An illustration of stylized, dark blue waves with white foam, representing floodplains, positioned above the main title.

FLOODPLAIN MANAGEMENT

VOLUME 7, No. 23

NEWSLETTER

SPRING, 1989

NEW INITIATIVES IN LENDER COMPLIANCE

Community officials responsible for administration of floodplain management measures of the National Flood Insurance Program are one part of a trio of involved parties that also includes insurance agents and Federally backed lending institutions.

Lenders have a significant role in that Federal law requires that they notify borrowers, reasonably in advance of closing, if their property is in a Special Flood Hazard Area and flood insurance is required as a condition of the loan. There is often interaction between the community and lenders concerning location of properties in flood hazard areas and on related matters.

Recently, there has been much attention focused at the National level, and elsewhere, on the issue of lender compliance with the law. It is estimated that there are approximately 11 million structures in flood hazard areas in the U.S., but there are only 2 million flood insurance policies. Worse, this number has not grown significantly for almost 10 years.

Based on all the mortgage transactions that occur, this number should be much higher. All evidence indicates that the initial requirement to purchase insurance is generally being observed, but that the insurance is often dropped at the time of renewal.

(Continued on next page)

A recent court case in Connecticut concerning the lender requirements is causing some concern among lending institutions throughout the country. The case is referred to as Small vs. Norwalk, and it resulted in a ruling whereby a bank had to fully reimburse a borrower who sued, charging that the subject property was in a flood hazard area.

This was one of the first cases to have been brought to a State court; most previous cases were made in Federal courts and decided on the basis of whether or not the law provided a right of action against lending institutions. The Connecticut case did not focus on this argument but, instead, was argued and decided on the basis of State negligence law.

In other words, it was simple negligence to have ignored a requirement that was clearly specified in the law. Generally, in any State with similar negligence laws, lenders could expect to be subject to similar suits with potentially similar results.

Concurrently, the Federal Insurance Administration of FEMA has redrafted regulations relating to the mandatory insurance purchase requirements, and they will soon be issued through the Federal instrumentalities as their own guidelines.

Other related initiatives include inquiries from the Senate Banking Committee requesting an investigation of noncompliance by lenders, and an advisory notice from the Comptroller of the Currency intended to inform their subject banks on legal requirements in flood insurance.

Because of the increased emphasis on lender compliance, it is timely to point

out that lender workshops can be conducted in communities by the National Flood Insurance Regional Office in Houston.

Community officials who have working relationships with lenders, and who perceive a need for lender education in this area, are encouraged to contact the National Flood Insurance Regional Office at (713) 690-0115.

Of considerable interest to the State of Texas is how the ruling in Connecticut is going to affect lenders in this State that fail to require flood insurance for structures in an SFHA that are subsequently damaged by flooding. While the FMU was not able to get a clear and concise legal quotation of the law, it would be wise to assume that the laws in Texas that govern negligence and liability could refer to the Connecticut case as a significant precedent.

FLASH FLOODS OF 1988

With 1988 being distinguished as one of the driest years of the 20th century in much of the southeastern half of Texas, the incidence of floods and flash floods in the Lone Star State during the year was uncommonly sporadic. Nonetheless, heavy thunderstorm rains did erupt occasionally in some sectors of the State, thereby fomenting rapidly-rising flood-water that wrought limited, but still significant, loss of property.

The vast majority, if not all, of Texas' notable flood events in 1988 were of the flash flood variety. Moreover, they were confined to that segment of the "warm season" that extended from the waning weeks of spring to the onset of autumn. Only one series of flash flood events exacted a toll in loss of or injury to

(Please see page 3)

V-ZONE REGULATIONS

It has come to the attention of the Region VI FEMA staff in Denton that apparently some community officials, agents and/or lenders are interpreting the insurance provisions of the National Flood Insurance Program (NFIP) to mean that all enclosures below the base flood elevation within a V-zone that are less than 300 square feet may be constructed of solid non-breakaway walls and that only those enclosures that are greater than 300 square feet are required to have breakaway walls. Solid non-breakaway walls are not permissible under the NFIP regulations. The NFIP flood plain management regulations require under 60.3 (e)(5) that all new construction and substantial improvement within V-zones have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system.

