



# GULF STATES POLICY INSTITUTE

A study by RAND Infrastructure, Safety, and Environment

THE ARTS  
CHILD POLICY  
CIVIL JUSTICE  
EDUCATION  
ENERGY AND ENVIRONMENT  
HEALTH AND HEALTH CARE  
INTERNATIONAL AFFAIRS  
NATIONAL SECURITY  
POPULATION AND AGING  
PUBLIC SAFETY  
SCIENCE AND TECHNOLOGY  
SUBSTANCE ABUSE  
TERRORISM AND  
HOMELAND SECURITY  
TRANSPORTATION AND  
INFRASTRUCTURE  
WORKFORCE AND WORKPLACE

This PDF document was made available from [www.rand.org](http://www.rand.org) as a public service of the RAND Corporation.

[Jump down to document](#) ▼

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world.

## Support RAND

[Purchase this document](#)

[Browse Books & Publications](#)

[Make a charitable contribution](#)

## For More Information

Visit RAND at [www.rand.org](http://www.rand.org)

Explore the [RAND Gulf States Policy Institute](#)

View [document details](#)

## Limited Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law as indicated in a notice appearing later in this work. This electronic representation of RAND intellectual property is provided for non-commercial use only. Unauthorized posting of RAND PDFs to a non-RAND Web site is prohibited. RAND PDFs are protected under copyright law. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents for commercial use. For information on reprint and linking permissions, please see [RAND Permissions](#).

This product is part of the RAND Corporation technical report series. Reports may include research findings on a specific topic that is limited in scope; present discussions of the methodology employed in research; provide literature reviews, survey instruments, modeling exercises, guidelines for practitioners and research professionals, and supporting documentation; or deliver preliminary findings. All RAND reports undergo rigorous peer review to ensure that they meet high standards for research quality and objectivity.

TECHNICAL  
REPORT

---



# Post-Katrina Recovery of the Housing Market Along the Mississippi Gulf Coast

Kevin F. McCarthy, Mark Hanson

Supported by Oxfam America, the Foundation for the Mid South,  
the Mississippi Association of REALTORS®, and  
the National Association of REALTORS



GULF STATES POLICY INSTITUTE

A study by RAND Infrastructure, Safety, and Environment

This research was sponsored by Oxfam America, the Foundation for the Mid South, the Mississippi Association of REALTORS®, and the National Association of REALTORS and was conducted within the RAND Gulf States Policy Institute (RGSPI)—a partnership involving the RAND Corporation and seven universities in the Gulf of Mexico coastal region.

**Library of Congress Cataloging-in-Publication Data**

McCarthy, Kevin F., 1945-  
Post-Katrina recovery of the housing market along the Mississippi Gulf Coast / Kevin F. McCarthy,  
Mark Hanson.  
p. cm.  
Includes bibliographical references.  
ISBN 978-0-8330-4293-4 (pbk. : alk. paper)  
1. Housing—Mississippi—Gulf Coast. 2. Housing development—Mississippi—Gulf Coast. 3. Hurricane  
Katrina, 2005—Economic aspects. I. Hanson, Mark, 1966– II. Rand Corporation. III. Title.

HD7303.M7M25 2007  
333.33'8097621—dc22

2007040839

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

**RAND®** is a registered trademark.

© Copyright 2008 RAND Corporation

All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including photocopying, recording, or information storage and retrieval) without permission in writing from RAND.

Published 2008 by the RAND Corporation  
1776 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138  
1200 South Hayes Street, Arlington, VA 22202-5050  
4570 Fifth Avenue, Suite 600, Pittsburgh, PA 15213-2665  
RAND URL: <http://www.rand.org>  
To order RAND documents or to obtain additional information, contact  
Distribution Services: Telephone: (310) 451-7002;  
Fax: (310) 451-6915; Email: [order@rand.org](mailto:order@rand.org)

## Summary

---

In the immediate aftermath of the devastation wrought by Hurricane Katrina, Mississippi Governor Haley Barbour appointed the Commission on Recovery, Rebuilding, and Renewal. The RAND Gulf States Policy Institute (RGSPI) served as an advisor to the housing component of that commission. When the commission reported its findings in December 2005, the extent of the damage done to the housing stock was still unclear. Moreover, it was still too early to assess the status of the recovery effort or to identify what problems, if any, might be affecting the recovery process. As a result, one of the commission's recommendations was that a study be conducted to examine these issues. In summer 2006, RAND was funded to conduct such a study. Its objectives were first, to describe the state of the housing markets in Mississippi's three coastal counties (Hancock, Harrison, and Jackson) prior to Katrina; second, to estimate the damage the storm did to their housing markets; third, to describe the status of the recovery effort; and fourth, to identify the problems that might inhibit that recovery.

