

# Natural Hazard Research

EFFECTS OF A NATURAL DISASTER ON  
LOCAL MORTGAGE MARKETS: THE PEARL RIVER FLOOD IN  
JACKSON, MISSISSIPPI - APRIL 1979

by

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September, 1980



Working Paper #39

Effects of a Natural Disaster on Local Mortgage Markets:  
The Pearl River Flood in Jackson, Mississippi

This paper is the report of a study of the local residential mortgage market following a record flood of the Pearl River in Jackson, Mississippi in April, 1979. The authors interviewed officials of local lending institutions immediately after the flood to determine the number of mortgaged properties that suffered damage; the severity of the damage to each unit; perceived probability of default on the mortgages; and the role the lending institutions planned to play in assisting their customers to recover from the disaster. Statistics were also obtained on the number of properties insured against flooding, the amount of coverage in force for each, and the use of federal disaster loans.

Results indicate that the response of lending institutions in Jackson was varied. Some initiated aggressive programs to contact their mortgagors, assess damage to the properties and help the victims obtain funds for repairs; others felt that they should wait for the homeowners to initiate contact. A follow-up study is planned to assess the long-term effects of the flood on the mortgage market.

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ACKNOWLEDGEMENTS

The Pearl River flooded in April 1979, causing tremendous property damage in Jackson, Mississippi. Because of the enormity of the damage and the anticipated lack of insurance proceeds, the authors felt this disaster would cause substantial pressure on local lending institutions and their customers. The National Science Foundation quick response funding gave the authors the opportunity to observe the immediate effects of a natural disaster on local residential mortgage markets. Since the foreclosure process takes considerable time, the authors knew they would not find any "immediate" defaults. They were interested in measuring the perceptions of local mortgage lenders as to their future default losses. In addition, the authors wanted to record the nature and consequences of the immediate responses of the lenders to the disaster. Specific emphasis would be on those actions taken by the lenders to assist their residential mortgage customers. Finally, the authors hoped to collect statistics on the amount of property damage, the extent of insurance proceeds and the use of federal disaster loans.

Due to the short-term nature of the study, information could only be gathered through personal observations and interviews with local lending institutions. The authors would have to rely on whatever damage and insurance statistics the lending institutions kept and made available. Many of the statistics would be estimates rather than hard data. It was not possible within the scope of this study to scientifically interview or survey mortgagors suffering property damage. The authors hope to return to the disaster scene to study the problems and reactions

of mortgagors. At such time, perceptions and estimates measured shortly after this disaster can also be compared to what actually happened.

This study depended upon the cooperation of a number of individuals. Most of the data were collected through personal interviews. Prior to the April 1979 floods, we did not know anyone in Jackson. Essentially, a couple of strangers were coming to town on short notice to ask a bunch of questions.

Without exception, everyone with whom we talked was cooperative. At the risk of omitting someone, we would like to express our appreciation to the following individuals in the Jackson financial community: Don Barkley and Cleve Brown of Unifirst Savings and Loan; Kelly Dabbs and Winston Morris of First Magnolia Savings and Loan; Rush Busbee of Jackson Savings and Loan; R. B. Howard of Homestead Savings and Loan; Jim Davis of State Mutual Savings and Loan; Billy Weems, Jerry Jackson, and Bob Merchant of Depositors Savings; Charles Sewell, Larry Moore, Roy Moore, and E. B. Robinson of Deposit Guaranty; Luther Tubberville of First National; Russell Burke of Mississippi Bank; James Rylas of First Mississippi National; Frank Williams and Coleman Lowery of Cameron Brown; Richard Kimbrough and George Smith of Kimbrough Investment Company; Rod Hartman of Security Savings; Gene Friar of MidState Mortgage Company; and Sidney Allen of Hancock Mortgage Company.

The Great Flood, published by the Clarion-Ledger, was a valuable reference. Steve Rassesfoss of the Clarion-Ledger staff was most helpful. Willard Inman of the Mississippi Research and Development Center provided us with flood maps of the Jackson area.

Of course, this study would not have been possible without funding from the National Science Foundation. The grant, which provides funds

for researchers to move into a disaster area as quickly as possible in order to make observations in the immediate wake of the disaster, was administered by the Natural Hazards Research and Applications Information Center at the University of Colorado in Boulder. Susan K. Tubbesing of the Center coordinated the project and we appreciate her efforts.

The authors found the entire study to be a stimulating and educational experience. The people of Jackson are to be commended for their courage in a terribly trying situation. It is hoped that through their efforts and this study, communities hit by future natural disasters will be better prepared and able to respond.

## THE FLOOD

On the evening of Wednesday, April 11, 1979, a heavy storm moved into north central Mississippi. The storm had gained notoriety the previous day when it spawned devastating tornadoes in Wichita Falls, Texas. Between Wednesday evening and early Friday morning some 20 inches of rain fell near the upper reaches of the Pearl River which flows through the western half of the state to the Gulf of Mexico.

The largest city which lies along the Pearl is Jackson, the state capital, with a population of 325,000. On the Pearl just above Jackson lies the Ross Barnett Reservoir. As the rain fell, water ran off the land into tributaries which flowed into the Pearl. The reservoir was able to collect the excess water for a period of time, but eventually the increased amounts of water had to be released through the spillway.

Some flash flooding occurred late Wednesday and Thursday, but it caused relatively little damage compared to what was to occur. Ironically, sunny skies on Good Friday witnessed the inexorable rise of the Pearl River. The river would eventually crest at a record level in Jackson some five days later. Flooding along the Pearl was not uncommon. Since the Ross Barnett Reservoir had been built primarily for the storage of drinking water and recreational purposes, it was not expected to control the flooding resulting from the torrential rains. Jackson residents, local public officials, professional agencies such as the National Weather Service and the Army Corps of Engineers, and disaster officials all expected flooding over the Easter weekend. But no one predicted its actual extent. The Pearl crested in Jackson at 43.25 feet on Tuesday, April 17 in the early afternoon, some 25 feet above the 18-foot



flood stage elevation. The crest broke the 77 year old flood record by more than five feet. Figure 1 shows the extent to which the Pearl River overflowed normal boundaries. Nothing in Jackson's history had prepared the people for a flood of this magnitude.

### Residential Areas Hardest Hit

Once the Pearl started to rise on Thursday, it moved with a swiftness that shocked Jackson residents and officials alike. One of the first residential areas reached by the waters was that bordered by River Road, Foxboro Drive, and Cypress Trail. A statement by David Fondren, whose house was on Foxboro Drive, illustrates the way in which the rising waters caught people off guard.

"We were standing in a carport over there, we had a six-pack of Miller and we were discussing what we ought to do. At about 4:30 p.m. (Thursday, April 12), the water came under the gate at the end of the (dead end) street. Thirty minutes later, it had come up in the front of my house." (The Clarion-Ledger, 1979).

As the waters continued to rise, residential areas in the various parts of Jackson were alerted. Flooding was particularly severe in the Sedgwick Drive, Rolling Wood, Westbrook Road, Canton Club Circle, and High Tower areas. Most of the residential property damage occurred in the newer areas (10-15 years old) in northeast Jackson.

Failure to anticipate the record level of the flood was a critical factor in the high losses. Had people reacted sooner, a great deal more personal property could have been saved. By the time most people reacted, escape roadways had been blocked by water and rental vehicles had been reserved. Cars and trucks laden with personal belongings sat in

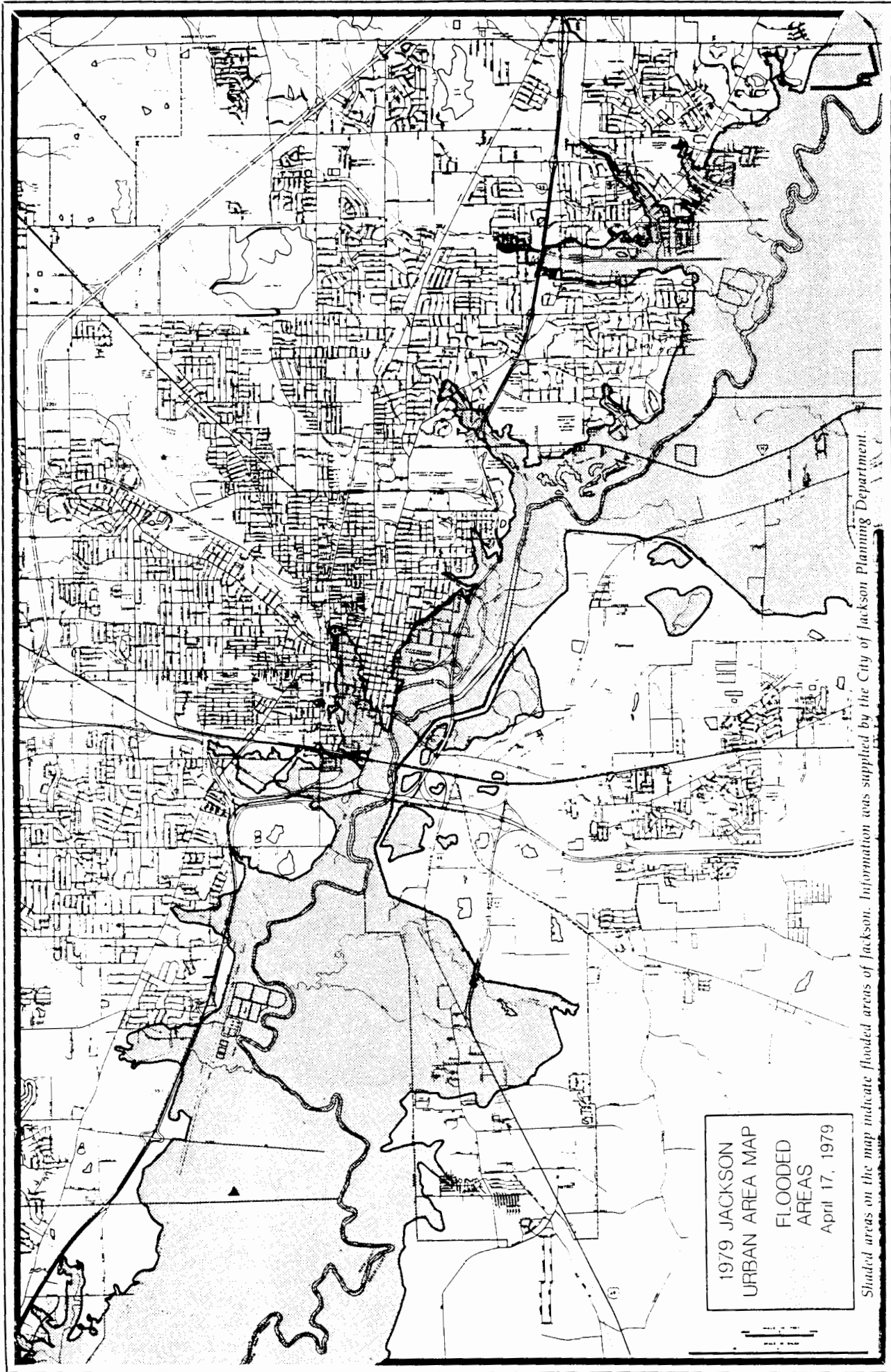


FIGURE 1  
 FLOODED AREAS IN JACKSON, MISSISSIPPI, APRIL 17, 1979  
 (From The Clarion-Ledger, 1979)