Solely for flood insurance purposes, if a breakaway wall enclosure within a V-zone is greater than 300 square feet, the floor of the enclosed area below the lowest elevated floor is considered the structure's lowest floor for insurance rating purposes. Information on these structures is then forwarded by the local agent to the NFIP underwriters as a "submit to rate". This in turn provides: 1) the NFIP underwriters an opportunity to review the physical characteristics of the building to determine the appropriate flood insurance rate and 2) the Office of Loss Reduction, Technical Standards Division an

opportunity to determine whether the breakaway wall design is compliant with NFIP coastal construction engineering performance standards.

In many cases, the local ordinance has limited the size of the breakaway enclosures below the lowest floor to 300 square feet. In those cases, the more restrictive flood plain management requirement shall be implemented.

(From Page 2)

human life.

The most pernicious sequence of flash flooding occurred in the Hill Country of South Central Texas, one of the three most flash flood-prone areas in the U.S.. A small pool of unusually cold air aloft over the Pecos River valley of west Texas drifted eastward toward the Balcones Escarpment during the night of July 10-11, triggering a squall line of intense thunderstorms that unloaded overnight rains of 5 to 9 inches in parts of Kerr, Kimble, Bandera, Real, and Uvalde Counties.

The Guadalupe River sustained a sharp rise in minutes, sweeping a pick-up truck off a road near Hunt, Texas. Two of the occupants of the truck were drowned, while a third managed to reach safety after attempting to rescue his companions. Numerous other vehicles in Kerr County had to be abandoned in high water as local streams and tributaries of the Guadalupe River caused the closure of all highways and roads in the county except for Interstate 10.

At the same time, in nearby Bandera County, where 13 inches of rain was

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WHAT THE HECK IS "HEC"?

Whenever a community wants to alter a water course or allow development in a regulatory floodway, or any other number of changes a community might wish to make to their floodplain, computer modeling is often required. Hydraulic computer modeling is a program that uses flood discharges and data concerning floodplain characteristics to simulate flow conditions and determine flood elevations, flood plain and floodway widths, flow velocities, and other hydraulic information. The Hydraulic Engineering Center (HEC) and the U.S. Army Corps of Engineers have developed HEC-1, a mathematical watershed model containing several methods with which to simulate surface run-off and river/reservoir flow in river basins. The capabilities of the HEC-1 Flood Hydragraph Package include: simulation of rainfall and/or snowmelt run-off from subbasins and flow through a stream network, simulation of flows in urban areas, hydrologic calculations for dam safety and dam failure studies, and economic calculations for planning flood control

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IMPORTANT NOTICE

The following regulation became effective on November 25, 1988 with the passage of the Robert T. Stafford Disaster Relief and Emergency Assistance Amendments of 1988:

For insurable structures within the identified base floodplain, the maximum amount of insurance recovery which could have been obtained will be subtracted from otherwise eligible costs. There is a special exception for eligible private non-profit facilities if the community is not in the National Flood Insurance Program. [Sec. 406(d)]

This applies to PUBLIC buildings, not PRIVATE homeowners.

FLOOD MANAGEMENT UNIT MOVES TO NEW OFFICE...SORT OF

In January of this year, the Flood Management Unit moved, ...sort of. We are still at the same address and phone number, however, if you come by to see us you'll no longer enter through Room 505. Instead, enter through Room 507 and follow the Flood Management Unit signs. Good luck!!

ADDRESS CORRECTIONS REQUESTED

Has your address changed recently? Is the name and address on your Flood Management Newsletter incorrect? Want someone else to receive a copy? If your response to any one of these questions is "YES", call us at 512/463-8000 so you won't miss a single issue!



Flash Flood

NFIP MATERIALS ORDER FORM

Need some supplies pertaining to the National Flood Insurance Program? Instead of calling or writing to us here at the Flood Management Unit, why not make use of the attached NFIP SUPPLIES ORDER FORM on the back of this page? All you have to do is detach it from the newsletter (or better yet, photocopy it), fill out what you need and mail it to:

NATIONAL FLOOD INSURANCE PROGRAM
FORMS ORDER UNIT
P.O. BOX 499
LANHAM, MARYLAND 20706

This will give you a direct path to the necessary materials. You can also obtain the information by calling (800) 333-1363. By employing either the order form or the phone number, you will reduce the amount of time it takes to get the literature to you.

