled since the wildfires. Among those affected, 15% of former homeowners and 9% of renters no longer have stable housing.

Survey participants report that rents have risen significantly since the fires for all unit sizes. For a 1-bedroom unit, rent increased by two-thirds (from \$1200 before the fire to \$2000 after the fire), and for a 2-bedroom unit by 30% (from \$1850 to \$2400). The increase is most pronounced for larger units with an increase of over 80% (from \$1500 to \$2750). Possible explanations include the relatively small sample size and higher competition for larger units. Prices may be pushed up because fewer large units are available for rent. That means larger families are most affected by rising rents due to housing shortages. It is important to note that the reported numbers are median (typical) changes in rents overall for the same types of units, not comparisons of the same units before and after the fires.

For most people, spiking rents are not met by rising incomes. More than half of people whose income has remained roughly the same as before the fires are now paying higher rents - and 45% of people who now have lower incomes have experienced rent increases. This means that these households will have to make cuts in other areas. The longer this situation persists, the more will the long-term financial and overall well-being of these households be affected.

### Change in Rent by Change in Bedrooms



*Note that all survey participants either lived, worked or owned a business in West Maui or Kula at the time of the fires in August 2023.*

Many fire-affected households face rising costs despite moving to smaller units. While it is unsurprising that 70% of participants who now have more bedrooms are facing increased rental costs, more than half of those who downsized to fewer bedrooms also reported rent increases. Additionally, more than a third of those who maintained the same number of bedrooms are paying higher rents as well. Further analysis of reported unit size shows a marked drop in the number of households renting 3-bedroom or 4+-bedroom units compared to before the fires, and a corresponding jump in rentals of 1-bedroom units. Moreover, rent increases are substantial. Compared to before the fires, renters typically pay 43% for the same or fewer bedrooms. Normally, downsizing leads to reduced expenses but the limited availability of rentals appears to have offset any savings. Renters on Maui are caught in a housing vise: paying more for less.

## Economic Impact

### Key Points:

- Facing fewer job opportunities and rising rents, financial pressures for fire-impacted households remain extraordinary. Almost 20% of survey participants earn less than half of their pre-fire incomes.
- More than twice as many fire-impacted households live in poverty now compared to before the fires. In total, this means that almost 30% of fire-impacted households in the survey have incomes below the poverty line. This is more than three times higher than the Maui County average before the wildfires (9% of households below the poverty line). It suggests that fire-impacted households remain disproportionately vulnerable and at risk of long-term poverty.
- Fire-impacted individuals face reduced job stability, with a large share working fewer hours and earning lower incomes, or having lost employment altogether. Fire-impacted individuals in the survey cohort are much more likely to be unemployed than the overall Maui population.

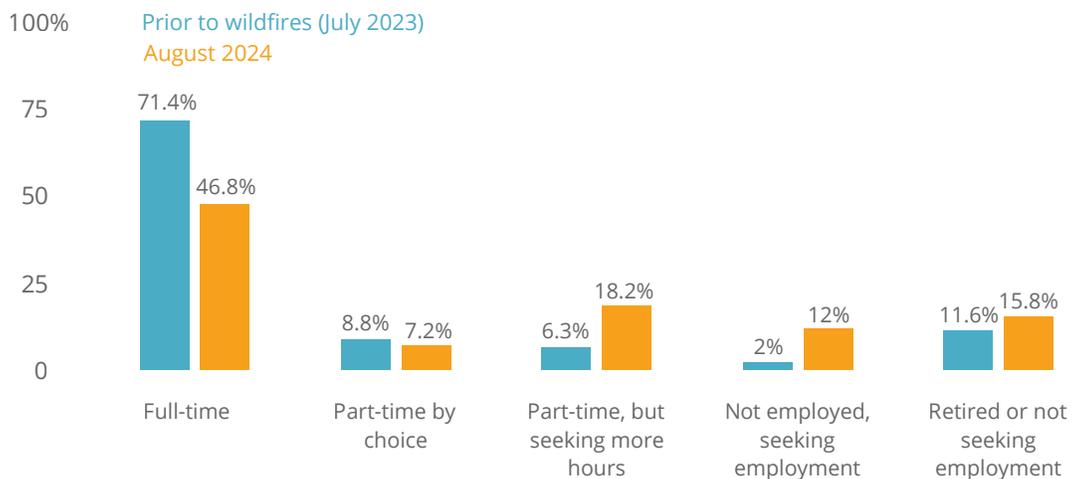
- The industry mix of employment on Maui is changing. Only about 70% of the survey participants who were employed in the tourism industry (accommodation, food and recreation services) before the fires still have jobs in the sector. Less than half kept their full-time employment in the tourism industry. We also see a similar decline in employment in local services industries and in the trade and transportation sector.
- There is a high need for financial assistance, housing and food. Individuals not receiving government support are more likely to lack adequate resources, raising concerns about gaps in assistance. Additionally, those who do not receive assistance from either the government or community programs continue to report unmet needs.

