Executive Summary

Introduction

In the year following Hurricane Katrina, FEMA deployed more than 12,000 FEMA travel trailers and 9,800 mobile homes to house disaster victims along the Gulf Coast. During this time, it became clear that the breadth and severity of the damage would require a long recovery period and that the trailers were not appropriate long-term temporary housing for displaced households. In June 2006, Congress allocated $400 million to the Federal Emergency Management Agency (FEMA) to develop alternative designs and prototypes for disaster housing.

FEMA offered the opportunity to apply for Alternative Housing Pilot Program (AHPP) funding to the States of Alabama, Florida, Louisiana, Mississippi and Texas, the five states most severely affected by Hurricanes Katrina, Rita and Wilma. FEMA's particular interest was to identify unit types that would be suitable when a long recovery period is anticipated following a major disaster. Grantees were given significant latitude in both the design of units and how the program would be administered. Three states and one local grantee were awarded funds.

The State of Mississippi received the largest AHPP grant—totaling $281 million—to develop and install approximately 3,500 units. This Executive Summary highlights key aspects of the State's program and provides the preliminary observations and lessons learned that are discussed in more detail in the full case study that follows.

FEMA contracted with the Department of Housing and Urban Development (HUD) to oversee an evaluation of AHPP implementation and outcomes. The evaluation is composed of two parts. The National Association of Home Builders Research Center, Inc. is tasked with evaluating the units and unit

AHPP Grantees

Alabama: State of Alabama (City of Bayou La Batre)

Louisiana: State of Louisiana (Louisiana Housing Finance Agency / Louisiana Recovery Authority)

Mississippi: State of Mississippi (Mississippi Emergency Management Agency)

Texas: State of Texas (Texas Department of Housing and Community Affairs)

installations from a physical (building sciences) standpoint, including the speed and ease of construction and installation, durability, safety and energy efficiency. Abt Associates, Inc. will conduct a "quality of life" evaluation that includes an assessment of the livability of the units as perceived by program participants, the extent to which the units aided participants' recovery, how the units were perceived by community stakeholders and how the grantee's organizational capacity and approach affected program and participant outcomes.

The four AHPP projects will be followed through 2010. Two formal surveys of program participants will be conducted over the course of the project to help identify outcomes for participants.

This case study of Mississippi's program is the first of a number of reports to be produced for the quality of life evaluation. It covers the first 17 months of program implementation for Mississippi, from April 2007 through August 2008. The timing of other evaluation reports will vary depending upon each grantee's implementation schedule. Case study reports will be prepared for each site as it nears full occupancy. Interim reports will summarize the results of the first follow-up participant survey, and a final report will summarize results of the second participant survey and make cross-site comparisons. Case studies for the remaining three sites will be completed by 2010. The final report will be issued in 2011.

Grantee Organization

The State of Mississippi designated the Mississippi Emergency Management Agency (MEMA) to implement the program known locally as the Mississippi Alternative Housing Program (MAHP). MEMA established a separate MAHP office in Gulfport that is staffed by a combination of local hires, contractor resources and regular State employees who were detailed to the program. The State contracted with Post, Buckley, Schuh & Jernigan, Inc. (PBS&J), a national engineering consulting firm, to provide management and technical support to the project. PBS&J had been involved in the AHPP application process and was at work

on the project before the MEMA management team was fully assembled. At the height of the temporary housing program, about 100 MEMA and contractor staff were working on the program. MAHP's Program Directors report directly to MEMA's Executive Director, and the agency works closely with the Governor's Office of Recovery and Renewal.

MAHP Program Design

MAHP embraced the pilot aspect of the program and committed to simulating the full disaster response cycle, from design through demobilization, within the first two years of the grant. The pilot was designed to test the ability of manufacturers and installers to mobilize quickly and MAHP's organizational capacity to effectively administer an emergency program that gave the State, rather than FEMA, responsibility for the procurement, installation and management of temporary housing. The MAHP proposal called for the temporary housing phase of the pilot to end on March 31, 2009. Although Mississippi proposed a small number of permanent housing sites in the grant application and planned for some units to be converted to permanent housing, MAHP's major focus during the first year of operation was on the temporary program. Key components of the MAHP temporary housing program are described below.