NFIP SUPPLIES ORDER FORM

PROGRAM FORMS AND MATERIALS

Please send me the flood insurance forms, literature, and/or material indicated below which are available at no charge.
(The maximum amount that can be ordered at one time is 200 units.)

Producers placing business with WYO companies should follow their company's instructions on ordering supplies.

FORM NUMBER	TITLE	QUANTITY	
		Circle One	Quantity Over 100
593-112	Notice of Loss Form	5 15 50 100	_____
593-114	Flood Insurance Application, Part 1 & Part 2	5 15 50 100	_____
593-115	Flood Insurance General Change Endorsement	5 15 50 100	_____
593-116	Flood Insurance Cancellation/Nullification Request Form	5 15 50 100	_____
593-117	Elevation Certificate	5 15 50 100	_____
593-180	Map Order Form	5 15 50 100	_____
593-213	Certificate of Redetermination of a Property's Location Relative to Special Flood Hazard Areas	5 15 50 100	_____
593-215A	Agent's Premium Calculation Pad	5 15 50 100	_____
593-224	How to Read a Flood Insurance Rate Map	5 15 50 100	_____
593-225	How to Read a Flood Hazard Boundary Map	5 15 50 100	_____
593-226	Suggested Lender's Notice	5 15 50 100	_____
593-9046	Flood Insurance Application-Part 2 Worksheet	5 15 50 100	_____
593-9049	Floodproofing Certificate	5 15 50 100	_____
700-9003	Flood Insurance Rate Table	5 15	_____
900-255C	Flood Insurance Manual Order Form	5 15 50 100	_____

PUBLIC AWARENESS MATERIALS

593-190	NOTICE: This Policy Does Not Cover Flood Loss (Stuffer)	5 15 50 100	_____
593-192	NOTICE: This Policy Does Not Cover Flood Loss (Sticker)	5 15 50 100	_____
593-222	Questions and Answers on the NFIP (Booklet)	5 15 50 100	_____
593-235	Announcing Better Flood Protection (Stuffer)	5 15 50 100	_____
593-236	Flood . . . Are You Protected from the Next Disaster? (Brochure)	5 15 50 100	_____
593-237	In The Event of a Flood (Brochure)	5 15 50 100	_____
593-238B	Worst Guest List (Hurricane Stuffer)	5 15 50 100	_____
593-248	Season's Warnings (Winter Stuffer)	5 15 50 100	_____
593-501	If You Are Flooded Out (Mini-Poster)	5 15 50 100	_____
900-075	Camera-ready Newspaper Advertisements	5 15 50 100	_____
900-090	Is There a Leak in Your Protection? (Stuffer)	5 15 50 100	_____
900-113	Spring Floods. . . More Than Just a Threat (Mini-Poster)	5 15 50 100	_____
900-114	Spring Floods. . . More Than Just a Threat (Stuffer)	5 15 50 100	_____
900-148	Hurricanes & Summer Storms (Stuffer)	5 15 50 100	_____
900-149	In the Calm Before the Storm (Mini-Poster)	5 15 50 100	_____
900-153	Summer Storms, Summer Floods (Stuffer)	5 15 50 100	_____

Fill out your name, company, address, city, state, and zip code. If you are ordering for an agent/agency, you must include an agent identification number on your order. Please identify yourself by checking the appropriate box. Fold, seal, and return to the NFIP.

AGENT
 LENDER
 COMMUNITY OFFICIAL
 MEDIA
 OTHER

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____ ZIP CODE _____

AGENT ID NUMBER

Please allow 2 to 3 weeks for delivery.

FLOOD LOSS REDUCTION
WORKSHOPS FOR 1989

The Flood Management Unit is in the process of scheduling flood loss reduction community workshops for this fiscal year. What we need are communities that are willing to host these half-day workshops, provide refreshments for breaks, and help in distributing invitations to nearby communities.

Thus far, we have scheduled workshops for the following communities:

<u>LOCATION</u>	<u>DATE</u>
Ennis, Texas	February 22, 1988
Canton, Texas	March 22, 1989
Blanco, Texas	April 11, 1989
Iowa Park, Texas	April 12, 1989
Leander, Texas	April 13, 1989
Sulphur Springs, Texas	April 20, 1989

We strongly urge all those who are able to attend these workshops to do so. They are an excellent source of information and an opportunity to compare notes with other communities and ask questions.