driveways unable to move, or ventured into the flooded streets only to become stranded. Since one story houses predominated, roofs acted as surrogate second stories, but only smaller, lighter items could be hauled to these sanctuaries. The only option for many homeowners was to raise furniture and appliances on concrete blocks. Unfortunately, this strategy proved futile when flood levels approached roof lines.

### Effect on City Services

City and company officials were successful in maintaining about fifty percent of the local utility services. The biggest loss was to the \$48 million waste water treatment plant off Interstate 55 South. The extensive damage (\$3,000,000) at this plant complicated matters since the flood waters became contaminated with raw sewage. The most notable success story took place at the Jefferson Street Electrical Substation, which provided electricity for most of downtown Jackson. Massive efforts over the weekend by power company employees, Parchman prisoners, and volunteers produced a ten foot levee that saved the substation. Three other smaller electrical substations were knocked out, leaving about 5,000 people without electricity. At the Laurel Street drinking water plant six pumps failed, but auxiliary pumps kept city water supplies flowing and free of contamination. Communications were hampered by the loss of about 7,300 telephones in the Jackson area.

The rising waters of both the Pearl River on the east and Town Creek on the west threatened downtown Jackson. Numerous basements and streets were flooded. Many businesses had several feet of water on the first floor of their facilities. The levee, protecting the coliseum and the

fairgrounds remained intact but to little avail, as floodwaters flowed around the north end of the levee at Fortification Street. Major damage was incurred at the Quarter shopping center where water levels measured several feet. Transportation problems existed throughout the flood as major roads including Interstate 55 were impassable due to high water.

The waters finally began to recede in the late afternoon on Tuesday, April 17. The crest moved down the Pearl River threatening other communities. Because of Jackson's troubles, cities and towns downstream were alert to the severity of the approaching flood waters. This extra preparation time was put to good use and flood losses were reduced. For Jackson residents, the time only delayed the realization of damage and allowed water to seep deeply into their homes and possessions. It would be months, even years, before memories would fade of what one publication called, "the worst disaster to befall Jackson since General William Tecumseh Sherman burned the city to ashes in 1863" (The Clarion-Ledger, 1979).

#### RESIDENTIAL PROPERTY DAMAGES

As the flood waters receded the dimensions of the residential property damages became apparent. Flood damages are particularly depressing. Not only have people suffered losses, both monetary and sentimental, but they also must endure an excruciating clean up process. The house is normally a mess. It smells. The water may be contaminated. The electricity is usually damaged meaning one must toil in the dark. Snakes

can be present. Cherished family belongings have to be discarded into a growing trash pile.

### Types of Residential Property Damages

Residential property damages can be grouped into three categories-- structural damages, damages to contents and other personal property, and additional living expenses. Since this type of flood was characterized by rising water levels, rather than rushing water or storm surge, virtually all the structures were salvageable. Typical renovation efforts required the removal of all the carpeting and sheetrock wallboard. Lower level kitchen cabinets generally were not salvageable and insulation had to be replaced. Most of the homes with more than a few inches of water in the house were stripped down to the frame. It is anticipated that the pine and fir framing will dry out and not suffer permanent damage such as warping. The brick and wood exteriors of the damaged houses bore water lines indicating the highest level of the flood, but these marks could be removed fairly well with cleaning agents. Trees, shrubs, and grasses all initially appeared dead, but they seemed to recover as the summer passed.

The loss of furniture, fixtures, and personal belongings produced the most torturous losses. Wallboard and carpeting are impersonal and can be replaced. The loss of family photographs, a favorite table, the dining room set or piano goes well beyond the monetary value of these items. The piles of these and other objects that accumulated in front of the damaged houses was one of the sadder sights observed in Jackson.

A number of people lost the majority of the contents of their homes and personal belongings. The extent of the damage to personal property depended on a number of varied factors such as how fast the water rose, the availability of trucks and, later, boats, the passableness of roads, the level of the water, and access to the roofs. Some people "lucked out"--others did not.

It was calculated that at the height of the flood some 6,500 people were driven from their homes. While many were able to stay with friends and relatives, some were forced to incur additional living expenses by staying at motels and eating in restaurants. Flood insurance did not cover these expenses. After the waters receded it was weeks and often months before the homes were again habitable. In many cases trailers set up next to damaged homes provided substitute living quarters.

During the flood and in the weeks following, virtually no looting occurred. Many individuals volunteered the information during interviews that no looting was taking place. Jacksonians were obviously proud of this record, particularly in light of looting problems that have accompanied past disasters.

#### Dollar Amounts of Damages

Damages from the Pearl River flood were enormous. Almost 2000 residences were flooded. About 75% or 1500 were single family homes and duplexes. About 370 apartment units in five structures and 40 mobile homes suffered flood damages. Some 730 individual commercial and industrial businesses in 298 structures endured flood losses. Dollar amounts of the damages are estimated to be \$168 million from residential,

business, and personal property; \$105 million for city and state property; and \$15 million for property of non-profit organizations (The Clarion-Ledger, 1979). Total losses will of course be greater when lost income resulting from business closings and lost wages resulting from employees missing work are included.

As mentioned previously, the financial institutions were not required to collect damage information. In addition, none of the financial institutions was required to allow the authors to see the data they did collect. Most institutions were quite cooperative and shared their available data in a depersonalized form (names, addresses, etc., removed).

Data made available by the cooperating financial institutions is presented in Figure 2. The distribution of losses is taken from data compiled by two major residential mortgage lenders in the Jackson area and represents 121 damaged dwellings. Although the nature of the study did not lend itself to random sampling techniques, the distribution of losses depicted in Figure 2 is roughly representative of the loss distribution for all residences suffering flood damage.

As can be seen in Figure 2, damages of between \$10,000 and \$25,000 were most frequent, with 77% of the sample (93 dwellings) reporting damages in that range. The average amount of damage per unit was \$19,600. Approximately 60% (72 of 121) of the damaged homes had damages of \$20,000 or less, while 40% (49 of 121) had damages exceeding \$20,000. Damages exceeded \$35,000, the maximum amount of available flood insurance, in only 4% (5 of 121) of the cases. These damage amounts include only damages to the structure itself. Figures on contents losses were not available.

