REPORT BY THE

Comptroller General

OF THE UNITED STATES

National Flood Insurance: --Marginal Impact On Flood Plain Development --Administrative Improvements Needed

GAO was requested by a Senate subcommittee and a Senator to determine whether (1) the National Flood Insurance Program administered by the Federal Emergency Management Agency was stimulating flood plain development and (2) flood plain management regulations were being adequately enforced.

GAO found that:

--Although much development is occurring in the flood plain, flood insurance is not the principal reason for that development. However, it offers a marginal added incentive for development in coastal and barrier island communities, which have a high potential for loss of life and destruction of property.

--The Agency needs a better monitoring program to assure that local communities are enforcing flood plain regulations.

--Many flood insurance policy premiums are based on erroneously designated (misrated) flood zones.

GAO observed also that providing flood insurance and other Federal assistance in extremely hazardous coastal areas subject to wave damage may be undesirable public policy because of the high potential for loss of life and destruction of property.

GAO recommends that the Agency establish management controls to direct and guide its monitoring program and to detect and correct misrated flood insurance policies. Further, the Congress needs to reconsider whether flood insurance and other Federal assistance should continue to be available for new and substantially improved structures in extremely high hazard areas along the coast.

GAO/CED-82-105
AUGUST 16, 1982

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

B-207018

The Honorable John H. Chafee
Chairman, Subcommittee on Consumer
Affairs
Committee on Banking, Housing, and
Urban Affairs
United States Senate

The Honorable Arlen Specter
United States Senate

This report describes the National Flood Insurance Program's impact on flood plain development and the problems with the Federal Government's monitoring efforts to ensure enforcement of the flood plain management regulations by the participating communities. These are two of the four concerns expressed in your request of September 24, 1981. As agreed in discussions with your offices, the two other questions are being covered in the second phase of our review with a report to be issued later. Further, as instructed by your offices, we did not obtain agency comments; however, we did obtain comments from program officials, which are considered in this report.

As arranged with your offices, unless you publicly announce the contents of this report earlier, no further distribution will be made until 30 days from the date of the report. At that time we will send copies of this report to the Director, Office of Management and Budget; the Director, Federal Emergency Management Agency; interested congressional committees, subcommittees, and individual Members of Congress; and other interested parties. Copies will be available to others on request.

for Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT

NATIONAL FLOOD INSURANCE:
--MARGINAL IMPACT ON FLOOD PLAIN DEVELOPMENT
--ADMINISTRATIVE IMPROVEMENTS NEEDED

D I G E S T

In response to a request from the Chairman, Subcommittee on Consumer Affairs, Senate Committee on Banking, Housing, and Urban Affairs, and Senator Arlen Specter, GAO examined whether (1) the National Flood Insurance Program administered by the Federal Emergency Management Agency stimulated flood plain development and (2) flood plain management regulations were being adequately enforced.

Coastal and barrier island communities are developing rapidly because they offer many attractive features and opportunities for retirement and recreation. After studying six coastal communities; interviewing various Federal, State, and local officials; and reviewing research literature, GAO concluded that the availability of Federal flood insurance is not the principal reason for flood plain development in these communities, but that it offers a marginal added incentive to development. (See pp. 7 through 13.)

GAO found that the Agency's monitoring of local communities' enforcement of flood plain management regulations has been inadequate. GAO also found errors in designations of flood zones on which insurance rates are based.

GAO observed that providing flood insurance and other Federal assistance in extremely hazardous coastal areas subject to wave damage may be undesirable public policy because of the high potential for loss of life and destruction of property.

The Congress established the program in 1968 to protect against loss of life and property in flood-prone areas. But the Congress needs to reconsider whether flood insurance and other Federal financial assistance should continue to be available for new or substantially improved structures in the extremely high hazard areas along the Atlantic and Gulf coasts. Any action by the Congress to deny flood insurance

must also include difficult choices of retaining or denying the advantages, disadvantages, and consequences of other Federal financial assistance, disaster relief, and tax benefits. Simply denying flood insurance will not eliminate the availability of other forms of Federal relief. Consequently, the Federal Government and potential victims of natural disasters would continue to share risks in high hazard areas. (See pp. 14 through 21.)

MINIMAL ASSURANCE THAT REGULATIONS ARE BEING ENFORCED

The successful mitigation of flood hazards in the United States is dependent on the adoption and enforcement of sound flood plain management practices at the local government level. After almost 15 years, relatively little is known overall about how well communities in the flood insurance program are enforcing flood plain management regulations. GAO found that the Agency's monitoring program is limited, the method of selecting communities to visit is inadequate, and the results of community visits are not evaluated. The Agency needs to develop a formal policy and criteria to obtain community compliance with flood plain management regulations and to establish and implement centralized controls over its monitoring activities. (See pp. 22 through 33.)

GAO is therefore recommending that the Agency develop a centralized system that will give it overall control of the program and enable it to direct and guide the program in the future. (See p. 38.)

Local community officials have difficulty enforcing flood plain management regulations for enclosing and using the ground level of elevated structures (the open area beneath the first floor of the structure which is elevated on pilings) in coastal high hazard areas. The Agency revised the flood plain management criteria to resolve these problems, but the Office of Management and Budget refused to approve them because it considered the criteria to be a Federal intrusion into the management of local affairs. (See pp. 33 through 35.)

The Congress intended that local communities adopt and enforce flood plain management regulations designed to reduce future flood losses

and damages in return for the benefits of flood insurance. GAO believes that the revised criteria will be less intrusive upon local communities once the intent of the existing criteria is clarified and they are made easier to enforce. (See pp. 35 and 36.)

GAO is recommending that the Agency appeal the Office of Management and Budget's decision to the Presidential Task Force on Regulatory Relief. (See p. 38.)

MISRATINGS OF INSURANCE POLICIES: A CAUSE FOR CONCERN

Flood insurance premiums are based on a property's location in the flood plain. Flood plains are divided into various zones according to the risk involved. In five communities, GAO found that 34 of 94 properties from a nonrandom sample were located in zones that were different from the zone on which their insurance premiums were based. Consequently, some policyholders are paying too much for flood insurance coverage and some are not paying enough. The Federal flood insurance fund is likewise benefiting or suffering from these errors. (See pp. 39 through 41.)

Two recent studies made under contract disclosed similar results. One of these studies estimated that the program would not collect $25 million during a 5-year period because of flood zone misratings and other errors. The other study found at least 118 out of 737 properties, or 16 percent, misrated in one community. (See pp. 41 and 42.)

GAO found that the Agency has virtually no controls to detect improper flood zone designations on insurance applications submitted by insurance agents. GAO is recommending that the Agency establish appropriate management controls to detect and correct misratings. (See pp. 42 through 45.)

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As instructed by the requestors, GAO did not obtain Agency comments on this report. However, GAO did obtain the views of program officials and considered these comments in preparing this report.

Contents

ABBREVIATIONS

CAPE	Community Assistance and Program Evaluation
EDS	Electronic Data Systems Federal Corporation
FEMA	Federal Emergency Management Agency
FIA	Federal Insurance Administration
GAO	General Accounting Office
NFIP	National Flood Insurance Program
OMB	Office of Management and Budget

CHAPTER 1

INTRODUCTION

The Chairman, Subcommittee on Consumer Affairs, Senate Committee on Banking, Housing, and Urban Affairs, and Senator Arlen Specter requested that we examine and report on the following aspects of the National Flood Insurance Program:

--Is the flood insurance program stimulating flood plain development?

