



IGCR Policy Brief

Post-Disaster Temporary Housing Needs following a Major Disaster in Washington State¹

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Washington State is at risk for a variety of natural hazard disasters. In the last 20 years alone, the state has experienced 21 presidentially declared disasters requiring some form of disaster assistance.

Many forms of assistance were needed, and these and less traditional forms of assistance will be needed in future disasters.

One especially salient issue is the need for shelter. Major flooding, earthquakes, volcanic eruptions and other less traditional



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hazards may displace large numbers of people and damage residential housing stock such that immediate re-occupancy is not possible. Many displaced residents may eventually need post-disaster temporary housing.

Emergency versus Temporary Housing

As Hurricane Katrina demonstrated, there is an important difference between emergency shelter and temporary housing.

Emergency shelter is mass temporary shelter meant to house displaced populations. It is a short-term response lasting up to 6 weeks, and addresses immediate needs. It is too expensive to maintain long-term. Some examples of

emergency housing include hotels, stadiums, and churches.

Temporary housing is the transitional phase between emergency shelter and permanent housing. It may be used for several months up to a few years. It addresses more long-term needs, and allows disaster victims to re-establish their regular routines and return to a more normal, productive life.

Vulnerable Populations

Of the over six million Washington State residents that have the potential to be impacted by a disaster, an estimated 11.6% of these are below the poverty line. This makes them vulnerable to being severely impacted by a disaster (Walsh, 2002).

A disaster has a more profound effect on poorer residents of a region due to financial constraints



Courtesy of img.dailymail.co.uk/.../floodMOS0107_468x323.jpg

that make it harder for them to recover.

These issues include not having home or renters insurance pre-

disaster, the

inability to secure loans, or simply not having the resources to move to another area (Wisner, 1999). Furthermore, Bolin (1993) notes that affordable post-disaster housing has been a significant factor in the slow recovery of low-income neighborhoods.

1. This policy brief is based upon original student work in two classes, Practical Applications in Emergency Management, taught by Dr. Rebekah Green, and Planning for Sustainable Communities, taught by Drs. Arunas Oslapas and Paul Stangl.

Washington State also has a sizable racial and ethnic minority population, with almost a 10% percent Latino population, and a black, American Indian/Alaskan Native, and Asian population of 4.5%, 2.6% and 7.9% respectively (Census, 2006). Research on housing-related policies and outcomes after numerous U.S. natural disasters documents consistent disparities based on race, class, and gender. Peacock and Girard (1997) found that racial and ethnic minorities tend to receive insufficient insurance settlements because they are less often insured by major national carriers. Blanchard-Boehm (1997) reported that financial constraints reduced the likelihood that African-Americans made structural improvements so their houses could withstand natural disasters, resulting in more serious damage to the homes of African-Americans. Enarson (2008) pinpoints elderly women as more vulnerable during disasters. Similarly, temporary housing put in place after a disaster is often not designed with the needs of women and children in mind.

Existing Funding for Post-Disaster Temporary Housing

There are two primary agencies that provide support for temporary



Courtesy of Microsoft clip art

housing following a disaster. These include the Federal Emergency Management Agency (FEMA) and the Department of Housing and Urban Development (HUD).

FEMA is charged with administering the Robert T. Stafford Disaster Relief and Emergency Assistance Act, also known as the “Stafford Act.” This forms the core of the U.S. government’s emergency housing disaster relief strategy. Three sections of this act are directly relevant to the development and funding of a temporary housing program.

- **Section 403: Essential Assistance**

Section 403 provides funds to state and local government for meeting the immediate needs of disaster survivors by providing funds for shelter, food, water, medicine, debris removal, search and rescue, and other immediate needs. It states “The Federal share of assistance under this section shall be not less than 75 percent of the eligible cost of such assistance” (FEMA, 2007, 40-42). This section is most relevant to supporting temporary housing needs during and immediately following a disaster.

- **Stafford Act section 408: Federal Assistance to Individuals and Households**

Section 408 of the Stafford act is aimed directly at funding temporary housing. This grants “... financial assistance to individuals or households to rent alternate housing accommodations, existing rental units, manufactured housing, recreational vehicles, or other readily fabricated dwellings” (FEMA, 2007, 40-42). This program gives aid directly to impacted households.