Eligible Areas

MEMA initially offered the program to applicants in the three coastal counties (Hancock, Harrison and Jackson counties) that were most severely affected by the 2005 storms. The program was later expanded into the more rural, inland counties of George, Stone and Pearl River.

Eligible Participants

The MAHP program was open to both homeowners and renters. Participants must have been residents of the affected counties on August 25, 2005, affected by Hurricane Katrina or Rita and, at the time of application, had to still be in need of temporary housing for at least six more months.

Eligible Sites

In most instances applicants had to provide their own sites and site improvements in order to receive a unit. No group sites were developed under MAHP, but some units were placed in commercial mobile home parks.

Unit Design, Production and Installation

The State's goal was to design units that could be manufactured and installed quickly for temporary housing, but could also be suitable for long-term occupancy when major disasters resulted in extended recovery periods. The State also wanted to design units that would be credible as permanent housing, if a housing need continued.

Designs for the MAHP units were based on a planning and design process that was completed soon after Hurricane Katrina under the auspices of the Governor's Office of Recovery and Renewal. Ultimately, MAHP elected to produce four unit types. The units were designed to meet both the current HUD code for manufactured housing and the International Residential Code (IRC).

Key Features of MAHP Units

- One-Bedroom Park Model
  - A direct replacement for FEMA travel trailer
  - 396 square feet
- Two- and Three-Bedroom Cottages
  - 728 and 840 square feet
- Handicapped-Accessible Two- and Three-Bedroom Cottages
  - Compliant with Uniform Federal Accessibility Standards
  - 728 and 840 square feet
- Two- and Three-Bedroom Eco-Cottages
  - Currently in the design phase
  - Intended to have enhanced energy efficient features

The one-bedroom Park Model units are larger than travel trailers and offer significant advantages in terms of structural design and internal layout. Unlike the travel trailers, the Park Model has a separate bedroom and a full-size bathroom and kitchen.

The two- and three-bedroom Cottages are similar in size to mobile homes, but, like the Park model, are greatly enhanced in terms of the quality and durability of materials used and the standards they meet. Just over 20 percent of the two- and three-bedroom Cottages were designed to comply with the Uniform Federal Accessibility Standards (UFAS) to ensure the availability of housing for family members with physical disabilities. All three types of housing were designed with removable undercarriages that would enable them to be placed on perm anent foundations.

The Eco-Cottage is a modular unit that is being designed as permanent housing with enhanced energy efficient features. Interior and exterior pictures and floor plans for all four unit types are provided in Chapter One of the full case study.

When the designs were completed, MEMA contracted with six manufacturers of modular housing that produced the units in ten existing factories located in six states. MAHP established a transition site near Gulfport to receive and inspect Cottages and dispatch the units to sites when they were ready. Early quality

Mississippi Cottage Photo: FEMA / Jennifer Smits

control inspections resulted in some refinements to unit specifications. In keeping with efforts to simulate disaster circumstances, MEMA originally installed all Park Models and Cottages in a temporary configuration, on piers and anchored to the ground. Installation specifications called for the units to be able to withstand 150 miles per hour winds. FEMA required that the units be furnished with at least a sofa, dining table and chairs, bed frames and mattresses, as well as a "living kit" that contained linens, dishes, silverware and cleaning supplies.

As of August 28, 2008 Mississippi had installed and occupied 2,806 Park Model and Cottage units. Eco-Cottages were still in the design phase and were expected to be ready for installation before the end of 2008.