--Are flood plain management regulations being adequately enforced?

--Is it possible to establish insurance rates that would eliminate the Federal subsidy and make the program self-sustaining?

--Is the National Flood Insurance Fund an appropriate mechanism for handling the program's funds?

The first two questions are the subject of this report. The latter two questions will be answered by a second report in late 1982. (The request letter is app. I.)

FLOOD INSURANCE PROGRAM

The National Flood Insurance Act of 1968 (Public Law 90-448) established the National Flood Insurance Program. The Congress found that this program could promote the public interest by providing appropriate protection against the perils of flood losses and encouraging sound land use by minimizing exposure of property to flood losses. The Congress also found that the objective of a flood insurance program should be integrally related to a unified national program for flood plain management. A purpose of this act was to encourage State and local governments to make appropriate land use adjustments to constrict the development of land exposed to flood damage and minimize damage caused by flood losses and to guide development of proposed future construction, where practicable, away from locations threatened by flood hazards.

The program was implemented using the basic principle that property owners are eligible to purchase low-cost Federal insurance, if their flood-prone community adopts and enforces adequate flood plain management regulations, such as elevating new structures, designed to protect lives and property from future floods in the flood plain.

While community participation is voluntary, the Congress provided in the Flood Disaster Protection Act of 1973 (Public Law 93-234), which amended the 1968 act, that flood insurance coverage must be purchased and adequate safeguards and land use restrictions must be enacted to minimize future losses of life and property if Federal financial assistance for purchase or

construction purposes is to be made available. The 1973 act required (1) designated communities to participate in the flood insurance program or face restrictions of Federal financial assistance and (2) property owners to purchase flood insurance to receive new or additional Federal or federally related financial assistance for acquisition or construction purposes in identified special flood hazard areas. To obtain Federal disaster assistance for construction or reconstruction purposes, this act also required property owners in participating communities to first purchase flood insurance.

The Housing and Community Development Act of 1977 removed the prohibition against conventional mortgage loans from federally regulated lenders in flood-prone communities not participating in the program and added a notification procedure to alert prospective mortgagors that flood disaster relief would not be available for properties in those communities.

Program statistics

As of December 31, 1981, over 17,100 communities and other political subdivisions were participating in the program. An additional 3,200 communities had special flood hazard areas identified but have decided to not participate. About 1.9 million insurance policies are in force providing over $99 billion worth of flood insurance coverage.

The maximum insurance coverage presently available depends on whether a community is in the emergency or regular program. A community initially enters the "emergency" program by adopting adequate flood plain management regulations to guide new construction in flood-prone areas. The community enters the "regular" program after a detailed flood insurance rate map is completed by the Federal Emergency Management Agency (FEMA) and local officials enact regulations that require all new or substantially improved structures to be built in accordance with Federal flood plain management criteria. The maximum amounts of insurance are as follows:

Maximum Insurance Available

Program and building type	Building	Contents
Emergency program:		
Single-family residence (note a)	$ 35,000	$ 10,000
Other residential (note a)	100,000	10,000
Nonresidential	100,000	100,000
Regular program:		
Single-family residence	185,000	60,000
Other residential	250,000	60,000
Small business	250,000	300,000
Other nonresidential	200,000	200,000

a/Higher maximum amounts are available in Hawaii, Alaska, Guam, and the Virgin Islands.

Since inception of the program in 1968 to December 31, 1981, the Federal Government has provided over $1.5 billion to subsidize the flood insurance program. According to unaudited FEMA records about $866 million has been collected in insurance premiums during this period, but $1,249 million has been paid to the insured for flood loss claims. In addition, over $408 million has been paid to the operating contractor, insurance agents, and claims adjusters; $520 million has been spent to prepare community flood maps; and $174 million has been incurred for interest expense on U.S. Treasury borrowings.

PROGRAM MANAGEMENT

The Federal Emergency Management Agency is responsible for managing the flood insurance program. Its Federal Insurance Administration (FIA) manages the program's insurance aspects. FIA is responsible for setting premium rates, issuing policies, and settling claims. The latter two operations are performed by a private contractor--Electronic Data Systems Federal Corporation (EDS)--monitored by FIA staff. FEMA's State and Local Programs and Support Directorate administers the program's State and community aspects. It is responsible for identifying flood-prone areas, providing communities with flood maps so that they can enter the program, establishing flood plain management criteria, and ensuring that participating communities adopt necessary ordinances and enforce required flood plain management regulations. These criteria, for example, require communities to adopt a building permit system for flood zone construction, to elevate a building at least to the level of the 100-year flood, to anchor a building securely, and to meet other similar requirements. FEMA's 10 regional offices monitor communities' enforcement of the regulations. The head of each regional office reports directly to the Director, FEMA.

OUR REPORTS ON FLOOD INSURANCE

We have issued a number of reports on the National Flood Insurance Program, two of which are particularly applicable to this report. In 1976 we reported 1/ that the Federal Insurance Administration (now a part of FEMA) needed an effective system to monitor participating communities' compliance with the program's flood plain management requirements. The FIA said that it had taken or would take action to carry out the monitoring system we recommended. In 1979 we reported 2/ that improvements were still needed in the Federal monitoring program and that communities needed more technical assistance in implementing the program. The FIA agreed on the need for more community visits with stress on technical assistance rather than enforcement.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our objective on this assignment was to answer questions asked by the Chairman of the Subcommittee on Consumer Affairs and Senator Specter relating to development in the flood plain and enforcement of the flood plain management regulations.

We were asked to address the issue of whether the flood insurance program was stimulating flood plain development. Over 17,100 different coastal, barrier island, riverine, and lake communities participate in either the emergency or regular phase of the flood insurance program. Each community has a great number and variety of factors which influence its development. We did not attempt to statistically measure the degree to which flood insurance influenced that development because, in our opinion, such an approach offered a low probability of success (as opposed to other influencing factors) at an acceptable level of precision. We did, however, study trends in development in selected coastal communities before and after they entered the flood insurance program, reviewed research studies, and discussed the issue with government and business people.

In discussions with the requestors' offices, it was agreed that we could limit our scope to the coastal and barrier island communities on the Atlantic and Gulf coasts because they were particularly interested in these types of communities. It was further agreed that we would visit six coastal communities to obtain insights into the issues that the requestors were interested in and make possible recommendations for improvement.

We conducted our review in five States--Delaware, Maryland, South Carolina, Florida, and Texas--which accounted for 46 percent

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1/"Formidable Administrative Problems Challenge Achieving National Flood Insurance Program Objectives" (RED-76-94, Apr. 22, 1976).

2/Untitled letter report to the Secretary of Housing and Urban Development (CED-79-58, Mar. 22, 1979).

of the 1.9 million flood insurance policies outstanding; 54 percent of the almost $100 billion of insurance in force; and 30 percent of the over $1.2 billion in claims paid.

To determine the impact on development and the adequacy of enforcement, we selected six communities--Bethany Beach, Delaware; Ocean City, Maryland; Folly Beach, South Carolina; Deerfield Beach, Florida; and Galveston and South Padre Island, Texas--based on certain judgmental factors discussed below. These communities are coastal barrier islands or share characteristics similar to barrier islands. 1/ All met one or more of our selection criteria which included sufficient length of time in the program for trends to be evident; evidence of development taking place; potential flood risk; and range in population, size, and geographic dispersion. All of our selected communities have been in the program since November 1973 or earlier; have reported new development taking place; are located in areas with high flood potential; and had permanent populations ranging from 330 residents in 1.25 square miles in Bethany Beach to nearly 62,000 in over 32 square miles in Galveston. Appendix II has additional information on our method of selecting the communities.