FIGURE 2  
FLOOD DAMAGES (IN DOLLARS) PER DWELLING

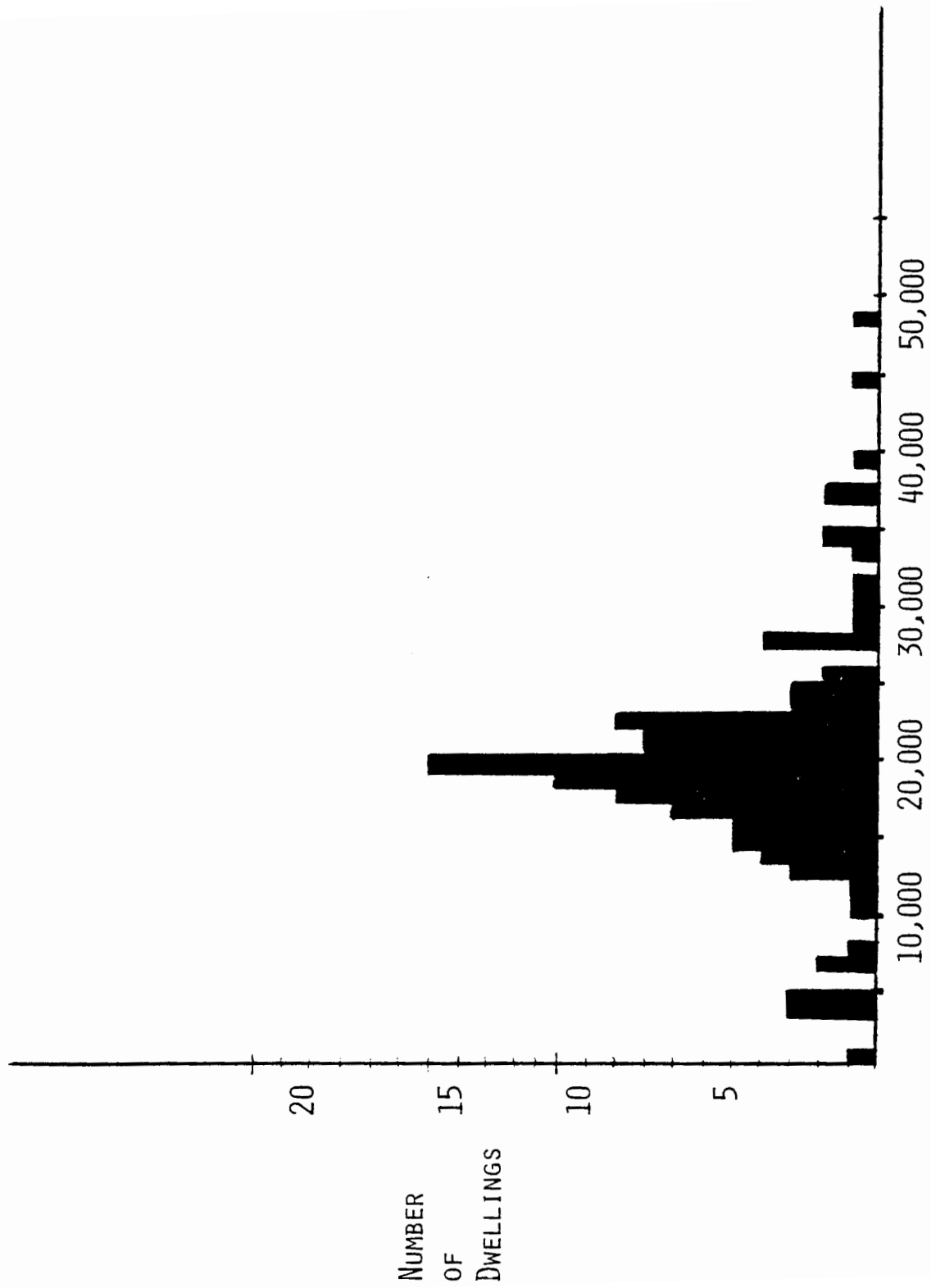




Figure 3 depicts the relation between damages and the outstanding mortgage balance at the time of the loss, using the same data set employed in Figure 2. It gives an idea how monthly mortgage payments might be increased due to the flood damage. For instance, assume a pre-flood outstanding mortgage balance is \$20,000, and consider a case in which uninsured flood damages were equal to \$20,000. If one had to borrow \$20,000 to pay for flood losses and the terms of the loan were the same as the original mortgage (same interest and maturity date), then monthly payments of principal and interest would double. Of course it is unlikely that the terms would be the same. In addition, individuals would use other sources besides borrowed funds to make repairs. Yet the data in Figure 3 can lend some insight into the potential financial burden that the typical owner of damaged property would face.

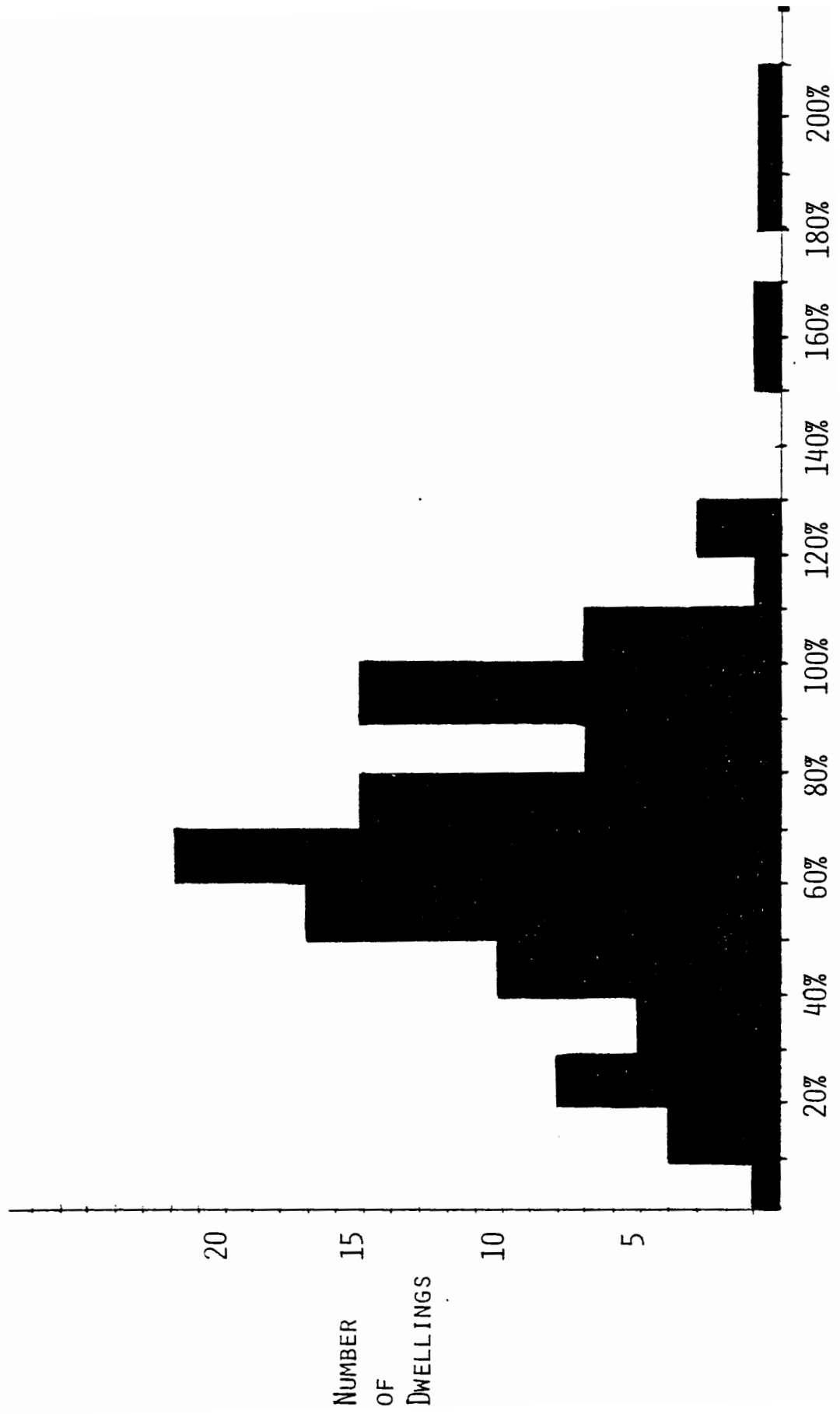
For all 121 damaged properties in the sample, the average damage was 71% of the pre-flood outstanding mortgage balance. For those individuals without adequate insurance or personal savings, a substantial increase in total mortgage payments can be expected. Even if 3% SBA disaster loan funds are obtained to repair the damage, the typical uninsured property owner will probably incur at least a 50% increase in total mortgage payments (principal and interest).\*

Another measure of the relative severity of flood damage is the ratio of damage to dwelling value. Figure 4 displays that information. This

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\*The actual increase in monthly payments would depend on the initial interest rate on the mortgage, the magnitude and type of loan used to repair the property, the terms of such loan, and the possible decision to refinance the original mortgage.

FIGURE 3  
 FLOOD DAMAGE AS A PERCENTAGE OF PRE-FLOOD OUTSTANDING MORTGAGE BALANCE



DAMAGE AS A PERCENTAGE OF THE PRE-FLOOD VALUE OF THE DWELLING

FIGURE 4

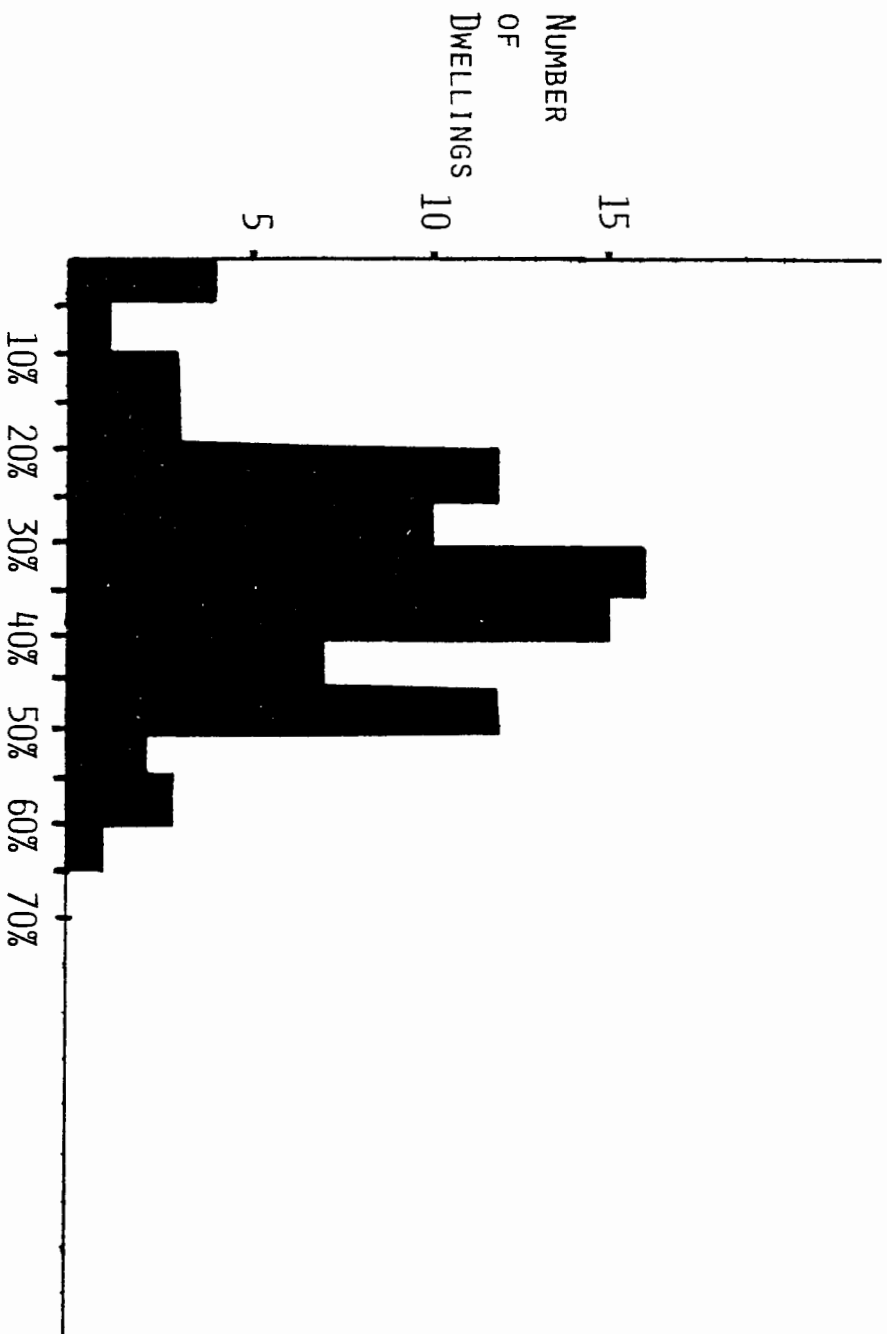


chart was compiled from data in 89 damaged homes provided by one major residential mortgage lender in Jackson. This was the only lender that estimated data relating damage to the current market value (before flood damage) of the house.