## Employment

The aftermath of the wildfires continues to affect Maui’s labor market. Countywide data shows that almost 40% of the lost employment has been recovered since its lowest point in September. But this is still more than 4,000 fewer jobs than before the fires (Bonham et al., 2024).

More than 30% of respondents now work fewer hours than before the wildfires. That means they either switched from full-time to part-time work or no employment, or from part-time to no employment.

### Change in Employment Status



*Note that all survey participants either lived, worked or owned a business in West Maui or Kula at the time of the fires in August 2023.*

Full-time employment declined substantially. Before the disaster, more than 70% of workers in the sample were employed full-time, but now less than half have full-time jobs. At the same time, part-time work, unemployment, and retirement increased. In the year after the wildfires, part-time employment rose from 15% to 25%. Notably, part-time employment by choice declined slightly, but the share of people who are part-time and seeking more hours almost tripled from 6% before the fires to 18% a year later. Only a small minority (3.5%) of respondents now work more hours than before the disaster.

The wildfires have also triggered a surge in unemployment among fire-impacted individuals from West Maui and Kula, with the rate rising more than six times from 2.3% to 14.2% in the year since the fires. This compares to an unemployment rate of 4% for all of Maui in July 2024. This means that, a year after the wildfires, ongoing unemployment remains a much larger issue for people who lived or worked in West Maui or Kula before the wildfires than for the wider Maui community.

Additionally, the share of people who have left the workforce, including retirees and those no longer seeking employment, has grown to 16%. This is up by four percentage points from before the fires. As expected, fire-impacted people working in the accommodation, food services, recreation, and entertainment industries have been most affected. Only about 70% of the people who were employed in these industries before the fires still have jobs in the tourism sector. Less than half kept their full-time employment in the tourism industry. More than 20% of tourism industry workers are now unemployed, retired, or not seeking employment. Only about 12% have transitioned to jobs in other sectors.

Notably, we also see a similar decline in employment in local services industries (including professional services and healthcare) and in trade and transportation industries. This may be due to both the reduction in visitors and the displacement of locals. People working in government and education jobs have been least affected.

In terms of location, less than two-thirds of survey participants who worked in West Maui or Kula at the time of the wildfires are still working there a year later. About half of respondents work in other parts of Maui (note that some people work across different locations). About 3% work on the other Hawaiian islands and just over 2% on the mainland. The majority of these people no longer live on Maui.