This review was performed in accordance with generally accepted Government audit standards. Our work was conducted from September 1981 through March 1982 in Washington, D.C.; FEMA's Atlanta, Dallas, and Philadelphia regional offices; State offices in the five States; and the six selected communities.

We reviewed the National Flood Insurance Act of 1968, as amended, and pertinent FEMA regulations, policies, procedures, records, and data applicable to the entire program. Research studies pertaining to the issues under review were identified and analyzed--a selected bibliography is included as appendix III. At State offices we examined State assistance plans and determined how they were being implemented. In the six selected communities, we reviewed city construction permit files and visited randomly selected insured properties to verify their flood zone locations, to see whether their elevations appeared proper, and to see whether the ground levels were being enclosed. We physically verified the elevation of some properties. We also obtained Bureau of the Census data on the population, housing units, and income of residents of the States and communities for comparison with national statistics.

We interviewed FEMA headquarters and regional officials, State officials responsible for the flood insurance program's

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1/Coastal barriers are narrow, elongated, low-lying islands, spits, and bays generally located parallel to the mainland coast, consisting of unconsolidated sands, gravels, and other materials deposited by water and continuously being reshaped by waves, currents, storm surges, and winds.

related State assistance program activities, and community officials responsible for enforcing local building codes and issuing building permits. We also interviewed local community officials; county officials; bankers; insurance and real estate agents; local building industry representatives, including contractors, architects, engineers, and a land surveyor; local representatives of environmental groups; and private citizens to obtain their views as to the effect of flood insurance on development.

The information we obtained as to whether the flood insurance program was encouraging development in coastal and barrier island communities is limited to those types of communities and cannot be extended to flood-prone riverine and lake communities. Our review of FEMA's enforcement of flood plain management regulations and its detection of flood insurance misratings is, however, generally applicable nationwide since, in the course of our work at the regional offices and headquarters, we covered all aspects of the program.

CHAPTER 2

FLOOD INSURANCE: NOT A SIGNIFICANT FACTOR IN ENCOURAGING COASTAL AND BARRIER ISLAND DEVELOPMENT

A multitude of factors influence a builder to construct, an individual to occupy a structure, or a businessman to locate in a coastal or barrier island community. The primary reason for this development is desirability of the location for retirement and recreation purposes. Other factors promoting development include the availability of a community infrastructure, the availability of capital, and the viability of the local economy.

We did not undertake the type of statistical analysis required to measure the influence of flood insurance as a factor affecting development. However, based upon the data analyzed, opinions obtained, research studies reviewed, and our observations, we have concluded that the availability of flood insurance is not the principal reason for this development, but it offers a marginal added incentive to development. Many people believe that development would still take place in most communities without flood insurance but at a slower pace, by more creditworthy individuals, and for less costly and durable structures.

DEMAND FOR LOCATION

We found that development in coastal and barrier island communities is growing at a rapid pace because of the many attractive features which these locations offer. Some people told us that they were primarily attracted to their community because of the beaches and the recreational and retirement opportunities that they provide. The desire for beach living is further evidenced by the fact that communities do rebuild after devastating storms. For example, both Ocean City, Maryland, and Bethany Beach, Delaware, were rebuilt after being hit by a storm in 1962--6 years before the flood insurance program was created.

None of the research studies we reviewed attributed development in coastal and barrier island communities to the existence of flood insurance, but some reported on the increased growth in these types of communities and the reasons for the growth. A study 1/ on barrier island development stated:

> "Despite the hazards, development on barrier islands has been growing at a rate greater than 6,000 acres per year * * *. In 1950, only some 90,000 acres were

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1/Sheaffer & Roland, Inc., Barrier Island Development Near Four National Seashores, prepared for the Council on Environmental Quality, the Federal Emergency Management Agency, and the Departments of the Interior and Commerce (Washington, D.C., April 1981).

developed; the Department of Interior reported that 228,680 acres were developed by 1973-74, and an estimated 280,000 acres by 1980."

Another study 1/ reported that people desire to locate in coastal and barrier island communities because they are "richly endowed with natural resources, abundant wildlife, agricultural lands, commercial and sport fishing resources, and diverse recreational potential." A National Science Foundation study 2/ stated:

"Some of the most scenic and valuable recreational areas are on coasts. Few of us want to give up the convenience that shorefront hotels, condominiums, restaurants, and shops provide."

* * * * *

"In summary, an almost unlimited number and variety of attractions exist which draw people to communities and jobs within coastal flood prone areas."

With regard to the impact of flood insurance on community development, the FIA report 1/ stated:

"In many coastal areas one finds a great market demand for ocean-related living and recreation, a demand that peaked in the mid-to-late 1960's and early 1970's, before the recession. The demand existed well before the National Flood Insurance Program was in force."

OTHER MAJOR FACTORS PROMOTING DEVELOPMENT

We found that there were other major factors also promoting development of coastal and barrier island communities. These factors include bridge access to barrier islands; community infrastructure such as roads, water, sewers, and utilities; the availability of mortgage and investment capital; construction costs; the state of the economy; and regional and local economic conditions.

Many of the people we interviewed and the research studies we reviewed pointed out that these other factors were more important to development than flood insurance. For example, Maryland State officials advised us that a new bridge was responsible for

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1/H. Crane Miller, Coastal Flood Hazards and the National Flood Insurance Program, FIA-9/March 1981, prepared for the Federal Insurance Administration, Department of Housing and Urban Development (Washington, D.C., June 1977).

2/National Science Foundation, A Report on Flood Hazard Mitigation (Washington, D.C., September 1980).

increased development in Ocean City. In this regard, the barrier island study 1/ stated that bridge access is the primary need for barrier island development. We also noted that a developer was installing the first sewer line to link Folly Beach with Charleston, South Carolina, in order to build new townhouses in Folly Beach. No one whom we interviewed believed that flood insurance was the principal factor encouraging development.

OUR ANALYSIS SHOWS NO RELATIONSHIP BETWEEN DEVELOPMENT AND FLOOD INSURANCE

We did not attempt to statistically measure the degree to which flood insurance influenced development because, in our opinion, this approach offered a low probability of success at an acceptable level of precision. We did, however, examine the relationship between the rate of community development and the availability of flood insurance. We analyzed data both before and after a community entered the program. We used (1) available Bureau of the Census data on population, per capita income, and new housing units authorized by building permits and public contracts in the United States and (2) building permits which the six selected communities reportedly issued. Not all the data was available for each community, and that which was available was not always complete. Consequently, our analysis concentrated on population growth and increases in housing units authorized for construction. Appendix IV presents our detailed analysis of population growth and housing units authorized for construction. A summary of this analysis follows.

We obtained data on the size of permanent population from 1960 through 1980 for the five States and the six selected communities in our review. Five of the six communities have had permanent population growth. We compared the rate of population growth in this 20-year period with the dates the communities entered the program. Generally, the communities were growing before their entrance into the program from 1960 to 1970 and this rate of growth continued from 1970 to 1980. Because the availability of flood insurance is one of the many other factors that promote community development, and because we did not take into account the other factors, we cannot conclude from this data the significance of the relationship between flood insurance availability and the rate of increase in permanent population.