In addition, FEMA has scheduled both AGENT Workshops and LENDER Workshops for the following locations and dates:

AGENT WORKSHOPS

Dallas	April 4, 1989
Marriott Park Center	7750 LBJ Freeway

Houston *	April 5, 1989
S. Central Reg. Office	7035 W. Tidwell, Ste.J-105
Lubbock	April 18, 1989
Holiday Inn Civic Center	801 Avenue Q
Austin	May 9, 1989
Embassy Suites-Airport	5901 N. IH-35
Houston	June 28, 1989
Ramada Hotel Northwest	12801 N.W. Fwy.

LENDER WORKSHOPS

Dallas	April 6, 1989
Marriott Park Central	7750 LBJ Freeway
Houston *	April 11, 1989
S. Central Reg. Office	7035 W. Tidwell, Ste.J-105
Lubbock	April 19, 1989
Holiday Inn Civic Center	801 Avenue Q
Austin	May 11, 1989
Embassy Suites-Airport	5901 N. IH-35
Houston	June 27, 1989
Ramada Hotel Northwest	12801 N.W. Fwy.

* - Space is limited, so please register early to reserve your place.

The Agent and Lender Workshops in Houston on June 27 and June 28 are part of a Flood Awareness Week which will also include programs on Floodplain Management. The Flood Awareness Week is co-sponsored by NFIP Region VI, Harris County Flood Control District and the Texas Floodplain Management Association.

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For additional information, please contact either Bill Barton or Debbi Frank at the National Flood Insurance Program Regional Office, or call Cathy Schlegel of TFMA at (512) 328-0109.

THE COMMUNITY ASSISTANCE VISIT

The Community Assistance Visit, or CAV, is the most comprehensive means available for assessing a community's participation in the National Flood Insurance Program. Each year the Texas Water Commission visits a number (90 for FY-89) of communities in the state. The purpose of the CAV is to identify strengths and weaknesses in a community's floodplain management program, to acknowledge the strong points and to provide assistance necessary to rectify the weaknesses. Now that you know WHY the visits are made, we can focus on what they consist of.

First, before the CAV is performed, a representative of the Flood Management Unit will contact the community's Floodplain Administrator and set up a meeting. Generally speaking, these meetings are informal and attempt to include all those in the community government that are involved in floodplain management. Prior to this meeting, the FMU representative will conduct an inspection of the community's 100 year flood plain, or Special Flood Hazard Area (SFHA). This inspection aims at locating potential violations and/or areas of concern within the SFHA. These concerns are then discussed during the meeting with community officials who are asked to

(Continued from page 4)

systems. Computer program HEC-2 applies to floodplain hydraulics. The methods of hydraulics are used to determine the water surface profiles and the real extent of flooding for the predicted flow rates.

There you have it. A brief explanation of "what the heck 'HEC' is!"

provide documentation that the concerns are, indeed, in compliance with the NFIP Regulations. This is where the floodplain permits prove to be invaluable because they serve as hard evidence that activity within the SFHA is following the official guidelines. If the community is properly executing its floodplain permitting system, then any development within the floodplain will have a documentation. If any of the items noted in the floodplain tour are found to be in violation then the community officials will be instructed what measures should be taken to correct them and how to prevent them from happening again.

Following the meeting, the Flood Management Unit representative will write a report that summarizes the findings of the CAV and includes recommendations for action. Two copies of the report are sent to FEMA in Denton and two are sent to the community, one for the Chief Elected Official and one for the Floodplain Administrator. The community then has a maximum of 90 days in which to take action on the violations and submit documentation to the Texas Water Commission. Remember, you need not have completed the task of remedying the violations, but you should be pursuing them. If the follow-up is not sent within the specified time span then the community

(See next page)

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runs the risk of action being taken by FEMA.

The bottom line: the CAV is not intended to usurp the community's right to govern itself and it should not be viewed as such, rather it is designed as a means to ASSIST a community via a one-to-one personal relationship. All you are required to do is abide by the NFIP Regulations, maintain a sound floodplain management program and remember, we're here to serve YOU.