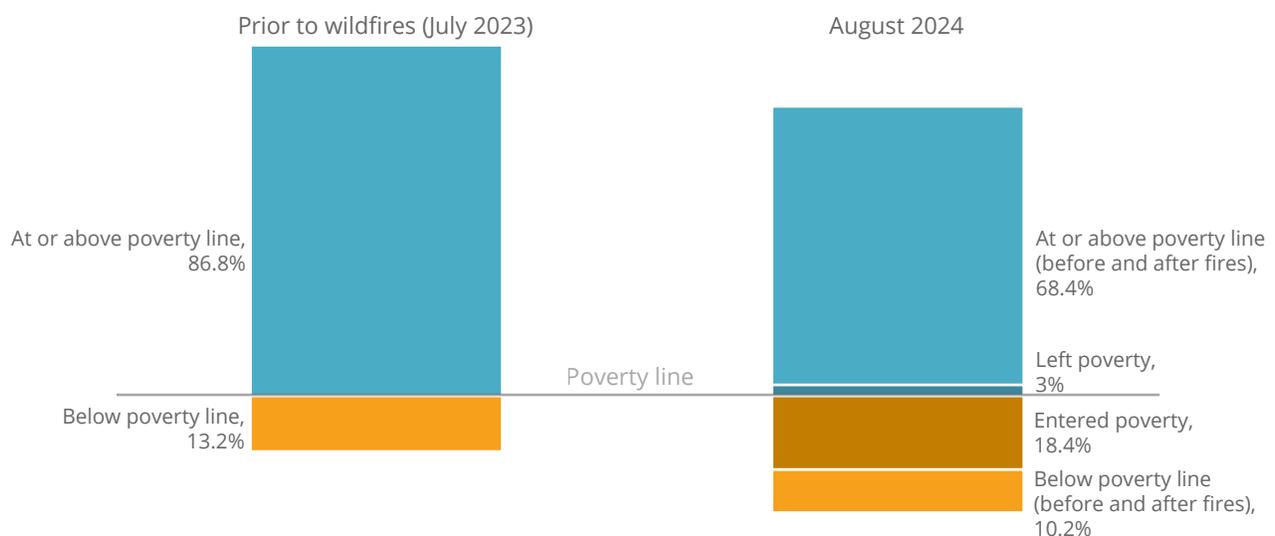
### Income and poverty

A year after the wildfires, about half of respondents still have lower incomes now than before the fires. Almost 20% are earning significantly less, i.e. less than half of their pre-fire incomes. This suggests a persistent income shock for much of the fire-impacted community. In contrast, less than 5% of respondents earn significantly more than before the disaster.

The majority of people who earn less work fewer hours. But notably, more than a third of participants whose employment status has remained unchanged since the wildfires have still experienced a decline in income. This means that people have likely suffered pay cuts or had to switch to lower-earning jobs, likely because of a reduction in available work opportunities.

Overall, there has been a shift in the income distribution since the wildfires. More survey participants are now falling into lower income categories and a smaller share into higher income brackets. This suggests that many who were previously higher-income earners have experienced a drop in income. The percentage of participants earning less than \$2,000 per month has more than doubled, increasing from 9% to 23%. For full-time employees, the largest increase happened in the \$2,000-\$4,000 per month income group. For part-time employees and people who are not employed, the under \$2000 per month income group saw the largest rise.

#### Change in Poverty Status



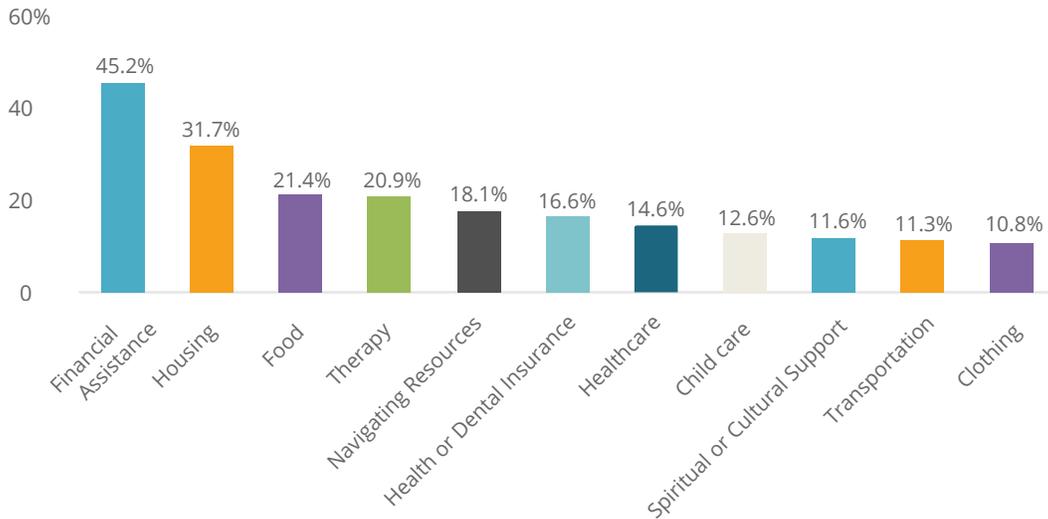
*Note that all survey participants either lived, worked or owned a business in West Maui or Kula at the time of the fires in August 2023.*