- **Stafford Act Section 404**

Section 404 governs FEMA’s Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Program. These grants can be used for a wide variety of mitigation efforts and they provide up to \$3 million to communities to engage in mitigation projects. Such mitigation projects can reduce the need for temporary housing through such activities as buy-out programs, strengthening programs, educational programs, and other mitigation activities.

The Department of Housing and Urban Development (HUD) has successfully provided financial assistance to disaster stricken communities in the past. There are three different program options available; these include the direct assistance program, block grants, and mortgage programs.

- **Direct Assistance Program**

The Direct Assistance Program, specifically Section 8 Housing Vouchers and/or Project Based Rental Assistance, allows people to easily move and relocate. Households pay 30 percent of their income toward rent, while the federal government funds the remaining cost (McCorty, 2005). These programs are geared towards low-income populations to help them find an 'affordable cost' level of housing. The Direct Assistance Program can assist disaster-struck populations in recovery.

Existing Temporary Housing Programs and Limitations

In the United States, two primary strategies are typically used in post-disaster temporary housing. These strategies are 1) a rental voucher program to subsidize a displaced household in finding temporary housing within the existing real estate market, and 2) giving displaced households limited-term use of mobile homes for placement on their own lots or in temporary housing camps.

The rental assistance voucher program has been used extensively following such events as the 1993 Midwest floods, the Northridge earthquake, and Hurricanes Andrew and Katrina.

In both the Midwest flood and Northridge earthquake, rental assistance programs worked well. With a high housing vacancy rate, displaced residents were able to be temporarily housed in rental units while being close to their original residency. This enabled them to initiate repairs and continue with pre-disaster employment, schooling and community engagement.

The rental assistance program was less successful after Hurricanes Andrew and Katrina. With low rental vacancy rates in Miami-Dade County, an estimated 100,000 displaced residents used the rental voucher program find affordable temporary housing north of the County (Comerio, 1998). An even larger out migration occurred

following Hurricane Katrina. With a destroyed housing stock in many gulf coast communities, rental units were simply not available to meet the needs of displaced residents. Instead, these displaced residents used the rental vouchers to find housing throughout the country, often far from their original homes. In New Orleans, where the problem was most acute, this out migration resulted in the drastic reduction in the local tax base, workforce, and school enrollment. Three years after the storm, New Orleans' population had reached only 72 percent of its pre-Katrina level (GNOCD, 2008).

Pros and Cons of a Rental Voucher Approach:

- Rental vouchers allow displaced residents to live in a permanent structure, typically in a functioning community.
- Rental vouchers can support housing stock repair and the local economy when there is a sufficient housing stock vacancy in the region.
- Use of existing real estate markets can positively affect a recovering local economy. It also does not require purchase, shipping, or disposal of temporary housing units.
- In tight housing markets, or when the number of displaced households greatly exceeds the available vacant housing in a region, rental vouchers can encourage out-migration.
- Extensive out migration can retard community recovery by depleting the local tax base, work force and schools.

The second form of temporary housing often used after disasters is mobile home



Courtesy of: ohmygov.com/blogs/general_news/fema-trailers.jpg

units. These units, often called FEMA trailers, are allotted to displaced households in lieu of rental assistance. These trailers have been employed following Hurricanes Andrew and Katrina, and in a more limited scope following floods and wildfires. The mobile home units, like the rental vouchers, are time limited, typically running from three to 18 months. In some cases, such as following Hurricane Katrina, extensions have been granted for up to two and a half years after the initial disaster.

Mobile home trailers have been sited on individual properties, thereby allowing displaced residents to quickly return to their communities. This has also allowed displaced residents to easily access their damaged home and either engage in or monitor repairs. In some cases where mobile homes have not fit on properties or where zoning has excluded this option, mobile home trailer parks have been set up, though often with significant outcry from surrounding neighbors.

Following Hurricane Katrina, FEMA trailer camps of dozens and even hundreds of mobile homes were organized both near the devastated Gulf and in state far from the area. Residents of these camps showed higher rates of suicide and heightened incidents of domestic violence (Larrance et al, 2006). Later testing found dangerous levels of formaldehyde within the trailers (CDC, 2008). Displaced residents also found that FEMA trailers designed for short-term use were not sturdy or spacious enough for family occupancy over extended time periods. Furthermore, large trailer camps were often placed far from employment opportunities, shopping centers, and alternative housing options.

The distance of the camps from the residents' original home made repairs and property upkeep nearly impossible (Spiegel, 2008).