As can be seen in Figure 4, over 80% (72 of 89) of the damaged dwellings had damages ranging from 20% to 50% of the pre-flood value of the dwelling. The average percentage of damages was 34%. None of the homes was totally destroyed. Only one had damages exceeding 60% of its value. This distribution relating flood damage to value presents an interesting contrast to other hazards. Fires, tornadoes and storm surges often result in the total destruction of dwellings. From the Jackson experience, it appears that losses caused by rising flood waters leave a considerable salvage value.

Using the same data as in Figure 4, Figure 5 was constructed relating damages to the mortgagor's pre-flood equity position in the house. A positive net equity position (equity greater than flood damages) means the market value of the damaged house exceeds the outstanding mortgage balance. Thus, the house could be sold in its damaged condition and lending institutions paid off without the need for additional funds. A negative net equity position (equity less than flood damages) means that the mortgage balance exceeds the market value of the damaged dwelling. Thus, sufficient funds would not be raised from the sale to retire the mortgage. It is not suggested in either of these cases that a homeowner will necessarily sell the property. Calculating net equity positions merely gives an idea of the relative financial impact of flood damages on the affected property owner.

FIGURE 5  
 DAMAGE AS A PERCENTAGE OF PRE-FLOOD EQUITY POSITION OF THE DWELLING OWNER

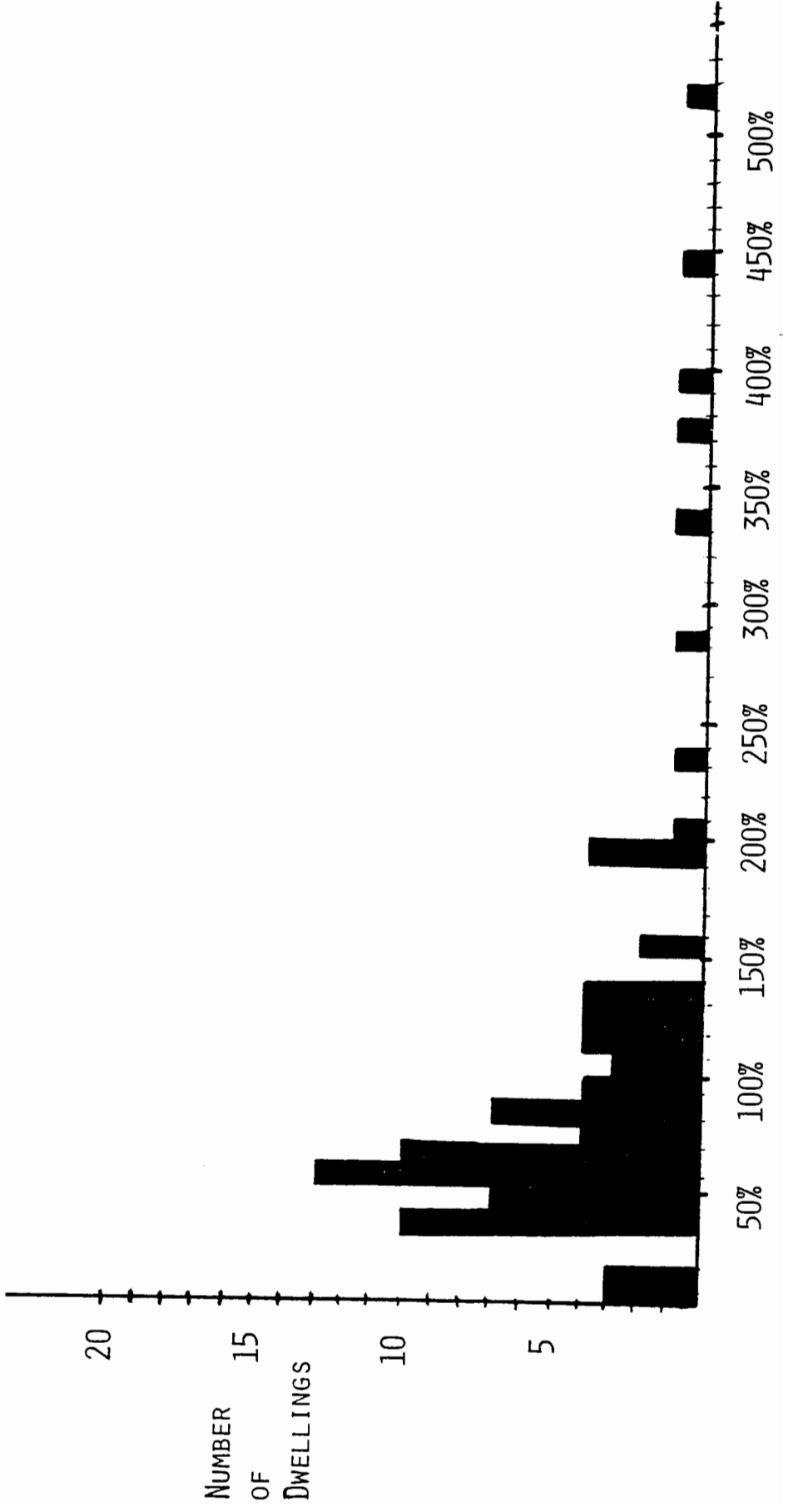


Figure 5 shows a distribution of the flood damages expressed as a percentage of the mortgagor's equity position prior to the flood. Percentages greater than 100% indicate a negative equity position--flood damage exceeds equity; those percentages less than 100% indicate a positive net equity position--equity exceeds flood damage. Almost one-third, or 31% (28 of 89), have an estimated negative net equity position. About 84% (75 of 89) of the cases have percentages between 0 and 150%. In those cases where insurance was not in force, it seems that the flood damages will put a substantial financial burden on the damaged property owners.

#### RESPONSE OF LENDING INSTITUTIONS

##### General Description of Jackson's Lending Institutions

The Jackson metropolitan area has a substantial number of residential mortgage lending institutions. The area is well represented by home offices and branches of commercial banks, savings and loan associations and mortgage bankers, including affiliated service corporations of some of the depository institutions. Although there are a number of different intermediaries, activity is fairly well concentrated in the major institutions. For example, as of June 1978, commercial banks had total deposits of \$1,819 million in FDIC insured institutions, but 40.9% of deposits were in the largest bank, 34.8% in the second largest, and 11.0%

in the third, for a total of 86.0% of total deposits in 3 of 14 commercial banks in the area.\*

Savings and loan associations also exhibit high concentration ratios. As shown in Table 1, at the time of the flood the three largest associations represented in the area had a very high proportion of total assets. Indeed, since First Magnolia has its home office in Hattiesburg, the local concentration is even greater.

Mortgage banking operations in the Jackson area are also substantial. The largest savings and loan association, Unifirst, is represented by a large service corporation mortgage banker (Wortman and Mann). Other large mortgage bankers include Bailey Mortgage (a service corporation of Security Savings), Deposit Guaranty Mortgage Company (a service corporation of Deposit Guaranty National Bank), and Cameron Brown South, Inc., Kimbrough Investment Company, and Midstate Mortgage Company.

#### Specific Lender Responses

The lender response to the flood came quickly. Heavy rains fell on the 11th and 12th of April, and by the 13th serious flooding had begun. By the next week, a number of lenders had programs underway that were oriented towards either aiding victims or assessing damage. Lender response was by no means uniform, however. Some lenders announced that affected mortgagors should come in if they needed help; other lenders proposed very specific courses of relief. In this section, the responses of the major lenders will be discussed.

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\* Information supplied by Jackson Chamber of Commerce.

TABLE 1

APPROXIMATE SIZE OF SAVINGS AND LOAN ASSOCIATIONS  
SPRING, 1979

	<u>Total Assets</u>
Unifirst Federal Savings & Loan	\$ 525 million
First Magnolia Federal Savings & Loan	265 million
Depositors Savings Association	180 million
Security Savings & Loan	35 million
Jackson Savings & Loan	30 million
Homestead Savings & Loan	13 million

Source: City of Jackson Chamber of Commerce.



In the immediate wake of the flood, lenders were divided on whether they should initiate contact with mortgagors or should wait for victims to contact them. The biggest lender in the area is Unifirst Federal Savings and Loan. They had a unique position. First, they had the largest number of properties under water or with flood damage (around 300 residential properties). Second, their action would receive the most public attention, because they were the dominant lender. Consequently, Unifirst had to be conscious of the overall effect of any action they took. One aspect of this was that they were aware of potential effects on community attitudes and temperament.

One feature of the early responses of Unifirst was an offer of an emergency loan program for the purchase of food, clothing, and other personal items. This program was little utilized by victims: only about twenty families actually borrowed funds under it. The second major program of Unifirst proved to be somewhat controversial: an offer of a moratorium on mortgage payments to all victims. The first step of this program was to publicly announce, within a week after the flood waters had receded, that a payments moratorium would be available to disaster victims. The important components of the plan were: 1) application for a payments moratorium was to be borrower initiated but it was prominently announced that the program was available to all borrowers whose homes were uninhabitable; 2) a minimum of documentation was required; 3) a complete moratorium on payments was being offered rather than a forgiveness or forbearance of interest (although forbearance plans were available to victims whose homes were habitable). A moratorium involves a loss of interest to the lender while a forbearance arrangement does not. The

moratorium proposal was made to individuals whose loans were being serviced as well as to those whose loans were held by Unifirst for their own portfolios. No other lenders in the Jackson area followed the Unifirst plan.