These income changes led to a surge in poverty among fire-affected people. Before the wildfires, 87% of the survey respondents were living above the poverty line. Only 68% remained above it a year later. Among the 14% who were already below the poverty line, 3% have risen above it in the past year. This may be due to increased support and disaster relief from government and non-profit organizations. However, 10% continue to live below the poverty threshold and alarmingly, 18% of respondents have fallen into poverty and have remained below the poverty line one year after the disaster. In total, this means that almost 30% of fire-impacted households in the survey have incomes below the poverty line. This is more than three times higher than the Maui County average in 2023 (9% of households below the poverty line). It suggests that fire-impacted households remain very vulnerable and at risk of long-term poverty. Notably, the survey cohort included a higher-than-average number of low-income people who were still above the poverty line before the fires and may have fallen below the poverty line since. Nonetheless, much of the large increase in poverty likely applies to the overall population of fire-impacted Maui residents. The sharp and persistent increase in poverty is very concerning and suggests ongoing and substantial gaps in assistance for the fire-impacted community.

## Needs

A significant need for financial assistance and healthcare remains among fire-impacted people. We asked participants to rate their most important needs on a scale from 1 (not needed), 2 (slightly needed), 3 (moderately needed), 4 (very needed) to 5 (urgently needed). More than 45% of survey respondents report financial support is very needed or urgently needed. Nearly one-third identify housing as a critical ongoing need. Over 20% lack sufficient access to food. Other areas with significant unmet needs include therapy, health or dental insurance, healthcare, and resource navigation.

Unmet Needs - Needs rated as “very” or “urgently” needed among respondents



*Note that all survey participants either lived, worked or owned a business in West Maui or Kula at the time of the fires in August 2023.*

Individuals receiving assistance from both government and other sources are generally most likely to report unmet needs across most areas. This is likely related to higher levels of need in the first place that require people to seek support from various sources. Fewer people receiving only government assistance report severe unmet financial and housing needs than people who also or only receive non-government aid. This raises concerns that people left out of government programs do not have access to sufficient support in these key areas. It is also concerning that about one in ten people who do not receive any assistance (from either government agencies or community groups) still report unmet needs in areas such as financial, housing, healthcare, therapy, transportation, food and navigating resources.

## Sources of assistance

The vast majority of respondents still receive assistance from various sources. Government programs, including FEMA and State and County disaster programs, assisted more than half of the respondents. In addition, more than a third have received Supplemental Nutrition Assistance Program (SNAP) benefits (food stamps), Temporary Assistance for Needy Families (TANF), or Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) support. Almost a quarter of the respondents currently receive unemployment benefits. Community organizations, including the American Red Cross, have been the single largest provider of assistance. Almost half of respondents also still rely on family, friends and individual donations for support. Notably, almost 10% of respondents never received any assistance since the fires.