SECTION 11.086: A BRIEF RUN-DOWN

Are there individuals in your community that are altering (or have altered) the course of a stream or drainage canal? Unless these individuals have obtained the proper authorization they may be in for an unpleasant surprise. In the event that the alterations divert water onto the property of another, causing damage, Section 11.086 of the Texas Water Code gives the injured party authorization to seek damages from the party (or parties) that caused the damages. In short, this section says:

(a) No person may divert or impound the natural flow of surface waters in this state, or permit a diversion or impounding by him to continue, in a manner that damages the property of another by the overflow of the

water diverted or impounded.

(b) A person whose property is injured by an overflow of water caused by an unlawful diversion or impounding has remedies at law and in equity and may recover damages occasioned by the overflow.

(c) The prohibition of Subsection (a) of this section does not in any way affect the construction and maintenance of levees and other improvements to control floods, overflows, and freshets in rivers, creeks, and streams or the construction of canals for conveying water for irrigation or other purposes authorized by this code. However, this subsection does not authorize any person to construct a canal, lateral canal, or ditch that obstructs a river, creek, bayou, gully, slough, ditch, or other well-defined natural drainage.

(d) Where gullies or sloughs have cut away or intersected the banks of a river or creek to overflow the land nearby, the owner of the flooded land may fill the mouth of the gullies or sloughs up to the height of the adjoining banks of the river or creek without liability to other property owners.

So, what does this mean in layman's terms? Simply, if an individual damages someone else's property because of the channel alterations then he can be held liable by the injured party in a court proceeding. Furthermore, in the event that the community was also negligent (for instance, failing to properly permit
(See next page)

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the alterations) then they may be held liable as well. The moral? Be absolutely certain that any stream alterations within your community's boundaries are being carried out properly and are permitted accordingly (this goes for areas in C-Zones, too, and whether or not the stream is mapped on your FIRM or FHBM).

THE LULL OF THE STORM

By Bill Barton

In the wake of the phenomenal Hurricane Gilbert, media response has applauded the level of preparedness with which the Gulf Coast greeted his arrival. There is, however, an underlying story that must be told before Texas residents are lulled into a false sense of security.

After violently making his way through the Caribbean and Yucantan peninsula, Gilbert spared the South Texas Coast and hurled his 100 mile-an-hour winds at Monterey, Mexico. If Gilbert had gone ashore in the Corpus Christi area, as first feared, the scenario would have been much different. Serious flooding would have occurred as far away as Dallas. Considering that the storm was almost 500 miles wide, and that at the time it hit Jamaica it packed 200 mile-an-hour winds, virtually millions of dollars in property damage could have been sustained. It has been estimated that had Gilbert hit the heavily populated Houston area with 200 mile-an-hour winds, there could have been ten billion dollars in property damage!

The accompanying illustration (See Figure 1, page 11) shows the path Gilbert took; a second path illustrates where he was first predicted to hit; and a third path shows where he might have gone ashore in the Houston area had he taken a more northern course. By using the recorded rainfall from Hurricane Gilbert in Mexico, an estimate has been prepared listing the number of insured and uninsured structures that would have flooded in the Corpus Christi and Houston areas (Figure 2, page 12).

Hopefully, the early warning would have resulted in fewer deaths than those that occurred in Mexico, but the countless thousands of people who were evacuated would have returned to heavily flood-damaged properties. The clean-up of homes and businesses would have lasted until Christmas, property loss would have been devastating, and the Texas economy would have suffered staggering losses. While this would not have been a tragic loss of human life, it would have definitely been a human tragedy of unprecedented proportions. We were spared this tremendous loss, but we have been lulled into a slumber that could make way for an even worse scenario in the future.

(Continued on page 12)

FIGURE 1



(Cont'd from page 10)

It is not too late for the insurance industry in Texas to respond to this situation before the next "hurricane of the century" arrives. The National Flood Insurance Program (NFIP) introduced a new product in January, 1989 that could be the solution to the vast uninsured market we have in Texas (Figure 2). The Federal Insurance Administration (FIA) has announced a "Preferred Risk Policy" that is perfect for those who face risk only during mega events like Hurricane Gilbert. It involves a flat amount of coverage for a flat premium (Figure 3). A "short form" application--just what agents have been asking the FIA to implement--will be used for Preferred Risk policies. The FIA has gone all out to privatize the flood insurance program and then respond to the agents and companies input for special products. While people who live in Special Flood Hazard Areas (SFHAs) will still need to go through regular underwriting, the majority of structures in the state can now be written under the new "Preferred Risk Policy".