The institutions with the second largest number of properties damaged were First Magnolia Federal Savings and Loan, Deposit Guaranty Mortgage Company, and Homestead Savings and Loan, all with approximately 90 damaged properties. The responses of these three institutions varied considerably. The most aggressive and quickest response was made by First Magnolia. They developed an elaborate procedure for dealing with damaged properties and victims. First, a sorting by computer was done of all properties that were located in flooded areas and, therefore, had the potential for damage. Second, a letter was sent to all mortgagors in the flooded areas informing them of possible assistance in the form of advances, short-term loans, property improvement loans or loan modifications. Third, teams of lending officers were sent into the flooded areas on the weekend of April 21-22 to conduct a damage appraisal of all First Magnolia properties. After the damage survey, letters were sent out to specific victims. Thus, within a week of the flood, First Magnolia had a precise idea of its exposure, had identified individuals who might need assistance, and had encouraged individuals to contact the association to make specific arrangements for assistance.

Deposit Guaranty Mortgage Company viewed their post-flood role differently than did the savings associations. Their primary focus was on their role as liaison between investor and borrower. Loans serviced for their sister institution, Deposit Guaranty National Bank, were treated specifically as the bank directed. As a consequence, they did

not feel that it would be appropriate for them to encourage specific borrower behavior. Their position was that they would make every effort to accommodate financial problems associated with the flood only upon inquiry by the borrower. They did, however, identify damaged properties and do rough damage estimates. For the mortgages serviced for the bank, the bank dictated a policy that was quite similar to that of First Magnolia.

One of the more unusual situations was faced by Homestead Savings and Loan. Although they are quite small, they had a relatively large exposure to the flood damage. But since they service many more loans than they own, most of their damaged properties were serviced loans. This undoubtedly relieved some of the pressure to make immediate policy decisions, but it is interesting that they were slower in developing a specific response to the disaster than the other lenders in this large exposure group. Homestead did a computer run to identify properties in flooded areas, and then did a rough inspection to see what kinds of damage had occurred on individual properties. The damage observations were broad in nature and not designed to be of specific help in calculating potential loss. The association did not contact victims directly, and if a flood victim initiated contact in the first few weeks following the flood, he or she was informed that no specific policy had been enacted but would be in the near future. It was reported that most of the initial inquiries were focused on whether or not a moratorium (similar to Unifirst's) would be in effect and when informed that such a program was not under consideration, the callers showed little interest in other forms of assistance.

Of the other mortgage bankers and savings and loan associations, Cameron Brown South, Inc., serviced almost 50 loans on properties that had flood damage. They did not seek out victims but waited for them to call and report damages. As with most mortgage bankers, at first they occupied themselves with notifying their investors of the situation in the Jackson area. The company conducted a casual survey and property inspection of damaged properties, and used that information to report to investors the rough magnitude of damage exposure. The mortgage company was in contact with investors during the first few weeks following the flood. Property owners were expected to call in and request assistance. Approximately one month after the flood, Cameron Brown wrote property owners who had not made contact with them and encouraged them to come in or call if they needed help.\* The communication did not specifically indicate what form assistance might take. No specific forbearance plan was developed. All problems were handled on a case by case basis.

Three other savings and loan associations had mortgages in the flooded area--Jackson Savings and Loan, Depositors Savings, and Security Savings. Jackson, the smallest of the three, seems to have made the most effort in aiding victims. It combined early phone calls to victims identified by zip code with site visits and follow-up letters, and offers of forbearance.

Depositors Savings responded rather slowly to the situation. Within the first three weeks they had not developed a plan to deal with victims

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\* Cameron Brown felt that it was not helpful or wise to send out letters too quickly as some victims would not be in their homes. This concern was not expressed by other lenders.

and had decided to treat any problems on a case by case basis. While a relatively large institution, they had only about 20 loans in the flooded area, and did not feel a major involvement in the disaster.

Security Savings is a small savings and loan association with a considerably larger mortgage company (Bailey Mortgage). They were also a bit slow in responding to the disaster. As of the first of May they had intentions to identify and communicate with victims, but had not yet done so. They also indicated that there had been few early requests for assistance. Shortly after the first of the month they did begin to identify properties in the flooded areas, and offer assistance to victims. They did not explicitly offer a forbearance plan but were willing to extend such on a case by case basis.

The last group of lenders examined were the mortgage bankers which had relatively small exposures in flooded areas. This group was fairly consistent in its response to events. They did not rush forward with plans for forbearance, did not make substantial efforts to contact victims or even identify damaged properties, and did little to implement specific policies. In general they had little contact with victims. As a group they exhibited the least concern with the Jackson flooding and its effect on the mortgagors.

#### Observations on Responses

It is clear that the short-term response of Jackson area lenders was quite varied. There was very little coordination of programs on loan modification. By and large, lending institutions preferred to work on a case by case basis, both in determining whether loan modification or

additional assistance was necessary and in determining the form such assistance might take. Even where there were ground rules these generally would be applied on an individual basis.

The biggest difference in behavior observed was between depository institutions and mortgage bankers. Where there was a depository relationship (primarily savings and loan associations but also commercial banks) lenders were generally aggressive in contacting victims and often were prepared to extend some kind of assistance immediately. This was much less true of strict mortgage bankers, where the eagerness to reach victims was not as strong and the formalization of a set of alternative arrangements to offer the victim was infrequent. The use of the expression "case by base basis" appeared at times to be an excuse for the lack of a coordinated or planned response to the disaster.

A few more comments are appropriate with respect to the initial response of financial institutions to the flooding. First, although flooding is by no means rare in this area of the country, disaster planning was either nonexistent or extremely casual. Many of the lending officers interviewed had memories of their experience in the wake of Hurricane Camille (August 1969), but had not done any work to formalize a program of activity for post-disaster behavior. Second, since most of the lending institutions themselves were not flooded, they were able to continue to operate and process data in the immediate aftermath of the flood. Third, it should be made clear that in the immediate aftermath there was substantial confusion as to what assistance government programs would provide and which would be available. It is important to realize that a decision on how to respond to the plight of mortgagors

might be delayed until after the lending institution had a better idea of what its own responsibility was and how others involved in the process would be reacting.

### Forms and Terms of Financial Assistance

There were four basic forms of financial assistance extended in the aftermath of the Pearl River flooding: a payments moratorium, forbearance of monthly payments, recasting of the loan, and short-term financial assistance. The use of a payments moratorium was limited to Unifirst Federal Savings and Loan, and a few other individual cases. However, the fact the Unifirst is so large means that the number of mortgagors that took advantage of a payments moratorium is also quite large. The use of forbearance was a good deal more common across institutions.

The category of forbearance took a number of forms. In some instances, it amounted simply to a permitted delinquency, with the loan accruing interest over the delinquent period. This would presumably lead to a balloon payment at the end of the term of the mortgage. In the case of one lender, the plan offered provided for a four-month period of no payments followed by 16 months with payments of one and a quarter of the usual monthly payment. In some cases, an agreement was reached to recast the loan to change the payments schedule and term to maturity. This does not seem to have been an especially common policy.

Short-term loans or advances were offered by a number of lenders. Interestingly, even though the terms of the loans offered by different lenders seemed very similar, some lenders reported that such loans were

quite popular and used by a number of victims, while others indicated that there was very little interest in such loans.

Besides the obvious differences between the ability of a commercial bank, a savings and loan association, and a mortgage banker to offer assistance (and not unexpectedly the strict mortgage bankers were able to offer the least), the actual types of assistance offered by different depository institutions varied considerably. Some lenders were quite imaginative in developing a variety of short-term assistance plans while others were not.

Unifirst Federal was the only institution which took out advertising space to announce its moratorium program. Other institutions relied on the media to encourage their borrowers or depositors to come into the institutions' offices to arrange for assistance. For example, the Jackson Clearing House commercial banks used radio and newspaper to announce that victims were invited to come to their own bank to arrange changes in payment terms or additional credit.\*

Other savings associations that wished to make their customers aware of specific aid programs did so either by sending letters to all customers, by telephone, or by sending letters to flood victims as identified by zip code. Finally, some savings associations and most mortgage bankers did not solicit their customers to come in and seek assistance, but rather waited for the customers to initiate contact.

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\* It was common for lenders to offer general financial counseling assistance, including advice and assistance on SBA loans. The newspapers regularly carried advertisements indicating that a specific financial institution would be open during special hours specifically for this kind of counseling.



### Other Responses of Financial Institutions

The most significant and time consuming additional activity of the depository financial institutions was counseling. The Pearl River flooding appeared unique among other recent disasters in the magnitude of confusion surrounding the availability of governmental assistance, especially the terms of the Small Business Administration (SBA) program. The SBA disaster loan program has at times in the past included a substantial forgiveness feature, at times a generous interest rate subsidy, and at other times has been a relatively tight program with loans bearing interest rates close to market rates. In April of 1979, the program was as tight as it had been for many years, with terms dictated by federal legislation enacted in October of the previous year. In the aftermath of the spring flooding in Mississippi and in the Midwest, Congress sought to change the terms of the program and lower the interest rate on disaster loans. This ultimately did take place, but the long period of uncertainty bred confusion. Victims were unsure of what they should be doing to arrange the optimal financial strategy.

The depository institutions were particularly helpful in assisting victims to document losses, and in giving them advice on dealing with insurance adjustors and SBA personnel.

By all indications, the greatest number of homeowner victims of the Pearl River flooding was from the upper portions of the income distribution, and in relatively good shape to withstand the financial effects of the flooding (although this is not yet documented). Additionally, no major businesses or other employers were seriously flooded and few jobs were lost. Consequently, in this particular disaster the role of the

financial institutions may well have been unique, with the important services provided by lenders not being financial but instead important counseling complemented by short-term lending.

Finally, the fact that a large volume of loans was being serviced for others, including the federal government participants in the secondary market, encouraged lenders to establish early contact with the investors. This may have had an important calming effect on all concerned since it established communication ties with the representatives of the ultimate investors and encouraged the continued flow of information. Homeowners may not have been able to predict what the SBA would do, but at least they knew where they stood with the institution that owned or was responsible for actions related to their mortgage--the Veterans' Administration, the Federal National Mortgage Association, etc. Such information was quite important during the period of uncertainty following the disastrous flood.