# References

---

- Bonham, C., Gangnes, B., Bond-Smith, S., Fuleky, P., Tyndall, J., Inafuku, R., Essaidi, H., & Cailao, J. A. M. (2024, September 20). Lagging Maui recovery, slower speed limit for Hawai'i growth. UHERO.
- Canadian Mortgage and Housing Corporation. (2024). National Occupancy Standard. Cmhc-Schl. gc.ca. <https://www.cmhc-schl.gc.ca/professionals/industry-innovation-and-leadership/industry-expertise/affordable-housing/provincial-territorial-agreements/investment-in-affordable-housing/national-occupancy-standard>
- Carrere, J., Vásquez-Vera, H., Pérez-Luna, A., Novoa, A. M., & Borrell, C. (2022). Housing Insecurity and Mental Health: the Effect of Housing Tenure and the Coexistence of Life Insecurities. *Journal of urban health : bulletin of the New York Academy of Medicine*, 99(2), 268–276. <https://doi.org/10.1007/s11524-022-00619-5>
- Clark, C. (2024, January 31). FEMA Is Developing A “Last Resort” Plan To House Maui Fire Survivors In Kaanapali. Honolulu Civil Beat; Honolulu Civil Beat. <http://www.civilbeat.org/2024/01/fema-is-developing-a-last-resort-plan-to-house-maui-fire-survivors-in-kaanapali/>
- Hock, E. S., Blank, L., Fairbrother, H., Clowes, M., Diana Castelblanco Cuevas, Booth, A., Clair, A., & Goyder, E. (2024). Exploring the impact of housing insecurity on the health and wellbeing of children and young people in the United Kingdom: a qualitative systematic review. *BMC Public Health*, 24(1). <https://doi.org/10.1186/s12889-024-19735-9>
- Lepore, S. J. (2012). Crowding: effects on health and behavior. *Encyclopedia of human behavior*, 2. <https://profiles.foxchase.org/en/publications/crowding-effects-on-health-and-behavior>
- Lopoo, L. M., & London, A. S. (2016). Household crowding during childhood and long-term education outcomes. *Demography*, 53(3), 699–721. <https://read.dukeupress.edu/demography/article-abstract/53/3/699/167606/Household-Crowding-During-Childhood-and-Long-Term>
- Marçal, K. E., Choi, M. S., & Showalter, K. (2023). Housing insecurity and employment stability: An investigation of working mothers. *Journal of Community Psychology*, 51, 2790–2801. <https://doi.org/10.1002/jcop.23071>
- Perry, B. Maui Now. (2023). | Temporary Housing Projects Moving Ahead in Lahaina for Displaced Residents. <https://mauinow.com/2024/08/03/temporary-housing-projects-moving-ahead-in-lahaina-for-displaced-residents/>
- Solari, C. D., & Mare, R. D. (2012). Housing crowding effects on children's wellbeing. *Social Science Research*, 41(2), 464–476. <https://doi.org/10.1016/j.ssresearch.2011.09.012>
- Stahre, M., VanEenwyk, J., Siegel, P., & Njai, R. (2015). Housing Insecurity and the Association With Health Outcomes and Unhealthy Behaviors, Washington State, 2011. *Preventing chronic disease*, 12, E109. <https://doi.org/10.5888/pcd12.140511>
- U.S. Census Bureau, U.S. Department of Commerce, & U.S. Census Bureau. (2023). Poverty Status in the Past 12 Months by Nativity. American Community Survey, ACS 1-Year Estimates Detailed Tables, Table B17025. Retrieved September 23, 2024, from <https://data.census.gov/table/ACS1Y2023.B17025?q=B17025>: Poverty Status in the Past 12 Months by Nativity&g=050XX00US15009.
- WHO. (2018). WHO Housing and Health Guidelines. Table 3.1, Measures of crowding. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK535289/table/ch3.tab2/#>