Our analysis of permanent population growth did not include the growth of seasonal population or account for all the development taking place in these communities. For example, Ocean City had a permanent population increase from 1,493 to 4,946 from 1970 to 1980, or an increase of about 3,500 people in 10 years. In

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1/See footnote 1 on page 7.

this same 10-year period more than 10,000 housing units were authorized for construction. Ocean City officials provided data that showed the average summer population was 200,000 people. To account for both permanent and seasonal population growth, we used the data on new housing units authorized by building permits and public contracts in the six communities to see whether this increased development could be attributable to the availability of flood insurance.

We obtained data on new housing units authorized for a 10-year period for the Nation and the three larger communities but were only able to obtain this data from 1977 to 1980 for the three smaller communities. New housing units authorized were increasing in all three larger communities prior to their entrance into the flood insurance program and continued to increase thereafter. We were unable to attribute the rate of increase in new housing units authorized to the availability of flood insurance because of the many other factors that promote community development. The annual increases and decreases in new housing units authorized, which generally paralleled the rise and decline of total housing units authorized in the Nation, seemed to be more directly related to the state of the economy than the availability of flood insurance.

FLOOD INSURANCE: A MARGINAL ADDED INCENTIVE

Flood insurance is not the principal reason for flood plain development, but many people believe it is a factor in that development. They believe that flood insurance (1) provides financial security to lenders to make loans and to individuals to buy homes or make investments and (2) requires that buildings constructed meet certain standards, thus providing communities with greater confidence to allow construction in such areas and individuals with a more secure feeling of having a safer structure.

We interviewed 115 people familiar with the flood insurance program and the development taking place in coastal and barrier island communities, including 12 Federal officials, 46 State and local government officials, and 57 business people and private citizens. The Federal officials were responsible for assisting local communities in implementing flood plain management regulations and for monitoring and enforcing compliance with these requirements. The State and local government officials were responsible for coordinating, implementing, and enforcing flood plain management regulations. The business people and private citizens included insurance agents, bankers, and builders who were subjectively selected from a variety of sources, such as a FEMA listing of flood insurance agents, Chamber of Commerce literature, telephone directories, and suggestions by people we interviewed. Each person was involved with some aspect of the program, such as selling flood insurance or designing and building homes in flood-prone areas. The following table summarizes the views of the 115 individuals we interviewed.

Table 1

Summary of Views Regarding
Impact of Flood Insurance on Development

Groups interviewed	Reasons program aided development: Financial security	Better construction	No particular reason	No impact and no opinion	Program discouraged	Total
Federal officials	3	6	1	2	0	12
State officials	6	12	7	0	0	25
Community officials	5	9	4	3	0	21
Business people	24	11	10	11	1	57
Total	38	38	22	16	1	115

No one cited flood insurance as the principal factor encouraging flood plain development, but 98 of 115 people interviewed thought that flood insurance aided development. The primary reasons given were financial security and better construction standards. Fifteen people said that flood insurance had no impact on development and one had no opinion. Federal, State, and local community officials thought that the primary reason the flood insurance program aided development was the better construction standards required under the program. Business people thought that the most important reason the program aided development was the financial security the program provides.

Financial security

Of the 38 people who thought that financial security of the flood insurance program aids development, 14 were government officials and 24 were business people. These individuals gave various reasons for their opinions, depending upon their background and position. Some of the comments we received are as follows:

--Lenders in the Galveston area were "reluctant" to make loans for development in certain areas of the flood plain prior to the flood insurance program.

--The flood insurance program is very important to the middle-class individual desiring a vacation or retirement home. Without it, lenders would require greater equity to protect their interest.

--The big multifamily project developers on the island see the flood insurance program only as a further "sweetener" in lessening their investment risks.

--The program acts as a "catalyst" but does not enter the economic picture.

Research studies have also addressed the financial security aspects of the flood insurance program. For example, the Coastal Flood Hazard study 1/ stated:

> "In most coastal communities, the National Flood Insurance Program has not affected basic investment decisions as to the availability of financing. In such communities the principal change in lending practices wrought by the National Flood Insurance Program is the requirement of flood insurance as a condition of financing, which the financial community has accepted, and enforced, both because it is mandatory and because it provided additional security for their loans."

Better construction

While more business people thought that the financial security of the program aids development, more government officials thought that the program enhances development because it requires better structures to be built. Of the 38 people who thought flood insurance enhances development because of better construction, 27 were government officials and 11 were business people. For example, of the 10 Federal officials who believed flood insurance enhances development, six thought that flood insurance provided for better flood plain management and better construction procedures which should reduce flood damage. Some other comments we obtained, concerning better structures as enhancing development, are as follows:

--The impact was a better quality and perhaps a larger structure built.

--Without the flood insurance program only the small, very expendable "blowdown" homes would have continued to be built.

--The flood insurance program has had a positive impact on better development--specifically, better quality and safer homes.

CONCLUSIONS

The flood insurance program does not discourage new construction and development from occurring in the flood plain of coastal and barrier island communities, nor is the flood insurance program

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1/See footnote 1 on p. 8.

the principal reason for that development. While we did not statistically determine the degree of influence that flood insurance has had on development, our other analyses, reviews, interviews, and observations lead us to believe that flood insurance offers a marginal added incentive to development in the coastal and barrier island communities because it offers financial security against the risk of loss, and requires better construction.

CHAPTER 3

SHOULD FLOOD INSURANCE BE AVAILABLE FOR DEVELOPMENT IN HIGH HAZARD AREAS?

Development in coastal high hazard areas is permitted if certain flood plain management requirements have been met. Recent information, our observations in the field, and discussions with community officials revealed that past development in some coastal high hazard areas may have been unwise because wave heights from storms and the stability of structures to withstand wave impacts had not been considered. FEMA has recently revised its insurance rating system to encourage elevation to at least the wave height level in the coastal high hazard areas as an interim measure--until new maps are developed which reflect wave heights and are adopted as part of the local flood plain ordinances. Even with this recent improvement, the Congress should reconsider whether it is desirable public policy to continue providing flood insurance for new or substantially improved structures in high hazard areas adjacent to the coast--referred to as wave velocity areas or V zones--because of unavoidable potential for loss of life and destruction of property in these areas. At the same time the Congress should reconsider whether Federal financial assistance for acquisition, construction, or reconstruction purposes should continue to be provided in the coastal high hazard areas. The policy question involved is whether the Federal Government, through its assistance programs and tax laws, should share in the risks or whether individuals who build in coastal high hazard areas in the future should assume the full risks of losses.

DEVELOPMENT IN FLOOD PLAIN NOT PROHIBITED

The Congress intended that the National Flood Insurance Program encourage wise land use. In discussing revisions to the act in 1973, the Senate Committee on Banking, Housing, and Urban Affairs (Senate Report No. 93-583) noted that community participation in the program did not mean that no construction could take place in flood-prone areas. The report quoted an FIA official who stated:

> "Not only does the program not deny the community the right to utilize its flood plains to the extent reasonably necessary, but FIA has made clear that if new construction is properly elevated (or alternatively, flood-proofed, in the case of nonresidential properties), then the actuarial flood insurance rates that would be charged would not be significantly higher than subsidized rates. It is the virtue of the program in its present form that builders themselves determine, by how sensibly they build, how affordable flood insurance rates are going to be."