### FINANCIAL STRATEGIES FOR RECOVERY

When the flood waters receded, damaged property owners contemplated various financial strategies for recovery. These strategies can be broken down into four main areas: 1) flood insurance, 2) SBA loans, 3) use of one's own resources, and 4) sale of the house.

#### Flood Insurance

Following the flood, many property owners realized for the first time that their homeowners insurance policies did not cover flood losses.

Others, who had earlier probably resented being required to purchase flood insurance, were overjoyed that their damages were covered. Still others, who having had the opportunity to purchase flood insurance and refused, were deeply depressed.

The homeowners policies and other standard property insurance contracts provide coverage for most types of losses. Two notable exclusions in virtually all these policies are the perils of flood and earthquake. For the purposes of this study only the flood exclusion needs explanation.

Historically Flood Insurance Not Available. Providing flood insurance on fixed-location properties has presented perpetual problems for the private insurance industry. The industry has always felt that coverage against the peril of flood cannot successfully be written through normal insurance channels. Since flood damage is confined to relatively concentrated areas, only a limited number of individuals would demand flood insurance and hence create considerable adverse selection. The frequent occurrence of floods in certain areas and their devastating effects result in losses of a catastrophic nature. Spreading these losses over a small number of property owners would result in a prohibitively high premium for each individual. The combination of these factors led to the conclusion that the flood risk was uninsurable through the private market.

Had the Federal government remained indifferent to the plight of property owners suffering flood damage, the private insurance industry might have remained unconcerned. But massive floods occurred in 1951, 1955, and 1965 in the United States. The period following each of these floods was characterized by increased study of the flood problem and by

government hearings. Following each flood it became more apparent that some type of flood insurance program needed to be developed. The private insurance industry, sensing the inevitable, finally teamed with Congress in 1968 to establish the National Flood Insurance Program.

National Flood Insurance Program. On the surface, the National Flood Insurance Program (NFIP) appeared to be an effective strategy for alleviating property damages due to flooding. It required community development of land use and control measures to reduce and prevent losses due to floods. It provided for federal subsidies to make insurance coverage affordable to property owners in flood prone areas. It established the Federal Insurance Administration (FIA) in the Department of Housing and Urban Development, to operate the program. It elicited the support of the private insurance industry through the National Flood Insurers Association (NFIA), a voluntary association of property insurance companies. The NFIA was to be responsible for the dissemination of information to the public, the distribution, sale and processing of all policies, and the adjustment of claims.

The original provisions and conditions of the 1968 act appeared to make the best use of the federal government, the private industry, and loss control techniques. In the short run, property owners would be able to obtain insurance for losses due to flood. In the long run, local and state programs of flood plain management, built primarily on the adoption of land use and control measures, would be able to significantly reduce overall flood losses. Unfortunately, the devastating floods of 1972 proved that the NFIP did not work as originally intended.

Early Problems with the Program. June 1972 was marked by the worst floods in the nation's history. The rains produced by Hurricane Agnes

touched off devastating floods, causing most of the flood damage. Although the NFIP had been enacted into law nearly four years prior, coverage for flood damages was minimal. In Wilkes-Barre, probably the hardest hit community in Pennsylvania, only two flood insurance policies were in force. In Harrisburg, another hard hit city, no policies were in effect. In all of Pennsylvania, the state which received the brunt of Agnes' rains, only 683 policies had been purchased. The estimated amount of claims which would have to be paid by the Federal Insurance Administration due to Agnes' floods was put at slightly more than \$5 million. When compared to an estimated total damage figure of over \$3 billion, this amount was sorely insufficient (Anderson, 1974). In an effort to increase participation, substantial changes were made in the program through passage of the Flood Disaster Protection Act of 1973.

Flood Disaster Protection Act of 1973. The 1973 Act essentially forced communities with an identified flood hazard to join the NFIP.\* Failure to join would result in loss to the community of federal or federally related financial assistance for the construction or acquisition of buildings in the community's identified flood hazard areas. Such assistance includes federal grants, SBA and FMHA loans, and VA and FHA mortgage loans. In addition, any individual seeking a mortgage from a federally insured financial institution (i.e., insured by the Federal Deposit Insurance Corporation, Federal Savings and Loan Insurance Corporation, or the National Credit Union Administration) to finance construction or substantial improvement of a building in an identified flood

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\* See page 32 for description of an identified flood hazard.

area was required to purchase flood insurance. If an identified community did not join, a federally insured financial institution was not permitted to make such a loan.

In 1977, the penalties of not joining the NFIP were eased slightly for those communities that had been identified as flood prone but had decided not to participate in the program. Lenders in these communities may now make conventional loans even though flood insurance is not available. VA and FHA loans, and similar federally related loans, continue to be prohibited in identified flood prone areas. In addition, the lender must inform the borrower that federal disaster assistance for flood damages will not be available in a non-participating community.

The result, as might be anticipated, is that today most of the 20,000 communities with identified flood hazard areas have joined the NFIP. Jackson voluntarily became eligible for the NFIP on April 19, 1973. From the date of eligibility until July 1, 1975, individuals could voluntarily purchase flood insurance, but were not required to do so. After July 1, 1975, anyone seeking a mortgage from a federally insured financial institution on property in a designated flood plain was required by that institution to purchase flood insurance. This requirement did not affect mortgages that were in existence prior to July 1, 1975, even though the property may have been within the designated flood plain. About 1,500 flood policies were in effect in Jackson prior to the flood.

Percentage of Mortgages Having Insurance. Of the 766 damaged residential properties with outstanding mortgages examined in this study, 283 or 37% were insured for flood damage to the structure itself. Statistics from the Federal Insurance Administration indicated 483 claims, totalling \$12,000,000 had been paid. Of course, these claims would

include business property plus those residences having insurance but no outstanding mortgage. Most of the 283 insured properties in the sample were insured because insurance was a condition of obtaining a mortgage.

Most of those mortgaged properties without insurance are older mortgages, negotiated before the effective date of flood program requirements. Some of the financial institutions studied had gone to the trouble of notifying their existing mortgagors of the availability of flood insurance, even though no flood insurance requirement existed for them.\* Unfortunately, because of the high perceived cost of the insurance, few elected to purchase it. The term "high perceived cost" is used because the insurance is actually subsidized with the federal government picking up an estimated 75-90% of the actuarial cost.

Only those individuals obtaining mortgages on properties lying within the designated flood hazard area are required to purchase flood insurance. The area is referred to as the 100-year flood area. This means that the boundaries are delineated by the worst expected flood within a 100-year period. While historical flood data can often be used, a considerable element of subjective judgment is used in defining these flood hazard areas. In addition, no guarantee exists that a flood worse than the 100-year flood will not occur.

Individuals in Jackson frequently mentioned the 500-year flood. Such a flood would be defined as the worst that might be expected to occur every 500 years. The boundaries of the 500-year flood would of

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That is, the 1973 Act required flood insurance on a home in an identified plain as a condition for obtaining a mortgage. If the home had a pre-July 1, 1975 mortgage, flood insurance was optional.

course go beyond those of the 100-year flood. The term 500-year flood was apparently used rather loosely around Jackson to refer to areas where the flood exceeded the boundaries of the 100-year flood. Property owners in these areas would not be subject to any flood insurance requirements. In addition, few would see the need to purchase flood insurance voluntarily.

A comparison of the HUD maps of the designated flood hazard areas as defined by the 100-year flood and the boundary of the actual April 1979 flood reveals that there were areas where the flood waters went beyond the designated flood plain. But in many cases the flood waters closely paralleled the flood hazard area designated on the maps. This was particularly true in Northeast Jackson, where most of the residential damage occurred. Figure 6 shows the designated flood plain boundaries on the maps compared to the actual boundary of the flood. As can be seen, the two boundaries are quite similar.

The heavily damaged residential areas in Northeast Jackson were for the most part built up in the late 1960s and early 1970s. Maps designating flood areas had not been drawn at that time, and the restrictive elements of the NFIP had not yet gone into effect. Had the development of these areas been undertaken today, much of the construction would have been restricted or subject to floodproofing techniques.

When the flood occurred, Jackson was under the emergency provisions of the NFIP.\* This meant that only \$35,000 of insurance could be required and purchased. In most cases where flood insurance was purchased, the

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\* There are two stages of participation in the National Flood Insurance Program: the emergency program and the regular program.