# Appendix: Survey questionnaire

---

## Pre-wildfire questions

1. What was your address prior to the wildfire?
2. Apartment Number (if applicable)
3. How many adults are in your household (18+ years old)?
4. How many children are in your household (0-17 years old)?
5. How many bedrooms does your current housing have?
6. What was your housing prior to the wildfires?
  - Owned free and clear (no mortgage)
  - Owned with a mortgage
  - Rented
  - Occupied without rent (e.g. living with family or friends)
  - My car
  - Unhoused
  - Other
  - What was your employment status prior to the wildfires?
    - Full-time
    - Part-time, but seeking more hours
    - Part-time by choice
    - Not employed, seeking employment
    - Not employed, not seeking employment
    - Retired
7. What was your monthly household income prior to the wildfires, from all adults and all sources?
  - \$1,399 or less
  - \$1,400 - \$1,900
  - \$1,900 - \$2,400
  - \$2,400 - \$2,900
  - \$2,900 - \$3,400
  - \$3,400 - \$3,850
  - \$3,850 - \$4,350
  - \$4,350 - \$4,850

- \$4,850 - \$5,300
- \$5,300 - \$5,800
- \$5,800 - \$6,300
- \$6,300 - \$6,800
- \$6,800 - \$7,300
- \$7,300 - \$7,800
- \$7,800 - \$9,500
- \$9,500 - \$11,500
- \$11,500 - \$13,500
- \$13,500 - \$15,500
- \$15,500 or more

8. Which industry did you work in prior to the wildfires?

- Agriculture, forestry, fishing, and hunting
- Utilities
- Construction
- Manufacturing
- Retail / wholesale trade
- Transportation and warehousing
- Business, Professional, or Media Services (except artists)
- Real estate, rental and leasing
- Health care and social assistance
- Arts, entertainment, and recreation
- Accommodation (hotels & lodging)
- Food services
- Government
- Education
- Other
- I have not worked in the last 3 years

9. How long have you lived on Maui?

10. Where was your job located prior to the wildfires?

- West Maui - Olowalu, Lahaina, Ka'anapali, Kahana, Nāpili, Kapalua
- Kula
- Central Maui - Kahului, Wailuku, Waikapū, Waihe'e

- South Maui – Kīhei, Wailea, Mākena
- Upcountry or Northshore, not in Kula (Makawao, Pukalani, Pā‘ia, Ha‘ikū)
- East Maui – Ke‘anae, Nāhiku, Hāna, Kīpahulu
- O‘ahu
- Hawai‘i Island
- Kaua‘i
- Moloka‘i
- Lana‘i
- Work from home/remote
- Mainland / Continent
- Other

11. Which sources have given you assistance since the wildfires?

- FEMA tenant or other personal assistance from FEMA
- FEMA landlord (FEMA leasing your property)
- Unemployment / D-Unemployment
- SNAP / D-SNAP / TANF / WIC
- Other government (federal/state/county) program for tenants and other personal assistance
- Other government (federal/state/county) program for landlords
- Government (federal/state/county) support for business owners (e.g. SBA disaster loans, Maui Business Bridge Grants, etc.)
- American Red Cross
- Other community, private or religious organization program for tenants and other personal assistance
- Other community, private or religious organization program for landlords
- Support for business owners by community, private or religious organizations
- Insurance (individuals)
- Insurance (business owners)
- Employer or industry organization
- Family/friends or other individuals
- None
- Other

## Housing

1. Where do you live now?
  - West Maui - Olowalu, Lahaina, Ka'anapali, Kahana, Nāpili, Kapalua
  - Kula
  - Central Maui - Kahului, Wailuku, Waikapū, Waihe'e
  - South Maui - Kīhei, Wailea, Mākena
  - Upcountry or Northshore, not in Kula (Makawao, Pukalani, Pā'ia, Ha'ikū)
  - East Maui - Ke'anae, Nāhiku, Hāna, Kīpahulu
  - O'ahu
  - Hawai'i Island
  - Moloka'i
  - Lana'i
  - Kaua'i
  - Mainland / Continent
  - Other
2. How long have you lived at your current address?
3. What is your current housing?
  - Permanent - Home you have owned since before the fires
  - Permanent - Home you have rented since before the fires
  - Permanent - New construction home you purchased after the fires
  - Permanent - New construction home you started renting after the fires
  - Permanent - Existing home you purchased after the fires
  - Permanent - Existing home you started renting after the fires
  - Permanent - Other housing, please specify
  - Temporary - Hotel
  - Temporary - FEMA Direct Lease
  - Temporary - Airbnb via DHS (Department of Human Services) and GEM (Global Empowerment Mission)
  - Temporary - CNHA Housing Program
  - Temporary - Kilohana FEMA group site housing
  - Temporary - Ka La'i Ola State housing site
  - Temporary - Hale o La'ie / Haggai Institute State housing site
  - Temporary - Build by another organization like Ke Ao Maluhia (CNHA Maui Lani), Ohana Hope Village, etc.