REQUIREMENTS FOR DEVELOPMENT

Flood plain management criteria require local jurisdictions to enact land use and control measures to guide wise development in the flood plain as a condition to participate in the insurance program. The criteria in the coastal high hazard areas for new construction and substantial improvements include:

--Locating structures landward of the mean high tide.

--Elevating structures on adequately anchored pilings or columns and securely anchoring structures to such piles or columns so that the structural members of the lowest floor are elevated to or above the base flood level. A registered professional engineer or architect must certify that the structure is securely anchored to adequately anchored pilings or columns in order to withstand velocity waters and hurricane wave wash from a 100-year flood.

--Requiring space below the lowest floor to be free of obstructions or to be constructed with "breakaway walls" intended to collapse under stress without jeopardizing structural support. Such space shall not be used for human habitation.

--Prohibiting man-made alterations of sand dunes and mangrove stands which would increase potential flood damage.

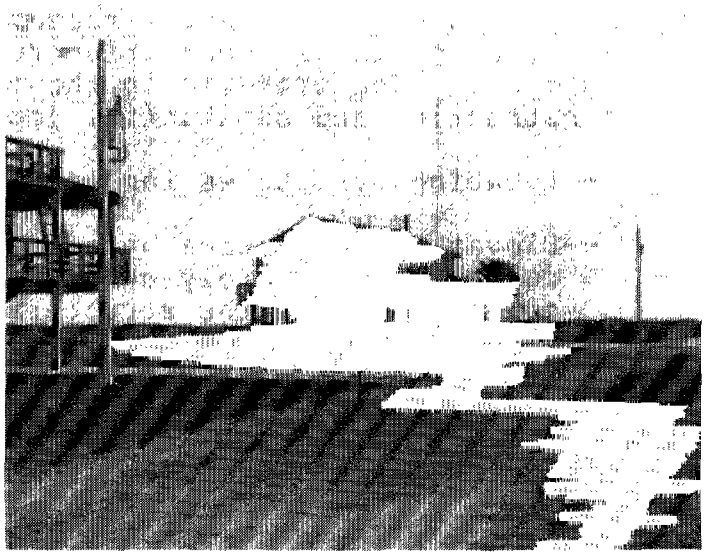
In the six communities that we visited, development was occurring in the coastal high hazard areas. The pictures on the following page are examples of the type of construction being permitted.

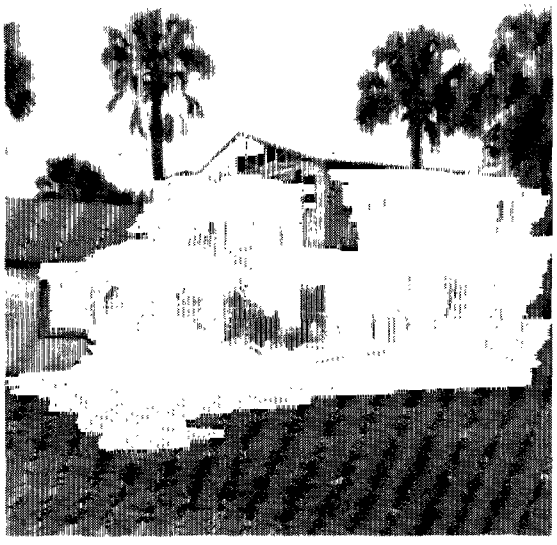
DEVELOPMENT IN HIGH HAZARD AREAS

Structures in the flood plain are required to be elevated a certain number of feet above the ground elevation as determined by the base flood elevation on a community's flood insurance rate map. Insurance rates are based on the structure's elevation--the higher a structure is elevated, the lower the insurance rate. As FEMA gained experience in the coastal high hazard areas, it found that two key risk factors had not been taken into consideration--wave heights in storms and the stability of the structures to withstand wave impacts.

With this additional knowledge, FEMA considered rejecting flood insurance in coastal high hazard areas for new structures not elevated to the wave height level. However, in October 1981 FEMA finalized its insurance regulations to continue to provide flood insurance in the coastal high hazard areas. Until new maps are prepared to include wave heights, insurance rates will be based on existing base flood elevations and the addition of a 0.55 wave height factor. FEMA estimates that insurance rate revisions will affect about 3,000 new structures annually.

TYPICAL NEW FLOOD PLAIN CONSTRUCTION. (Galveston, Tex.)





CONTRAST OF OLD AND NEW CONSTRUCTION, WITH NEW ADDITION TO OLDER HOME ELEVATED ACCORDING TO REQUIREMENTS. (Folly Beach, S.C.)

OCEAN FRONT WITH CONDOMINIUMS IN THE BACKGROUND. REGULATIONS DO NOT PROHIBIT CONSTRUCTION ON THE OCEAN FRONT NOR IS FLOOD INSURANCE DENIED. (Ocean City, Md.)

FEMA believes that the revised insurance rating system will provide for wise development in the coastal high hazard areas while the communities are remapped and their flood plain management ordinances are amended to include wave heights from storms in the base flood elevations. Of the 1,400 East and Gulf coast communities subject to coastal flooding, FEMA has identified 800 communities with significant wave height hazards and expects to add wave heights to these communities' flood insurance rate maps by about fiscal year 1986. The new insurance rating system is an interim measure until all affected communities can be remapped to reflect wave heights.

CONTINUED DEVELOPMENT MAY BE UNDESIRABLE

It may be undesirable public policy to continue developing the coastal high hazard areas. Structures in these areas are subject to a high risk of destruction and loss. For example, a Geological Survey report 1/ discussing Hurricane Frederic in September 1979 reported that "Most beachfront homes in the Gulf Shores, Alabama, area were either demolished or severely damaged by high winds and tidal surge * * *." This destruction is pictured by the Corps of Engineers on the next page.

Texas researchers reported that, on the average, the Texas coast experiences one hurricane or tropical storm every year. As a result of Hurricane Allen in August 1980, FEMA paid over $9 million on 912 flood claims to South Padre Island, Texas, policyholders alone. Information in the claim files indicated that structures on both the Gulf and bay sides of the town were damaged by flooding, wave impact, and winds. In addition, wave undermining and scouring damaged seawalls, sidewalks, utility lines, and yards. The 1,405 policyholders there in November 1981 were paying over $255,000 a year for over $56 million worth of flood coverage.

Hurricanes and tropical storms are not the only source of sudden damage. On the Atlantic coast, "northeasters" have caused considerable losses also. For example, a March 1962 storm along the mid-Atlantic coast cost 32 lives and $500 million in property damage between Cape Hatteras and Cape Cod. By 1980, the year-round population in the area had tripled and investments had increased tenfold, creating even greater potential for future loss.