Current FEMA mobile trailers also can be dangerous living spaces in extreme events. Trailers can fall off their pillars or be heavily damaged from falling or floating debris in floods, hurricanes, tornados, and earthquakes.

Pros and Cons of Mobile Unit Approach:

- When placed at or near the site of the original house, use of mobile home units can speed individual home repairs and community recovery.
- Large camps of mobile units can have negative social impacts on disaster victims.
- Current mobile units pose a health risk to occupants when used for extended periods.
- Mobile home units are at greater risk of damage in hurricanes, floods, tornados and earthquakes.
- Mobile homes can be costly to store or dispose, though they can be reused in a new disaster.

Innovations in Temporary Housing Structures

Several temporary housing alternatives have been designed through competitions and for profit rebuilding efforts after it has become apparent that long-term usage of FEMA travel trailers cause significant social and health problems. All have drawn on the advantages of on-site or near-site temporary housing solutions that allow residents to quickly return to their pre-disaster jobs, schools, and communities. They have also drawn from the strengths of the rental voucher assistance program by designing temporary houses that have the feel and look of more permanent housing.



photography: Robbie Caponetto

The **Katrina Cottage**, was designed as an alternative to the FEMA trailer and is intended to be placed in a home-owner's

yard during the rebuilding and recovery stage. There are now many designs labeled as Katrina Cottages, they all are designed to be comparable to the FEMA trailer in cost, but with additional advantages. They are generally safer in a natural hazard event and can be used as an apartment, studio or cottage even after occupants have returned to their repaired homes. Some such designs have been marketed by major home improvement retailers. Due to current restrictions on use of FEMA funds for "permanent shelters", these structures currently are not covered under the FEMA or HUD assistance programs, though pilot programs have been implemented in some Gulf Coast communities with some community resistance.

Western Washington University undergraduate students have also developed a series of **preliminary design concepts** for temporary housing for both on-site temporary housing and temporary housing camps. These designs draw inspiration from Washington State's leadership in environmental stewardship and materials reuse.



Figure: Rhys van Bommel, Tiffany Isaacson, Craig Corliss

Single household unit with rainwater catchment system. Interior with loft.



Figure: Gina Auriemma, Jessica Hardy, Deidre Hunsaker, Jon Takao

Left, single household unit with customizable exterior paneling. Designed for off-site manufacturing and on-site assembly.

Sixteen single/double occupancy apartments constructed from eight standard shipping containers. Left, communal living space shared by units.



Figure: Alex Lindbloom, Michael Olney, Erica Brissenden

Policy Needs and Future Areas of Study

Based upon previous post-disaster temporary housing experiences across the United States, it is clear that many issues remain unresolved. In order to ensure that communities in Washington State will be able to quickly and effectively recover from a major disaster – whether the result of predicted subduction zone earthquake, a major flooding event, a large volcanic eruption, or other disasters – it is important to consider potential issues in policy, funding, and implementation of a large-scale temporary housing program. Some issues for consideration include:

- **Guiding Principles.** What social, ethical, fiscal, and/or environmental principles might a Washington State temporary housing program(s) be based upon? What objectives will a temporary housing program(s) attempt to meet for both individual and community recovery?

- **Minimum Standards.** What minimum standards, and for whom, may be appropriate for temporary housing program(s) in Washington State? These may include standards for:

- Size
- Durability
- Toxicity
- Reuse
- Labor
- Economy
- Resource efficiency
- Use flexibility
- Accessibility

- **Estimated Need.** What populations are likely to be displaced in predicted major disasters? What population demographics may a temporary housing program need to accommodate?

- **Land Use.** Do current land use zoning regulations allow for placement of temporary housing units on individual lots or in temporary housing camps? If not, what are the possibilities for post-disaster exemptions?

- **Protocol.** What state and local agencies will oversee aspects of a temporary housing program? At what level(s) of need will aspects of the program be initiated and for how long? Where and when might the use of rental vouchers, mobile units, semi-permanent small units or a combination be suitable? What mutual aid agreements, if any, should be pursued within the region?

- **Proto-Design Options.** What suite of potential proto-designs may be appropriate for Washington State, based upon guiding principles, minimum standards and estimated need? Such standards may need to consider the needs of unique sub-populations, such as:

- Elderly households
- Households with children
- Disabled users
- Households with pets
- Cultural needs or minority populations

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