- Temporary - Rental with financial support from other organizations
  - Temporary - Rental with no financial support
  - Temporary - In a friend or family member's room, apartment, or house
  - Shelter
  - Temporary - Tiny home, RV, or similar housing unit on a cleared lot
  - Temporary - My car
  - Temporary - Unhoused
  - Temporary - Other housing, please specify
4. What is your current monthly rent (if applicable)? Please list the rent that you paid (total rent - any assistance you may get = what you pay)
  5. How many adults are in your household (18+ years old)?
  6. How many children are in your household (0-17 years old)?
  7. How many bedrooms does your current housing have?
  8. Where do you expect to be living a year from now?
    - West Maui - Olowalu, Lahaina, Ka'anapali, Kahana, Nāpili, Kapalua
    - Kula
    - Central Maui - Kahului, Wailuku, Waikapū, Waihe'e
    - South Maui - Kīhei, Wailea, Mākena
    - Upcountry or Northshore, not in Kula (Makawao, Pukalani, Pā'ia, Ha'ikū)
    - East Maui - Ke'anae, Nāhiku, Hāna, Kīpahulu
    - O'ahu
    - Hawai'i Island
    - Moloka'i
    - Lana'i
    - Kaua'i
    - Mainland / Continent
    - Other

### **Employment and income**

1. What is your current employment status?
  - Full-time
  - Part-time, but seeking more hours
  - Part-time by choice
  - Not employed, seeking employment

- Not employed, not seeking employment

- Retired

2. What is your monthly household income, from all adults and all sources?

- \$1,449 or less

- \$1,450 - \$2,000

- \$2,000 - \$2,500

- \$2,500 - \$3,000

- \$3,000 - \$3,500

- \$3,500 - \$4,000

- \$4,000 - \$4,500

- \$4,500 - \$5,000

- \$5,000 - \$5,500

- \$5,500 - \$6,100

- \$6,100 - \$6,600

- \$6,600 - \$7,100

- \$7,100 - \$7,600

- \$7,600 - \$8,100

- \$8,100 - \$10,000

- \$10,000 - \$12,000

- \$12,000 - \$14,000

- \$14,000 - \$16,000

- \$16,000 or more

3. Where is your job located?

- West Maui - Olowalu, Lahaina, Ka'anapali, Kahana, Nāpili, Kapalua

- Kula

- Central Maui - Kahului, Wailuku, Waikapū, Waihe'e

- South Maui - Kīhei, Wailea, Mākena

- Upcountry or Northshore, not in Kula (Makawao, Pukalani, Pā'ia, Ha'ikū)

- East Maui - Ke'anae, Nāhiku, Hāna, Kīpahulu

- O'ahu

- Hawai'i Island

- Kaua'i

- Moloka'i

- Lana'i
  - Work from home/remote
  - Mainland / Continent
  - Other
4. Which industry do you work in?
- Agriculture, forestry, fishing, and hunting
  - Utilities
  - Construction
  - Manufacturing
  - Retail / wholesale trade
  - Transportation and warehousing
  - Business, Professional, or Media Services (except artists)
  - Real estate, rental and leasing
  - Health care and social assistance
  - Arts, entertainment, and recreation
  - Accommodation (hotels & lodging)
  - Food services
  - Government
  - Education
  - Other
  - I have not worked since the wildfires

## Needs

1. Please select your needs on the scale below for each of the following areas: Financial Assistance, Food, Clothing, Housing, Therapy, Healthcare, Spiritual or cultural support, Childcare, Transportation, Health or dental insurance, Navigating resources
- Not needed
  - Slightly needed
  - Moderately needed
  - Very needed
  - Urgently needed
2. Which agencies, organizations and other sources have given you assistance (money, housing, or any other form of assistance) in the last month? Select all that apply.