Property owners can currently shift part of the cost of development in the coastal high hazard areas to others, since the

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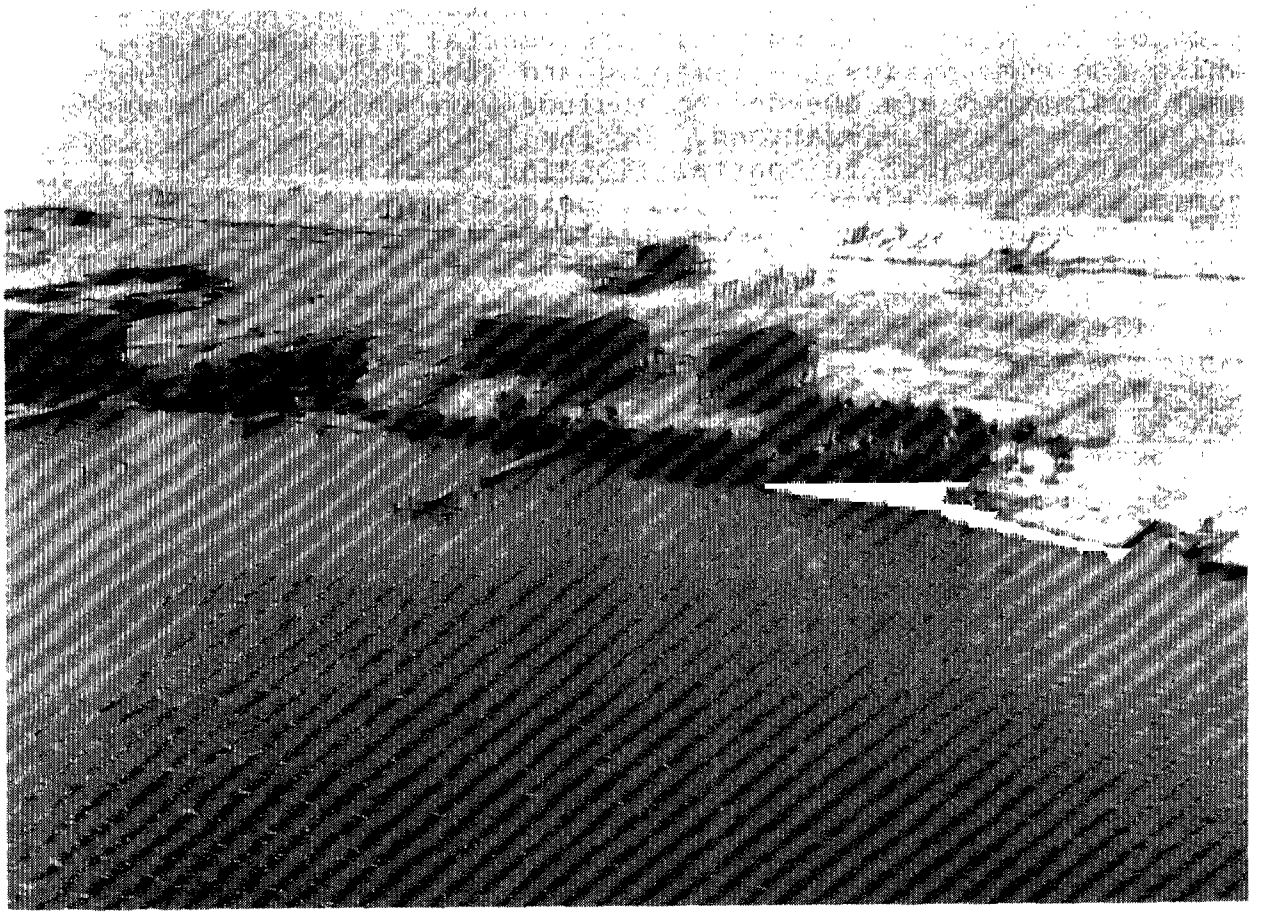
1/W. W. Hays, ed., Facing Geologic and Hydrologic Hazards: Earth-Science Considerations, Geological Survey Professional Paper 1240-B, Department of the Interior (Washington, D.C., 1981).



SECTION OF BEACH AT GULF SHORES, ALA., AFTER HURRICANE FREDERIC IN 1979.

Source: U.S. Army Corps of Engineers, Mobile District

DEBRIS FROM EROSION AT FOLLY BEACH, S.C.

public at large generally bears the cost of urban services provided to such property, such as utilities and streets. The latter usually need extra repairs also after a severe storm. Emergency evacuation and other relief costs are paid by various groups, both governmental and nongovernmental.

A major fear among those involved in planning for disasters is that the local road systems will not be able to handle the mass evacuations of people from low-lying coastal areas before a storm hits. The Army Corps of Engineers estimated that 950,000 people left the Texas coastal area ahead of Hurricane Allen at a cost of about $41 million to the evacuees for transportation, food, and lodging. They also "became involved in one of the biggest traffic jams ever seen along the Texas coast * * *" with trips requiring three to four times the normal time.

The National Weather Service Evacuation Map for Galveston points out that 5-foot tides would virtually isolate Galveston Island from the mainland and that, based on past records, tides up to 5 feet occur on the average every year, while 5- to 10-foot tides occur every 5 years. The Service's records also show that approximately 9 out of every 10 persons who lose their lives during hurricanes are drowned in tidal waters.

Destruction and loss in coastal high hazard areas is not always swift and violent. These zones are also subject to the normal process of beach erosion over time. For example, Folly Beach has had a serious erosion problem for many years. During the past 40 years the ocean has moved inland four city blocks. Debris from this erosion is depicted in the two smaller pictures on page 18.

Ocean City, Bethany Beach, and South Padre Island are also experiencing active, although gradual, erosion. To the extent that gradual erosion brings water closer to structures and their occupants, it increases the potential for storm damage. To reduce the coastal beach erosion problem at Ocean City, for example, the U.S. Army Corps of Engineers has developed alternative plans for shoreline protection. The most comprehensive plan calls for construction of artificial dunes, construction of a bulkhead in the boardwalk area, and an annual beach replenishment program of 100,000 to 200,000 cubic yards of sand. The cost estimate for this project was $8 to $22 million in 1978. A U.S. Geological Survey study reported that attempts to stabilize the beaches and protect property along the mid-Atlantic barrier islands have cost tens of millions of dollars in private and public funds over the past two decades.

Many scientists in Government and in research programs are deeply concerned about the risk associated with living in coastal communities and on barrier islands along the Atlantic and Gulf coasts. The Administrator of the National Oceanic and Atmospheric Administration has stated that a hurricane will kill hundreds, if not thousands, of Americans and cause billions of dollars in

property damage. A researcher at the University of Colorado has stated that the most rapidly growing sites for catastrophic events in the United States are the Gulf and Atlantic coasts.

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To limit new development on undeveloped barrier islands, the Congress, in the Omnibus Budget Reconciliation Act of 1981, enacted legislation which will bar flood insurance for new construction or substantial improvements on undeveloped 1/ barrier islands after October 1, 1983. The Congress intends that this will limit growth on the barrier islands and protect the public's interest from loss of life and property and the need for disaster relief. Other legislation is also being considered (S. 1018 and H.R. 3252) which, if enacted, would reduce Federal expenditures on the undeveloped barrier islands and provide a disincentive to development.

No legislation is being considered to bar flood insurance for new construction or substantial improvements in the developed coastal high hazard areas. Even without flood insurance, however, these developed areas would still be eligible for Federal financial assistance for acquisition and construction purposes, disaster assistance, and for casualty losses, accelerated depreciation, and other deductions under the tax laws.

CONCLUSIONS

The flood insurance program does not prohibit new construction and development from occurring in the high hazard areas of coastal and barrier island communities. Some development in these areas may not be able to withstand foreseeable flood risks. Continuing to provide Federal flood insurance in the coastal high hazard areas may not be desirable public policy. In the long run, there is no assurance that these structures and their occupants will safely survive the ravages of major storms and hurricanes or the eventual erosion of the shoreline that occurs in many coastal areas.