Disposition and Demobilization of Units

Considerable interest in using the MAHP units for permanent housing was present from the beginning of the project. However, MAHP made firm commitments to local jurisdictions that the temporary housing program would end and MAHP units would be removed from approved sites no later than March 31, 2009, unless the jurisdictions requested the units remain as temporary housing or approved units for permanent housing. Early in 2008 interest in using the units for permanent housing increased because affordable rental housing was still in short supply and some homeowners had been unable to rebuild their homes.

Disposition and Demobilization Options for MAHP Units

1. **Sell units to eligible households where permitted by jurisdictions**
2. **Transfer ownership to community partners for affordable housing**
3. **Transfer ownership to federal, state or local governments**
4. **Dispose of units through a public auction**

In April 2008, MAHP began serious planning for the disposition of MAHP units and identified four disposition approaches that were compatible with Mississippi procurement requirements, FEMA's grant agreements and MEMA's commitments to local jurisdictions. MAHP has focused its efforts on the first two options: a sales program to eligible households and the transfer of units to community partners committed to providing affordable rental and homeownership opportunities.

Mississippi Cottages Photo: HUD / October 2008

Sales to Eligible Households

The sales option is attractive to participants that have an available, eligible site, but is not without challenges. Units placed permanently must be re-installed on a permanent foundation and temporary, above-ground utilities must be converted to underground, permanent connections. In addition, permanent units must comply with elevation requirements established by the National Flood Insurance Program (NFIP). This means that permanent installations are not permitted in some high risk areas and some units must be elevated to meet NFIP requirements.

Financing also is a constraint for many interested program participants. Although MAHP developed a sliding scale pricing structure that is based household income and offers discounts for seniors and households with disabled family members, the combination of mortgage payments, insurance, utilities and

taxes may still exceed what some households can reasonably afford.

Transfer to Community Partners

MAHP has engaged with local government and non-profit partners to develop long-term, affordable rental and homeownership opportunities using MAHP units. Planned projects as of August 2008 include:

- The South Mississippi Development Corporation (SMDC) will take ownership of more than 300 Park Models and Cottages already located in commercial trailer parks for use with Housing Choice Vouchers. SMDC also plans three new permanent housing developments totaling over 200 units.
- Habitat for Humanity Bay Waveland will install 44 Cottages as infill housing in Hancock County.
- Habitat for Humanity Mississippi Gulf Coast, Gulf Coast Community Partners and the City of Pascagoula will install nearly 30 Cottages in Pascagoula.
- Ocean Springs plans a mixed use development for eight Cottages.

Observations and Lessons Learned

This case study captures MAHP operations as temporary housing activities are winding down and demobilization activities are beginning. Although both the quality of life and the building sciences studies are still underway, it is possible to make preliminary observations and suggest lessons that may be of value to decision-makers for future disaster housing programs.

The MAHP Units

Observations

- The MAHP program has produced high quality units that exceed both the standards set by HUD for manufactured housing and the requirements of the International Residential Code. Local building officials acknowledged

the quality of units and speculated that the two- and three-bedroom models could have a useful life of as long as 30 years.

- Although testing is not yet complete, the sturdier materials used in the MAHP units are expected to result in units that are generally more durable than trailers and traditional mobile homes, with greater impact, wind and insect resistance and fewer moisture problems.
- MAHP's measured approach to unit procurement made it possible to refine unit specifications, create a measure of competition among the manufacturers and manage the flow of units to the transition site. During its peak month, MAHP received and installed more than 400 units. Although a significantly higher volume would be required in a major disaster, this experience suggests that manufacturers of modular housing can quickly mobilize to produce the needed housing.

Park Model Photo: Courtesy of MEMA

Lessons for the Future

Technical and quality requirements for units should be established in advance of a disaster.

MAHP made numerous adjustments to unit designs and installation protocols as a result of problems encountered during

manufacture and delivery. The inevitable clarification and negotiations with the manufacturers about materials, workmanship and aesthetics for a new product were time-consuming. Similarly, lack of clarity about UFAS requirements caused MAHP to discover mid-stream that some of their units did not meet the technical requirements. A uniform design standard that could be shared with housing providers and manufacturers in advance of an emergency could shorten production time and improve the quality of units. The same is true for installation specifications, although adjustments to standard specifications would be needed to accommodate local topographic and soil conditions.