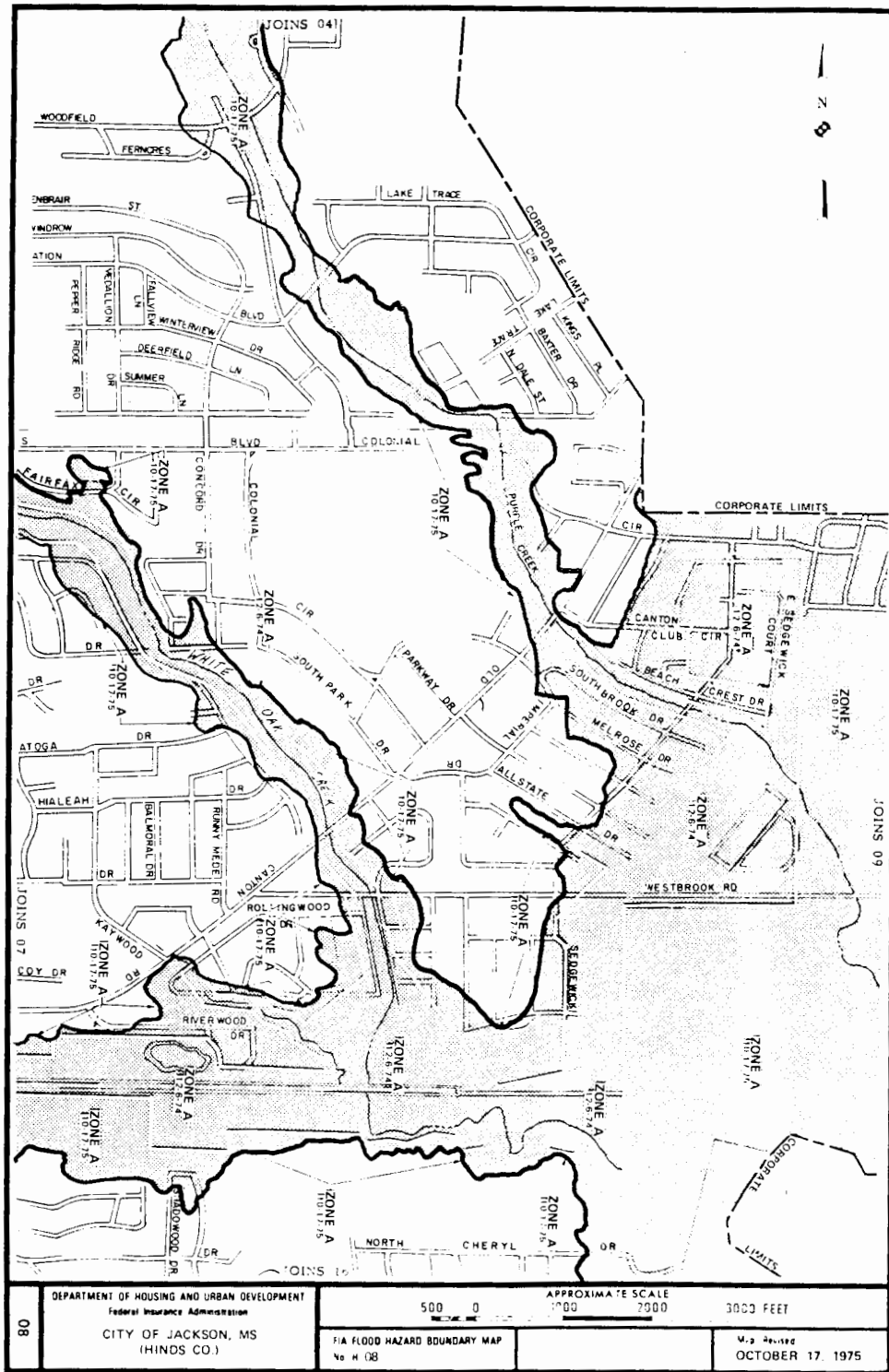


FIGURE 6  
 IDENTIFIED FLOOD HAZARD AREA  
 (From Department of Housing and Urban Development, October 17, 1975)

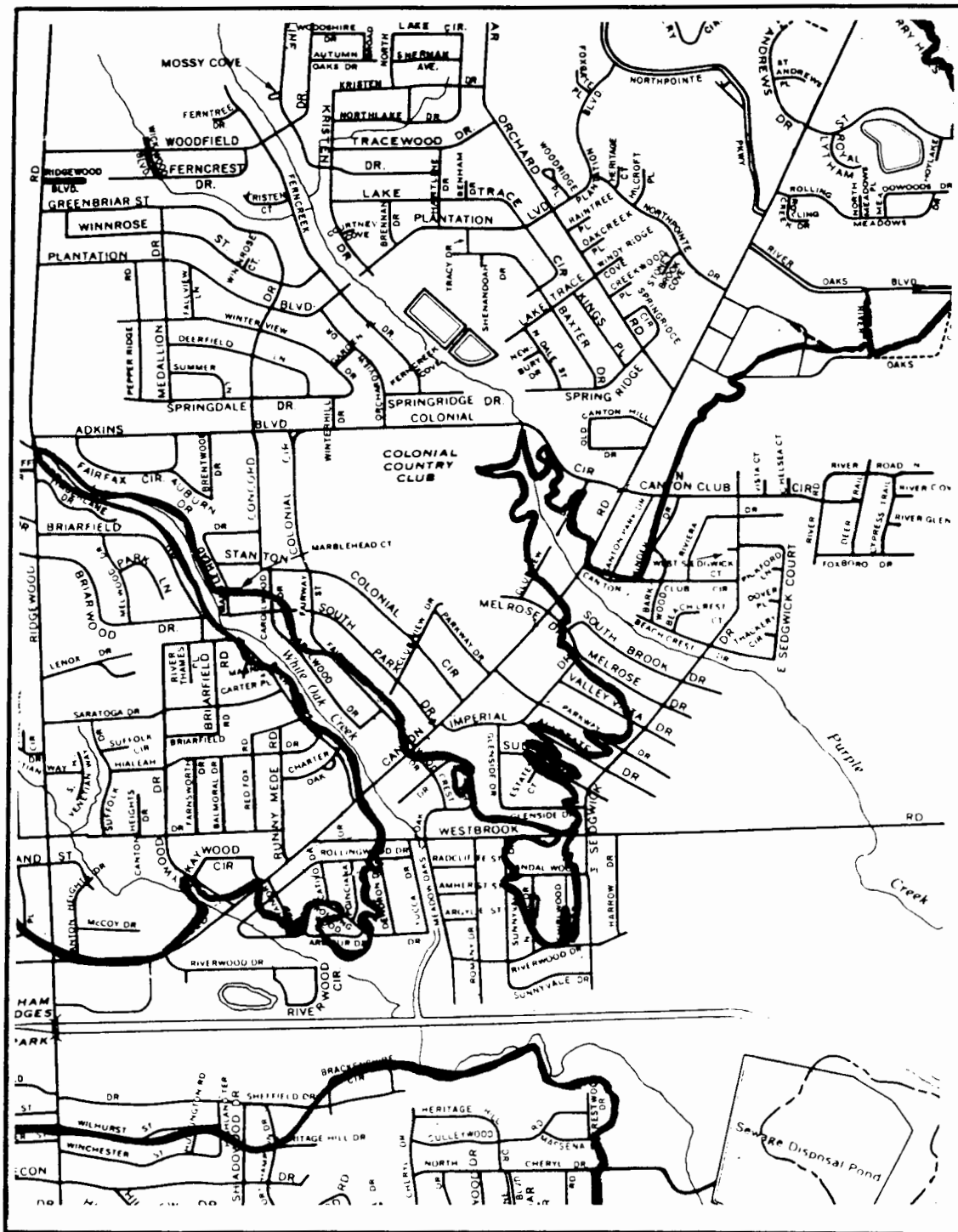


FIGURE 7  
 HIGH POINT OF APRIL 1979 FLOOD, JACKSON, MISSISSIPPI  
 (From 1979 Jackson Urban Area Map, Jackson City Planning Board)

\$35,000 amount was adequate to cover losses to the structure. Jackson will be eligible for the regular program when complex actuarial studies are completed in late spring, 1980. When the regular program goes into effect, Jackson residents will be able to purchase much larger amounts of insurance (see Table 2), but only at actuarial rates.

Contents Insurance Not Required. The requirements of the NFIP pertain only to the structure. No requirement exists to purchase insurance on the contents. In addition, the maximum amount of contents insurance available is \$10,000. From the limited data available the authors estimate that about one half of those individuals with flood insurance on the structure also had flood insurance on the contents. A number of those with contents coverage had \$5,000 or less. Thus even those individuals with flood insurance on the house itself often had minimal or no insurance coverage on its contents.

Small Percentage of Total Property Damages Covered by Insurance. The figure of 37% overstates the percentage of all property damages that were insured. Those homes that were paid for, i.e., having no outstanding mortgages, would not be affected by the flood insurance requirements, even if the property were located in the flood plain. These properties would of course not be in the sample of 766 properties obtained from the lenders, because no outstanding mortgage existed. It can be expected that most of these properties were not insured. The authors estimate that roughly 500-750 damaged properties had no outstanding mortgage. Assuming little if any insurance was purchased by this group, the authors estimate that roughly 15-25 percent of the total of some 2,000 damaged residences were insured. Since less than half of these insureds

TABLE 2

**THE NATIONAL FLOOD INSURANCE PROGRAM**  
(From American Bankers Association, 1978)

<b>Amounts of Insurance Under the National Flood Insurance Program</b>			
(Incorporating Changes in the Housing and Community Development Act of 1977)			
	Emergency Program	Regular Program	Mandatory Lending Requirement Limit
<b>BUILDING</b>			
Single Family (Exceptions: Alaska, Hawaii, Guam, Virgin Islands)	\$ 35,000 (50,000)	\$ 185,000 (185,000)	\$ 70,000 (100,000)
All Other Residential (Exceptions: Alaska, Hawaii, Guam, Virgin Islands)	100,000 (150,000)	250,000 (250,000)	200,000 (250,000)
Small Business	100,000	250,000	200,000
Any Other Structure	100,000	200,000	200,000
<b>CONTENTS</b>			
Residential	10,000	60,000	20,000
Small Business	100,000	300,000	200,000
Any Other Structure	100,000	200,000	200,000

had adequate contents coverage (plus apartment dwellers would not be expected to be insured), insurance payments as a percentage of total residential damages (structure plus contents) in Jackson is estimated to be 10-15%. Based on the criteria of maximizing the percentage of damage covered by insurance, the National Flood Insurance Program rates rather poorly in its performance.

Those with Insurance are Impressed. For the limited number of property owners with flood insurance, the system received high marks from the representatives of the financial institutions that were interviewed. In general, they indicated that their insured customers were very satisfied with the speed and fairness of the claim settlements. In many reported cases, checks were written in the field for immediate repairs. Based on the Jackson experience, the flood program seems to work quite efficiently once the insurance is in force. The failure of the program in the Jackson flood was the large number of damaged property owners who were not insured.

Although there was some initial concern following the flood, it appears that the Jackson lenders had correctly required flood insurance in virtually all cases. Out of 766 damaged properties surveyed, the lenders reported only three suits in which the mortgagors were claiming that the lender had failed to require flood insurance when it should have been required. The outcome of these cases had not been settled when this report was written. All the lenders interviewed indicated that policies for determining whether properties are in or out of the designated flood plain had been tightened following the flood.