The Congress, in the Omnibus Budget Reconciliation Act of 1981, enacted legislation which bars flood insurance for new construction or substantial improvements on "undeveloped" barrier islands after October 1, 1983. The Congress intends that this will limit growth on the undeveloped barrier islands and protect the public's interest from loss of life and property and the need for disaster relief.

It is, therefore, an appropriate time for Congress to consider whether it is wise to continue providing flood insurance for new or substantially improved structures in high hazard areas of

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1/The Department of the Interior is responsible for determining the areas affected by this legislation.

coastal and barrier island communities participating in the flood insurance program. The Congress should also be aware, however, of the consequences of discontinuing flood insurance in these areas if it chooses to do so. Specifically, those suffering uninsured losses in these high risk areas could seek benefits under the disaster relief program and provisions of the tax code which, in the end, could cost taxpayers more than the current costs of flood insurance in these areas. For this reason, the Congress, at the time it considers whether flood insurance should be available to these areas, must also consider whether to continue to provide other Federal financial assistance for acquisition and construction purposes, disaster assistance, and tax benefits. This approach involves some very difficult choices that will be viewed by some as equitable and by others as inequitable.

MATTER FOR CONSIDERATION BY THE CONGRESS

The Congress is faced with the difficult choice of (1) continuing to insure new and substantially improved construction in coastal high hazard areas where the potential property damage and loss of life is exceedingly high or (2) denying flood insurance in these areas after some future date. The basic question is whether, after some future date, the Congress wishes to have potential losses relating to new or substantially improved construction borne solely by those continuing to build or buy in these areas, or to continue to have the Federal Government share in the potential losses. Any action by the Congress to deny flood insurance must also include difficult choices of retaining or denying the advantages, disadvantages, and consequences of other Federal financial assistance, disaster relief, and tax benefits, because just denying flood insurance on new construction and improvements in high hazard areas will not eliminate the availability of other forms of Federal relief. Consequently, the Federal Government and potential victims of natural disasters would continue to share risks in high hazard areas.

CHAPTER 4

MONITORING PROGRAM INADEQUATE FOR ENFORCING FLOOD PLAIN MANAGEMENT REGULATIONS

The successful mitigation of flood hazards in the United States is dependent upon the adoption and enforcement of sound flood plain management practices at the local government level. FEMA's program for monitoring local practices does not provide sufficient information on how well flood plain management regulations are being enforced by communities in the flood insurance program. For example, FEMA has established a goal of monitoring about 20 percent of the regular program communities in the flood insurance program each year. For the 5 years ending September 30, 1981, FEMA had visited only 77 percent of the number of communities that it intended to visit. FEMA Regions IV (Atlanta) and VI (Dallas) attained only about one-third of their goal, yet the two regions account for about 70 percent of policies in force and new construction in the flood plains and about 57 percent of total insurance claims paid to date. FEMA's overall lack of knowledge of the program will continue until it develops and implements a centralized control system over its monitoring program.

In our work at five selected communities we found that local officials have difficulty interpreting and enforcing the flood plain management regulation dealing with the enclosure and use of the ground level of elevated structures in coastal high hazard areas. FEMA has also recognized the difficulty of enforcing this regulation but has been unable to satisfactorily resolve the problem.

PROGRAM LACKS OVERALL DIRECTION AND CONTROL

FEMA conducts a limited monitoring program to determine how well communities participating in the flood insurance program are enforcing flood plain management regulations. The key element of this program is a visit by FEMA representatives to an individual community, referred to as a Community Assistance and Program Evaluation (CAPE) visit. A community's annual reports, claims data, tips, and similar information provide some information about the community, but there is no adequate substitute for personal contact in the community.

A CAPE visit involves meeting with local officials and other community people, a review of construction permit procedures, and a field inspection of new construction occurring in the flood plain. The objectives of a CAPE visit are to explain and clarify the program (community assistance) and to check on a community's implementation of its flood plain management regulations (program evaluation).

FEMA's monitoring program is performed primarily by its regions with little overall headquarters direction or control. Regions select the communities to be visited, visit those which they can, identify community problems, and resolve them on their own. Some States perform CAPE visits for the regions.

We found that FEMA's regions visited too few communities, that they selected communities for visits without adequately considering many important aspects of the program, such as construction activity and insurance coverage, and that headquarters did not analyze and evaluate the results of CAPE visits. As a result, FEMA has little assurance that its monitoring program is effective and that its criteria are being enforced.

FEMA needs to systematically evaluate the results of regional visits to communities in order to assess the adequacy and effectiveness of these efforts and identify the types of problems being encountered. Such analyses would enable FEMA to direct the future efforts of its regional offices and the local communities. It also needs to analyze this information in conjunction with overall program data available to headquarters to identify and direct future visits to communities most in need of assistance and evaluation.

Number of community visits is limited

FEMA headquarters issued an August 1977 memorandum to regional directors setting a goal of visiting all regular program communities over a 5-year period. FEMA officials told us that this generally means that each region should visit 20 percent of its communities annually. In May 1981 congressional hearings, the Acting Administrator, FIA, stated that visiting 20 percent of regular program communities is the most that can be done with current regional staff. He indicated that the monitoring effort should be more than doubled.

CAPE visits fall short of goal

Most regions have not been successful in visiting all regular program communities over a 5-year period. CAPE visits have been sporadic and have varied significantly among the 10 regions and from year to year. Regions IV (Atlanta) and VI (Dallas), in particular, have made relatively few CAPE visits. Together, the two regions have visited only about 270 regular program communities since fiscal year 1977, about one-third of their community visitation goal.

FEMA reported that 2,392 CAPE visits to participating communities have been conducted since the CAPE process was initiated in fiscal year 1977. Of these, 2,210 were to regular program communities. Table 2 shows, by year, the number and percentage of CAPE visits made to regular program communities in FEMA's 10 regions.

Table 2

CAPE Visits Made to Regular Program Communities from Fiscal Years 1977 Through 1981

Region	1977			1978			1979			1980			1981		
	Communities (note a)	CAPE's	Percent	Communities (note a)	CAPE's	Percent	Communities (note a)	CAPE's	Percent	Communities (note a)	CAPE's	Percent	Communities (note a)	CAPE's	Percent
I (Boston)	46	0	0	81	39	48	175	18	10	265	46	17	309	50	16
II (New York)	90	11	12	174	67	39	328	54	16	464	59	13	574	b/435	76
III (Philadelphia)	81	10	12	300	20	7	539	116	22	795	92	12	1046	173	17
IV (Atlanta)	199	36	18	290	39	13	457	28	6	578	8	1	750	33	4
V (Chicago)	122	0	0	191	60	31	433	80	18	678	44	6	977	102	10
VI (Dallas)	131	0	0	180	34	19	301	45	15	413	5	1	573	42	7
VII (Kansas City)	46	0	0	115	54	47	228	72	32	303	5	2	416	35	8
VIII (Denver)	23	3	13	37	19	51	96	22	23	157	31	20	249	6	2
IX (San Francisco)	22	13	59	40	15	38	82	18	22	167	9	5	252	48	19
X (Seattle)	28	1	4	48	13	27	113	28	25	180	26	14	246	46	19
Total	788	74	9	1,456	360	25	2,752	481	17	4,000	325	8	5,392	970	18

a/Because the number of regular program communities was increasing continually over this 5-year period and during each year, we used the number of regular communities as of the first day of the fiscal year. We believe this is a more reasonable approach for this analysis.

b/FEMA's headquarters did not distinguish between CAPE's prepared by FEMA regional representatives and those prepared by States. Headquarters staff estimated that at least one-half of the CAPE's prepared in region II in fiscal year 1981 were done by New York and New Jersey. Other States making CAPE visits included Wisconsin (region V) and Washington (region X).