- FEMA tenant or other personal assistance from FEMA
- FEMA landlord (FEMA leasing your property)
- Unemployment / D-Unemployment
- SNAP / D-SNAP / TANF / WIC
- Other government (federal/state/county) program for tenants and other personal assistance
- Other government (federal/state/county) program for landlords
- Government (federal/state/county) support for business owners (e.g. SBA disaster loans, Maui Business Bridge Grants, etc.)
- American Red Cross
- Other community, private or religious organization program for tenants and other personal assistance
- Other community, private or religious organization program for landlords
- Support for business owners by community, private or religious organizations
- Insurance (individuals)
- Insurance (business owners)
- Employer or industry organization
- Family/friends or other individuals
- None
- Other

# UHERO

THE ECONOMIC RESEARCH ORGANIZATION  
AT THE UNIVERSITY OF HAWAII

## UHERO THANKS THE FOLLOWING SUPPORTERS:

### KA WĒKIU - THE TOPMOST SUMMIT

Bank of Hawaii  
DGM Group  
First Hawaiian Bank  
Hawaii Business Roundtable  
Hawaii Community Foundation  
HMSA  
Kamehameha Schools  
Queen's Health Systems

### KILOHANA - A LOOKOUT, HIGH POINT

American Savings Bank  
Benjamin Godsey  
Castle Foundation  
Central Pacific Bank  
D.R. Horton  
First Insurance Company of Hawaii, Ltd.  
Hawaii Pacific Health  
Hawaiian Airlines  
Hawaiian Electric Industries  
Matson  
Tradewind Group

### KUAHIWI - A HIGH HILL, MOUNTAIN

Alexander & Baldwin  
Better Homes and Gardens Real Estate Advantage Realty  
Castle & Cooke Hawaii  
Chamber of Commerce

Halekulani Corporation  
Hawaii Gas  
Hawaii Hotel Alliance  
Hawaii State AFL-CIO  
Hawaiian Dredging Construction Company  
HGEA  
Honolulu Board of Realtors  
Honolulu Board of Water Supply  
The Howard Hughes Corporation  
HPM Building Supply  
Kaiser Permanente Hawaii  
Kyo-ya Hotels & Resorts, LP  
Nordic PCL Construction  
Servco Pacific, Inc.  
Stanford Carr Development

### ADDITIONAL SUPPORTERS

Architects Hawaii, Ltd.  
Charles Wathen Company (Pier Investments)  
Chartwell Financial Advisory  
Finance Factors  
Hau'oli Mau Loa Foundation  
The Hawaii Laborers & Employers Cooperation  
and Education Trust Fund  
Hawaii Tourism Authority  
HC&D, LLC  
The Natural Energy Laboratory of Hawaii Authority  
Pacific Cost Engineering  
The Pacific Resource Partnership  
Trinity Investments

Kūlia i Ka Nu'u (literally "Strive for the summit") is the value of achievement, those who pursue personal excellence. This was the motto of Hawaii's Queen Kapiolani. Supporters help UHERO to continually reach for excellence as the premier organization dedicated to rigorous, independent economic and policy research on issues that are both central to Hawai'i and globally relevant.

Over its more than twenty year history, UHERO research has informed decision making on some of the most important issues facing our community, including the ever-changing economic outlook, challenges to our environment, and policies affecting water, housing, energy, and many other areas.

Contributions from generous supporters like you make it possible for UHERO to fulfill this mission. Your financial commitment also allows us to distribute UHERO forecast reports to all Hawaii stakeholders.