At the same time, a Condominium Master Policy will be available. It provides coverage for the association and all unit owners under one policy, with adequate limits and prepared pricing. This affords further protection against the flood loss of the mega storm.

If the NFIP, private insurance companies, and the insurance agents continue to work together, we can change the future. Someday, evacuees will return home to find their homes and business flooded. If we succeed in our attempts, they will be able to call their insurance agents and turn in flood insurance claims. If not, the results are obvious. Wake up, Texas! Be ready! That dream could become reality.

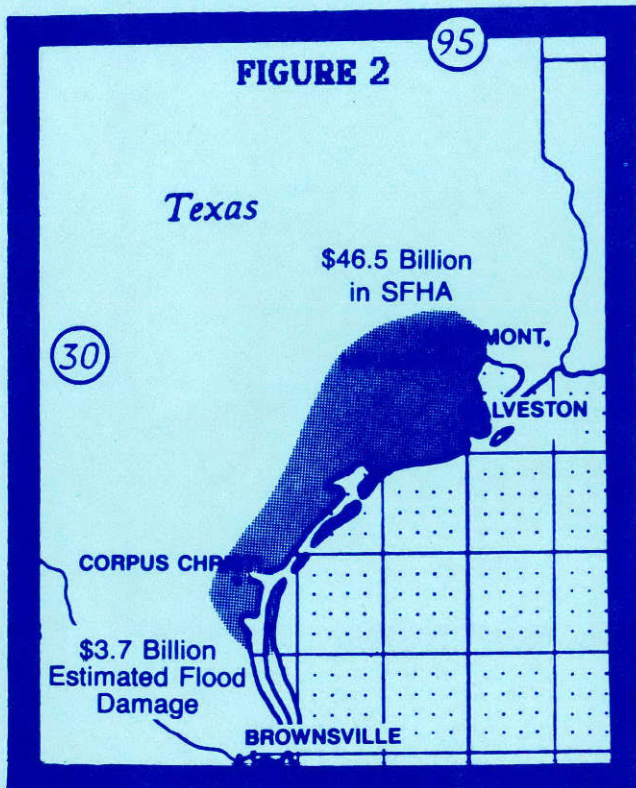


FIGURE 3

	COVERAGE	PREMIUM
	Building	No Basement
A	\$20,000	\$ 75
B	\$30,000	\$100
C	\$50,000	\$125
	Contents	Basement
A	\$ 5,000	\$100
B	\$ 8,000	\$125
C	\$12,000	\$150

(From page 3)

registered northeast of Medina, rising floodwaters closed roadways for more than 24 hours. A woman in the Tarpley area was swept into flooded Hondo Creek, but she was able to reach safety and sustained only minor injuries. The Medina River crested near 22 feet at Bandera on the evening of July 11.

Lesser, but nonetheless excessive, rainfall provoked flash flooding in most of Kimble County on July 10-11. The Llano River crested at 23 feet at Roosevelt on the morning of July 11 and at the same level at Junction that evening. A flood wave on the Llano River above flood stage extended all along the river to Lake Travis.

The most intensive flash flooding rains of 1988 fell in Comanche and Erath Counties of North Central Texas one night in late spring. A pre-frontal squall line unleashed copious amounts of rainfall in the vicinity of Comanche, Texas over an 8-hour period ending before dawn on June 1. An unofficial amount of 14 inches of rain was reported near Comanche, while the city itself collected officially an overnight rainfall of 6.67 inches. At nearby Proctor Reservoir an official rain gauge caught an overnight sum of 8.37 inches.

The City of Comanche was impacted the most by the sudden heavy rains. Indian Creek there swelled out of its banks and damaged about 150 houses. About 300 people in Comanche had to be evacuated, and property damage totalled between \$3 million and \$5 million. An earthen dam on Lake Eanes, south of Comanche, collapsed just as the torrential rains began to subside, sending a wall of water down Mercer Creek into Lake Comanche.