## SBA Loans

The feelings expressed concerning federal disaster assistance in general, and SBA loans in particular, were mixed. On the positive side, people seemed impressed with the disaster officials' efforts in disseminating information, holding meetings, and giving community talks. Some tangible services such as trailers for substitute living quarters, food stamps, the National Guard troops, and other emergency aid were provided with little delay and appreciated.

The main complaints centered around the SBA loans, particularly the confusion surrounding the applicable interest rate. Terms such as slow, confusing, inconsistent, and inequitable were used in describing the SBA loan policies. The existing rate for SBA disaster loans was 7 3/8% at the time of the April 1979 flood. Rumors spread that Congress was going to reduce this rate to 3%, a rate that had once been in effect. Understandably, most people delayed applying for a loan until the interest rate issue was resolved.

In the latter part of July, more than three months after the flood, Carter signed a bill passed by Congress to reduce the interest rate to 3%. Even then, additional delays occurred due to intermittent appropriation by Congress.

Although the lenders had no way of knowing exactly how many of their customers applied for loans, they felt that nearly all eligible individuals would do so. These impressions are borne out by statistics from the SBA which showed that 1,675 home loans totalling \$31,696,000 had

been granted.\* Apparently, even if one had additional sources, like savings, to repair the damages, the 3% rate was too good to pass up. The lenders also felt that the favorable loan money may have prevented defaulting by some mortgagors.

Most of the SBA loans were for amounts equal to the flood damage. In cases where the uninsured flood damage exceeded 30% of the preflood fair market value of the house, the applicant was eligible to apply for a loan to refinance the entire outstanding balance of the mortgage. Although figures are not available, lenders indicated that this happened in at least a few cases.

SBA loans are not automatic; they are predicated on one's ability to repay the loan. In those cases where loans have been denied, applicants are eligible for disaster grants up to a maximum of \$5,000. Although this program was available, it appears it was rarely used since most requested loans were granted.

#### Use of One's Own Resources

The residential areas in Northeast Jackson hit hardest by the flood generally consisted of affluent homeowners. Most of the lenders interviewed were of the opinion that many uninsured homeowners would rely heavily on their own savings to repair and replace damaged property. Since the authors did not interview any of the homeowners suffering

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\* A few of these loans were made for damaged properties in Columbia, Mississippi.

property damage, it is not possible to state the degree to which personal savings were employed to assist in financing the repair of property damage.

The financial institutions were universal in reporting the determination and fortitude of the owners of damaged property in making the best out of a bad situation. Neighbors and community members also pitched in to help in the moving and cleaning up processes. A community *esprit de corps* welled up in Jackson. Most of the homeowner victims were determined to clean up the mess, repair the damage, and move back into their homes.

Many of those suffering damage did a lot of their own repair work, particularly those without insurance. Friends or neighbors with construction experience often provided help. Even those individuals with little construction expertise could perform clean-up tasks, such as ripping up carpet and tearing down sheet rock, thereby saving themselves money.

The construction industry generally received favorable comments. The biggest problems, availability of an adequate number of contractors and delays, are understandable given the magnitude of the necessary repair work. Supply (short) and demand (increased) factors tended to push up the price of construction work, but the authors did not hear of any complaints of price gouging. A number of those interviewed mentioned that people remembered Hurricane Camille and were aware of construction scams. Camille hit the coast of Mississippi in 1969, causing severe damage. Apparently a number of fraudulent construction schemes were worked on people at that time. Contractors from outside the damaged areas caused most of the problem. In Jackson, most of the



repair work was done by local construction firms. Few problems were reported.

### Selling the House

Of the 766 damaged properties studied by the authors, 37 (5%) were sold in their damaged condition. In some of these cases plans had been made to sell the property before the flood occurred. Certainly no panic selling was exhibited. Most people repaired their houses and moved back into them. There was not a clear consensus as to whether those selling their houses received a fair price or lost money due to a forced sale.

One lending institution official expressed the opinion that many homeowners had little choice but to move back in after repairing their homes, since they could not afford to sell their houses and buy others of comparable value. Assuming that one wanted to stay in basically the same quality of house, the least expensive alternative was to repair one's own home and to move back in.

There were mixed opinions as to what property owners in the damaged areas might do two or three years into the future. Some felt that when the flood was forgotten, property values would return to normal levels, and a significant percentage of homeowners would sell and move out of the affected neighborhoods. Others thought that the predominant feeling of homeowners was that the flood was a freak event, with no chance recurrence in their lifetimes.

EFFECTS ON PROPERTY VALUES, DEFAULTS, MORTGAGE  
MARKETS AND ECONOMIC ACTIVITY:  
OBSERVATIONS AND SPECULATION

General Effects of a Natural Disaster

In the wake of a natural disaster, it is possible for a community to suffer a local recession. If the community's economic base is seriously damaged, and especially if the economic base was weak or declining prior to the disaster, the disaster can cause permanent economic damage to the area.

As an example, suppose that a local producer has been making a product that is used in the production of some other product--producing textiles for clothing manufacturers. Further, suppose that the clothing industry has moved from the local area to another part of the country, and other textile producers have followed the clothing manufacturers. If there was substantial damage to the local textile producer's plant and equipment, it is quite likely that the firm would decide to relocate the production facilities in the "new" area of the country. Certainly the incentive to relocate would be strong. This same type of decision might be induced by other factors, but the critical element is that once the plant is destroyed, the decision to rebuild is accompanied by a locational decision. If the hypothetical producer is also a major employer, this could, in turn, have very serious long-run implications for the local economy, for local employment, and even for local personal income.

The previous paragraph stresses the negative effects of disasters on employment and production. There will ordinarily also be some

positive side-effects on production. The positive influences develop because of the need to rebuild and repair the local capital stock. Many communities have taken advantage of natural disasters to rehabilitate the infra-structure of their public capital. New roads, sewer systems, public utility lines, and so on, are also part of the response to community destruction. It is not unusual for the construction needs of an area to be greater than can be met by local resources. In that case there would be a spillover of demand to outside contractors. On net, then, the effect on the demand for labor in the aftermath can be positive or negative.

#### Effects of Past Disasters

Studies of previous disasters have revealed that generally even disasters of major size and importance fail to exert a serious negative impact on employment and production in the recovery period. In the earthquake of San Fernando, California (1971), the floods of South Dakota (1972), those associated with Tropical Storm Agnes in Pennsylvania (1972), in the Xenia tornado (1974), and even in the Johnstown, Pennsylvania flooding of 1977, post-disaster employment effects were never so important as to be associated with significant numbers of delinquencies and defaults in the residential mortgage market (Anderson and Weinrobe, 1978). The potential for serious adverse economic impact on employment and income due to a natural disaster is always present, but, in fact, it seems to rarely develop. Even the 1906 San Francisco earthquake seems, in retrospect, to have produced little in the way of

long-run negative economic impact. The importance of the above discussion to the Jackson case is paramount.

### The Jackson Case

This study did not involve an analysis of Jackson's economy after the flood, but given the authors' experience they can observe and speculate on what the flood damages will reveal about economic activity. It should be remembered that these tentative conclusions are based on information that was collected through October, 1979. In addition, the economic situation in Jackson is influenced by general economic conditions as well as the flood. The presence of general economic conditions often obscures the cause and effect patterns set in motion by a natural disaster.

Because of the largely residential based damage associated with the Pearl River flooding, negative employment effects were not detected. Very little commercial or industrial activity was interrupted by the disaster. The important consequence of this is that personal income and employment in the Jackson area were not depressed.

Due to the immediate effect of a reduced housing stock, rents and property values for homes outside of the flooded areas should have risen. This would result because any demand for housing would be focused on the remaining housing stock (including a demand for temporary housing by those whose homes or living units were seriously damaged in the flood), and also because there may be something of a stigma on homes in the flood plain.

As a result of the rather speedy response of area financial institutions, as well as the anticipation of receiving the SBA disaster loans, it would be likely that most victims would choose to repair the damages from the flood and to do so quickly. During on-site visits, the authors were able to gather very little evidence of victims who had forsaken their homes and abandoned them in a seriously damaged condition. Recall that information obtained from the lenders indicated only about five percent of homeowners sold their homes in damaged condition. Some perspective on the importance of this observation can be gained by referring to another disaster.

The one recent natural disaster with which a substantial number of defaults were associated was the San Fernando earthquake of 1971. Complete information has not been compiled, but it seems that over 200 single family residences (owner-occupied) ultimately went into foreclosure, or had deeds turned over in lieu of foreclosure (Anderson and Weinrobe, 1978). In that event most of the property abandonment that took place did so fairly quickly after the disaster. Over half of the turnovers took place in the first seven months following the earthquake.

The fact that Jackson area homeowners began to repair their homes rather quickly after the flood waters receded should mean that the housing market in the flooded areas was able to return to normal fairly quickly. Apart from a higher risk factor, prices for homes in the disaster area should not have differed appreciably from prices in other parts of Jackson.

If the above speculations are valid, there should be a very small incidence of default on single family mortgages in the Jackson area. The reason for this is that there is no evidence of immediate pull-out

by families in the flooded areas and there is no reason to believe that prices of flood area homes would decline appreciably. Without a decline in home prices there is little economic incentive to default. A decision to leave the area would be associated with a decision to sell one's home, rather than to default.

This general impression of an unlikely rush of mortgage defaults was a sentiment that was also expressed unanimously by area lenders. Even in the wake of the initial estimates of damage and the impact of observed destruction to properties, lenders were quite optimistic about the ultimate fate of mortgages held on residential properties. Not only were they optimistic about mortgages ultimately being paid but they also seemed to have an adequate understanding of the process and the reasons for the low incidence of default. This was probably attributable in part to the fact that many of the area lenders had previous experience with serious flooding after Hurricane Camille. But even those without such experience understood that a family that had resided in a home for an extended period of time was unlikely to flee the area. In addition, because of recent increases in house prices it was probably the case that not very many families were in serious negative equity positions after the disaster.

At the present time the best the authors can do is to offer speculations, as data on the individual status of victims has not been gathered. The authors hope to be able to conduct at a later date a complete follow-up study of the behavior of the mortgage market and the victims of the 1979 flooding.

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