Data availability and comparability were major issues for this analysis, because the scope of the research required (with the exception of the pre-Katrina analysis) near-real-time information on a diverse array of issues. In fact, several information sources were used (the 2000 Census [U.S. Census Bureau, 2007c] and the 2005 American Community Survey [U.S. Census Bureau, 2007d] for pre-Katrina descriptions of the population and the housing market; FEMA and U.S. Army Corps of Engineers (ACOE) data on the sources and extent of the damage done by Katrina; building-permit data on recovery; and an array of sources on various aspects of the potential obstacles to the recovery efforts). As a result, the analysis needed to deal with a variety of comparability issues related to the units of analysis, timing, and geographic scope. Our approach to these issues is discussed in the appendix.

The pre-Katrina description of the coastal area's housing market served as a benchmark both for measuring the extent of the damage done by the storm and for assessing the state of the recovery effort. Prior to Katrina, 70 percent of the occupied housing stock was owner occupied—85 percent of which was single-family residences and 15 percent mobile homes. The remaining 30 percent of the stock (renter occupied) consisted of single-family residences (40 percent), units on multiunit properties (50 percent), and mobile homes (10 percent). Since 85 percent of the single-family units (owner and renter occupied) and 95 percent of the multiunit properties were located either immediately on the coast or in the next zone (coastal adjacent), they were particularly vulnerable to storm damage. Indeed, more than 60 percent of the rental stock was located in the region's three largest cities (Gulfport, Biloxi, and Pascagoula), all of which are on the gulf, making the housing located there particularly vulnerable to the storm. The majority of mobile homes, on the other hand, were located in inland areas of the three counties and thus less exposed to the ravages of Katrina.

Although household incomes in the three counties are somewhat higher than in the rest of Mississippi, so are housing costs (market values for owner-occupied homes and monthly rents for rental units). As a result, housing affordability was a major issue prior to Katrina. Indeed, prior to Katrina, 40 percent of the renters were either spending more than one-third of their monthly incomes on housing (the U.S. Department of Housing and Urban Development [HUD] affordability standard) or were living in subsidized or public housing.

Katrina damaged about 60 percent of the three counties' housing stock, but the extent and intensity of that damage varied substantially, depending on the source of that damage. Although 47 percent of all the damage to units was caused by wind or rain, the vast majority of that damage was of a limited nature (valued at \$5,000 or less). Storm surge alone was responsible for about 35 percent of the damaged units, and almost half of those units suffered severe damage. Flooding rarely occurred by itself, but the combination of storm surge and flooding (experienced by about 16 percent of the damaged units) was by far the most devastating—more than 65 percent of those units were severely damaged or destroyed.

Hancock County (where almost three-quarters of the housing stock was damaged) was the hardest hit by the storm, but the damage done in Harrison County (where more than 60 percent of the units were damaged) had the greatest effect on the housing market, because two-thirds of all units were located there. Slightly less than half of the units in Jackson County were damaged, but much of that damage was limited. Despite the widespread nature of the damage done to the housing stock throughout the region, there were significant differences in the extent and intensity of that damage in various submarkets. The most severely affected was the multifamily rental submarket—almost 80 percent of such units were damaged, and one-third of all multifamily rental units suffered severe or moderate damage (repairs averaging more than \$50,000). About one-half of the single-family residences (owned and rented) suffered damage, and almost 20 percent of all single-family units were severely or moderately damaged. Although between 30 percent and 50 percent of owner-occupied and renter-occupied mobile homes, respectively, were damaged, that damage was less severe than in other submarkets.

Assessing the current state of recovery efforts is not straightforward, because there is no up-to-date source of information on those efforts. Our assessment is based on a comparison of information on building permits issued in the months immediately after the storm through the second quarter of 2007. These comparisons provide only an estimate of actual recovery and rebuilding, since they relate only to permits issued and not to construction completed or even necessarily begun. Overall, perhaps as many as 46,000 permits had been issued, compared with the approximately 77,000 damaged units. This overall rate of 60 percent, however, varies substantially across incorporated and unincorporated areas. (There are 11 incorporated municipalities.)