Another episode of significant flash flooding struck the Hill Country when heavy thunderstorms boiled up before dusk on May 29, 1988 and shed 4 to 7 inches of rain in parts of Hays and Comal Counties. Surging floodwaters on creeks and streams below Canyon Dam forced many campers to flee to higher ground. Low-water crossings were inundated around Wimberley, a community in southern Hays County along the Blanco River that is especially prone to flash flooding. A similar thunderstorm outbreak on the same evening made most roads in and around Industry, in Austin County, impassable due to high water.

Similarly heavy rainfall from nocturnal thunderstorms flooded streams and low-water crossings in Real, Uvalde, and Edwards Counties on June 25-26. The Frio River rose rapidly to as much as 10 feet above flood stage before dawn, forcing campers in Garner State Park to find sanctuary on higher ground.

Some of the worst urban flash flooding occurred in Dallas County on the evening of July 12. A rain of more than 6.5 inches in little more than one hour instigated flooding in dozens of homes in Mesquite. Several autos were washed into a creek in Mesquite, but no injuries were reported. Rainfall almost as excessive produced considerable flooding of streets and low-lying areas in Greenville, Sulphur Springs, and Cooper.

Urban flooding along the upper Texas coast in early September was worse than that in Dallas county, however. An upper-air tropical wave kicked off nocturnal thunderstorms that drenched Brazoria, Galveston, and Houston Counties with with rains of 5 to 6 inches. A state highway on Bolivar Peninsula was

(See next page)

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covered by floodwaters for some time during and in the wake of rains of 5 inches over a 6-hour period. The runoff produced a 2-foot seiche at Kemah on the edge of Galveston Bay.

Parts of west Texas were subjected to flash flooding as well. In the northern High Plains--the only section of Texas that sustained substantially more rainfall than normal in 1988--towering thunderheads that cropped up early at night along a surface trough line drenched Randall and Potter Counties with 3 to 5 inches. Virtually every street and road in Amarillo was flooded for a time on the night of September 14-15; every underpass in the city was littered with numerous stalled cars. Vacated cars covered the area around Lawrence Lake, which extended a mile beyond its banks. Earlier in the same month, late-evening thunderstorm rains of nearly 7 inches in only 3 hours brought widespread flooding in Odessa.

Only a pair of tropical cyclones impacted Texas during 1988, but each one spawned at least some localized flooding in some spots within the State. Parts of East Texas caught some of the deluges prompted by Tropical Storm Beryl on August 11. Roadway flooding was most severe in Rusk, Panola, and Nacogdoches Counties, where several bridges were washed out and some houses were flooded. Beryl and her remnants produced storm rainfall totals of at least a foot at Mount Enterprise (12.50) and lake Murvaul (12.15). Other especially heavy rainfall was measured at Clayton (11.50), Brachfield (9.50), Reklaw (6.73), and Carthage (5.87).

Hurricane Gilbert's decision to make

landfall more than 100 miles south of Brownsville in mid-September undoubtedly spared the Lone Star State of what would have been the most pervasive and serious flooding of 1988. Flooding was incredibly devastating in the mountains of northeastern Mexico in the period up to 72 hours after the eye of Gilbert made landfall near the Mexican village of La Pesca at mid-afternoon on September 16. The fact that Gilbert and its remnants continued to drift westward, and not more northerly into south and west Texas, after landfall meant that Texas would suffer only minimal flood damage.

Indeed, flooding in Texas from Gilbert was virtually non-existent. Total storm rainfall in the Lower Valley ranged between 3 and 5 inches, or just enough to ease appreciably a severe drought but not enough to cause major flooding. Some flooding did occur upstream along the Rio Grande between Eagle Pass and the Big Bend, but it was hardly significant. The worst flooding in Texas from Gilbert's remains took place along parts of the Devils and Pecos Rivers in Val Verde County, where high water closed a state highway for a while on September 18 at Bakers Crossing.

The fact that Texas had to tolerate a moderate to severe drought for much of 1988 offered one serendipitous fringe benefit: a notable lack of flooding events, particularly in the spring and again in most of autumn. The year of 1988 was one of the more uneventful years, in terms of flooding, that the Lone Star State has witnessed in the 20th century.

Remember

Your community receives one copy of this Newsletter. Please circulate to all key personnel with responsibilities in Floodplain Management or Emergency Management.

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