Unit designs should consider both temporary and more permanent uses.

None of the MAHP units have sufficient living space to meet the minimum square footage standards required for permanent housing by many Mississippi localities. As a result, a local partner worked with MAHP and one of the manufacturers to design an addition to the Park Models and Cottages. When the scope of a disaster indicates that units may need to serve a longer-term, more permanent use, the selected designs should take into consideration permanent housing standards. However, this must be balanced with the need for units that can be manufactured, transported and installed quickly.

Emergency housing providers should carefully consider how many different types of units are optimal.

Developing three different models (Park, Cottage and Eco-Cottage), three bedroom sizes, UFAS-compliant and non-compliant units and units of different colors added complexity to unit tracking and assignments. Some MAHP staff recommended possible ways to reduce the complexity—for example, by designing all units as UFAS accessible or eliminating the smaller Park Model. However, having these options permitted MAHP to better meet participants' needs. Certain options or amenities may be valued differently in other locations and at different stages of disaster response, but the need to strike a balance between variety and efficiency applies in all cases.

A methodology is needed for determining when enhanced temporary housing units are needed.

It is not clear how quickly after a disaster an assessment can be made of the length of time temporary housing will be needed or whether some form of modular housing will be needed to support long-term recovery of the housing stock. Developing such a methodology could help Federal and State officials determine when trailers are appropriate and when a larger, more permanent solution is needed.

Quality of Life

Observations

The results of the first formal survey of MAHP participants will not be available until early 2009. Even so, discussions with participants, MEMA staff and contractors, local government representatives and nonprofit organizations can provide a preview of participant perceptions.

- There appears to be clear consensus that the Park Model and Cottages are a better solution for long-term temporary housing than trailers and even traditional mobile homes. The additional living space, full-size kitchens and bathrooms, more windows and the outside space provided by the porch were reported to contribute substantially to occupants' well being.
- Improvements to mental health were mentioned by occupants more frequently than improvements to physical health. Living in a unit that "feels more like home" and being able to resume pre-storm activities, such as inviting family and friends over, created a sense of normality that was greatly valued by program participants. Occupants also mentioned feeling more secure in the MAHP units.
- Accessible features and exterior ramps were major enhancements to participants with mobility impairments, at least one of whom had not been able to leave her temporary trailer under her own power for more than two years.

Lessons for the Future

Right-sizing of units is an important quality of life consideration.

In its effort to simulate disaster conditions MAHP initially established restrictive occupancy standards, sometimes assigning two-, three-, and four-person households to the one-bedroom Park Model. This standard was changed later in the program when it became apparent that applicants did not have the same tolerance for limited living space that they might have had immediately after the disaster. It is important for future implementers to consider how long the unit is likely to be used before setting occupancy standards.

Mississippi Cottage July 2008

Many program participants need training on unit features and amenities.

MAHP staff and program participants reported that more training on unit features and amenities at move-in would have been helpful. Some applicants had not previously used a microwave oven; others were not familiar with smoke detectors. Air conditioners and the operation of windows were also noted as areas of confusion. Additional training might have reduced the maintenance workload and eased stress for residents.

Community Response

Observations

The timing of the implementation of AHPP, which started nearly two years after the disaster, makes it difficult to anticipate how a community might view the MAHP units immediately after a disaster. Several local officials said that the Cottages would have been more welcome immediately following the storms than they were later.