Our estimates reveal several important features of the recovery effort. First, they suggest that the recovery process got off to a slow start, as relatively few of the permits were issued in the fourth quarter of 2005. Although the pace of permits issued picked up substantially in the first and second quarters of 2006, it appeared to slow noticeably in the third and fourth quarters and then to rise again in the first two quarters of 2007. Second, the pace of recovery seems to have moved more rapidly in some submarkets than in others. In particular, the ratio of permits issued to damages appears higher for single-family than for multifamily units and higher for moderately than for severely damaged units. Third, the costs of repair appear high relative to the market values reported in the 2000 Census (U.S. Census Bureau, 2007c). Fourth, at the

current pace, it appears that recovery will take at least another two to three years. Finally, it seems certain that the final costs of the recovery effort will exceed \$4 billion.

Based on our analysis, we have identified three sets of issues that will affect the recovery effort: The first includes a series of general considerations about the recovery process; the second involves three critical issues facing the short-term recovery effort; and the third includes a set of longer-term issues.

In light of the scope of the damage that Katrina did to the housing market and the enormity of the recovery effort, public and private decisionmakers might well keep three considerations in mind. First, although pressures to expedite the recovery effort are likely to be pronounced, it is important to recognize the potential tensions between the short-term goal of a speedy recovery and the need to take mitigation measures to protect the region from future storms. Second, although probably obvious, the range of resources needed for recovery is huge and will include not just labor and materials but also the organizational skills to coordinate the efforts of the diverse range of public, private, and nongovernmental organizations involved in this process. Since public expectations, perceptions of progress, and the reality of the situation may well differ, broad dissemination of accurate information about what is happening and inclusion of the various parties involved in decisions about the process may be very important to promoting cooperation in the recovery effort. Finally, the scope of the damage that Katrina did was very broad and included damage not just to the housing stock but also to the region's economy, infrastructure, and public sector. Recovery in the various areas will be interrelated and should not proceed independently.

In addition, our analysis of the short-term recovery effort indicates that three issues will be critical to that effort: first, the capacity of the construction sector; second, the availability of funds to finance recovery; and third, providing an adequate supply of housing, especially affordable housing, to those whom the storm displaced from their residences.

Although the construction sector has geared up its capacity to deal with increased demand, there are signs (construction employment levels and sales of building materials) that the sector's capacity may have peaked by the third quarter of 2006. Additional steps may need to be taken to deal with continued demand.

Despite the availability of multiple sources (insurance, government grants and loans, and various special tax incentives) with which to finance recovery, a rapid increase in housing values and high rebuilding costs appear to have left gaps in the financing picture. This situation appears to be most acute for those who were un- and underinsured, those whose properties were most severely damaged, and landlords—especially those with large, multiunit rental properties.

Finally, the very tight market for affordable housing pre-Katrina, the loss of a significant portion of the rental stock, a 20 percent increase in rents, and a substantial drop in employment, have created a very tight market for those households that the storm displaced. This problem is particularly acute in the affordable-rental sector. Alleviating this problem is important not just to the recovery of the housing market but also to economic recovery more generally.

Although there is evidence that both state and local officials are aware of the need to consider longer-term mitigation efforts to protect the region from future hurricanes, the experience after Hurricane Camille, the last devastating hurricane to hit the U.S. Gulf Coast, suggests that following through on these intentions often requires considerable resolve. Indeed, as the recovery period after storms lengthens, political pressures may well increase to expedite

the recovery, even at the cost of longer-term mitigation efforts. Such pressures may be difficult to resist, given the political context of local planning decisions.

However, a recent study of prior floods (Kahan et al., 2006) indicates the importance of such mitigation measures, particularly those that rely less on traditional, “structural” measures, e.g., levees and dikes, to control floodwaters than on such nontraditional measures as strengthening building codes, retrofitting existing structures, and zoning policies that leave otherwise vulnerable but flood-prone areas uninhabited. Finally, given the coastal region’s recent growth history and economic development prospects, the region might well consider developing a longer-term growth strategy that incorporates not just current recovery efforts and preparation for mitigating future storms but also a broader development strategy that incorporates infrastructure, housing, employment, and public facility needs.