- The passage of time made local jurisdictions less willing to waive local zoning and permitting processes. At the point MAHP was implemented, communities were intensely engaged in economic and physical redevelopment activities. They feared progress in this area would be compromised by the installation of temporary housing —especially if it were likely that some of the temporary units would remain after March 2009.
- Local leaders also were influenced by the attitudes of vocal segments of the community who felt that the temporary housing period had gone on long enough and that local residents should have been able to "get back on their feet."
- Long held perceptions about the desirability of trailers and mobile homes created resistance to the MAHP units. Before the hurricanes, most of the more populated jurisdictions had made efforts through zoning and code enforcement to remove mobile homes as a permanent housing resource in their jurisdictions or permitted them to be installed only in designated areas. The more rural jurisdictions generally had less restrictive regulations. Despite MAHP efforts to explain the higher standards to which the Cottages were built, negative perceptions about trailers and mobile homes transferred to the Cottages. MEMA overcame some of the objections by executing a memorandum of understanding (MOU) with each local jurisdiction detailing how Cottages would be used in the jurisdiction and by maintaining contact with local governments.

Lessons for the Future

A strong, comprehensive communication strategy for local officials and the public is needed.

Community resistance to "homes on wheels" is a challenge, especially when some of the temporary housing is likely to remain in the community long after the disaster. MAHP negotiated agreements with each jurisdiction, prepared written materials and press information about the program and installed sample units in several locations for the public to tour. Despite this systematic communication effort, MAHP representatives indicated that more communication with local officials and residents was needed, especially at the program's start-up. In retrospect, bringing together political representatives and program staff of each local jurisdiction in a workshop session may be a helpful approach.

Pre-disaster planning should include strategies for addressing short- and long-term temporary housing and the use of modular units that could transition to permanent housing.

The immediate, post-disaster period is a difficult time to engage in discussions about housing strategies that can affect the long-term landscape of a community. Local governments are dealing with multiple issues, including massive debris removal, restoration of infrastructure and planning for economic recovery. In Mississippi many local governments were operating out of temporary office space and coping with losses of data and systems. It is important for local communities to include short- and long-term housing needs in pre-disaster planning efforts. Agreeing on unit designs and occupancy policies in advance of a disaster will help foster a sense of control and mitigate future community resistance.

Organizational Capacity and Implementation

Observations

Mississippi was successful in implementing a large pilot program of more than 2,800 temporary disaster housing units in 17 months.

Several key factors appear to have been essential to this outcome:

- Based on prior experiences administering other emergency programs, MAHP was organized and implemented using the Incident Command Structure (ICS). Common in the emergency response field, ICS provides clear lines of authority and a structured method for outlining tasks and monitoring accountability. This structured approach enabled quick program implementation.
- MAHP benefited from significant political support, as well as access to state resources and expertise. Political support from the Governor's Office assisted MAHP in navigating relationships with communities. MAHP also accessed state administrative resources through the Department of Finance and Administration, as well as additional MEMA staff at critical program junctures. This sustained support provided a broad foundation for the program to move forward.
- MEMA elected to use contractors for MAHP with MEMA personnel providing oversight. This approach allowed the program to remain flexible, adjust staffing and revise policies as needed during the transition from temporary to permanent installations.

Lessons for the Future

A combination of disaster response, disaster recovery and affordable housing expertise is needed to successfully administer a similar program.

MEMA's expertise in emergency operations enabled it to establish an effective new organization and to deal with significant logistics. However, MEMA's acknowledged lack of permanent housing expertise affected some of its policies and procedures and its ability to work with local partners. MEMA re-procured its contractor in part to access this additional expertise. For future programs, incorporating permanent housing expertise and capacity in the planning stages and throughout the program could help the implementing organization to anticipate issues and make the transition to permanent housing options smoother.

Future programs should incorporate a stronger human services strategy.

MAHP management and staff reported that they did not expect that residents would have such intensive service needs and were initially unprepared to facilitate connections to services for households with multiple problems or severe needs. Over time, the organization identified and referred participants to local organizations that provided necessary services. A strategy for identifying and accessing community services should be an integral part of pre-disaster planning efforts and an early focus in any temporary housing mission.

Details on MAHP's implementation through August 2008 are contained in the body of this report. The pilot program is ongoing through 2011. Further program updates will be provided in the 2009 interim report along with results of the first follow-up survey of MAHP participants.