Table 2 shows that most regions did not make CAPE visits to 20 percent of their regular program communities in any one of these 5 years. Nationwide, the goal was reached only in 1978. It should be noted that visiting 20 percent of regular program communities is a continually increasing goal. The table shows that the number of communities entering the regular program increased at least sixfold in 8 of the 10 regions from 1977 to 1981. Currently, more than 7,000 communities are in the regular program.

Table 2 also shows (1) little consistency from year-to-year in any region as to the percentage of regular program communities receiving a CAPE visit and (2) within each fiscal year little consistency of coverage among the regions. In many instances the percentages are very erratic. Regions IV and VI, in particular, have had a low percentage of CAPE visits during the last 3 fiscal years. These variations occur because each regional office decides how many CAPE visits will be conducted after considering available resources and other priorities.

What further complicates plans to visit a given percentage of all communities is that enforcement of flood plain management regulations by these communities will often depend on the commitment and knowledge of community officials. However, community personnel, such as building inspectors and town managers, have a high rate of turnover. As a result, FEMA personnel are constantly faced with the need to revisit communities and educate newly elected or appointed community officials concerning flood plain management regulations and procedures.

Because of the rapid growth in regular program communities over the 5-year period, we computed the number of CAPE visits FEMA should have made each year to attain the 20-percent annual goal. For example, 100 percent of the communities entering the program in 1976 should have been visited by the end of 1981, 80 percent of the communities entering the program in 1977 should have been visited by the end of 1981, and so on. A comparison of the results of these computations with the number of CAPE visits actually made by FEMA shows that overall it achieved only 77 percent of its goal. Region II (New York) exceeded its goal by a wide margin, but with the assistance of some States within the region. As table 3 shows, regions IV (Atlanta) and VI (Dallas) again fell far short of the goal.

Table 3

Visits If CAPE Goal Attained
Compared with Actual CAPE Visits

Region	No. of CAPE visits if goal attained	No. of actual CAPE visits	Percent of goal attained
I (Boston)	175	153	87
II (New York)	325	a/626	193
III (Philadelphia)	553	411	74
IV (Atlanta)	454	144	32
V (Chicago)	480	286	60
VI (Dallas)	320	126	39
VII (Kansas City)	222	166	75
VIII (Denver)	111	81	73
IX (San Francisco)	113	103	91
X (Seattle)	123	114	93
Total	2,876	2,210	77

a/FEMA believes that about half the fiscal year 1981 visits in region II were made by State personnel. If so, then region II would have attained about 126 percent of its goal.

Limited resources for conducting regional monitoring activities

Officials in regions IV and VI told us that the resources that could be allocated to monitoring local communities were not adequate to make the number of CAPE visits needed. Although region III officials believed that their monitoring efforts were adequate, they also preferred to have more staff to conduct CAPE visits.

Information obtained from the three regions included in our review--Atlanta, Dallas, and Philadelphia--showed that resources allocated to monitoring will not increase significantly in fiscal year 1982. Region III planned 260 CAPE visits for fiscal year 1982, which provided coverage for about 20 percent of the regular program communities. However, in a reorganization in late 1981, region III lost several staff responsible for conducting the CAPE visits. As a consequence, the number of CAPE visits scheduled for 1982 was reduced to 151, enabling the region to visit only about 11 percent of regular program communities. Region IV's operating plan showed that only 90 CAPE visits, or about 10 percent of its regular program communities, could be made with its available resources. Region VI set a goal of about 110 visits for fiscal year 1982, which represents visiting only 15 percent of regular program communities. A region VI official also informed us that any disaster response and recovery requirements in region VI (budgeted at no time for fiscal year 1982) would be taken from the CAPE staffyear resources.

FEMA officials consider the 20-percent goal to be a minimum goal and maintain that more resources are needed for monitoring. However, FEMA has no studies supporting any specific number of CAPE visits that should be made annually. Furthermore, the size and scope of the flood insurance program appears to make it impractical to try to cover all communities with periodic visits by FEMA representatives. More assistance from State personnel would be an alternative, but only one of the five States we visited expressed any interest in making CAPE visits. FEMA should develop a better method of selecting communities most in need of assistance and evaluation.

Community selection method should be improved

FEMA should change its method for selecting communities to visit to improve the value of its monitoring activities and enable it to better use its available staff resources. Selection of communities to visit is made by each individual region using various sources of information. This selection process has resulted in an imbalance in monitoring coverage because the number of communities participating in the program, the amount of flood insurance in force, new construction, and flood losses--principal components of the program--are not equally distributed among the regions. FEMA could improve the effectiveness of its monitoring program if it obtained and analyzed available information from all participating communities and provided better direction and guidance to the regions for their use in selecting communities to visit.

Selection not based on all available information

The three regions included in our review select communities for monitoring visits using various sources of information available to them. Region III criteria include selecting communities from each State in its region, the degree of recent or potential development within a community's flood plain, tips and suggestions from knowledgeable sources, and past experience with individual communities. Region IV's visits are usually generated by complaints concerning a community's lack of enforcement. The region also considers a large number of construction variances contained in a community's annual report and problems noted during previous visits. Region IV officials refer to their scheduling process as "sporadic" and their detection of problem communities as largely "hit or miss." Region VI identifies potential enforcement problems through postdisaster investigations, information contained in community annual reports, and complaints or tips.

The regions are not considering available information from a nationwide perspective, and consequently an imbalance exists in FEMA's selection of communities to monitor. Insurance coverage, new development activity, and claims losses are principal components of the flood insurance program, yet CAPE visits

are not being made to many communities where these activities are occurring.

We identified FEMA studies and data which showed that principal components of the flood insurance program are heavily concentrated in regions IV and VI, yet these two regions make few CAPE visits relative to other regions. For example, an August 1980 analysis of policies in force revealed that 73 communities in four areas accounted for 38 percent of the total policies. These areas are Houston and Galveston, Texas; New Orleans, Louisiana; and Tampa/Fort Myers and Miami/Fort Lauderdale, Florida. This analysis also showed that 51 percent of the policies were in Texas, Louisiana, and Florida. We also noted that 74 percent of flood losses paid in calendar year 1980 were in regions IV and VI.

A September 1981 analysis of permits granted in 1980 for new construction in flood hazard areas revealed that 54 percent of the permits were granted in Florida. Twelve Florida communities issued 39 percent of the permits, yet none of these communities had received a CAPE visit as of the end of fiscal year 1981.

For each FEMA region we compared the insurance coverage, construction activity, and claim payments in calendar year 1980 with CAPE visits made in fiscal year 1981. This comparison showed that although regions IV and VI accounted for 70 percent or more of the flood insurance program's insurance coverage, permit activity, and flood losses, these two regions made only 75 CAPE visits, or less than 8 percent of the CAPE visits made by all regions in fiscal year 1981.

A major objective of a CAPE visit is to ensure that communities are properly issuing permits for new construction in the flood plain and enforcing the regulations for proper elevation and secure anchoring. To determine whether FEMA was selecting communities with significant new development in the flood plain, we compared CAPE visits made during fiscal year 1981 with the number of construction permits reported by participating communities in calendar year 1980. Table 4 shows that CAPE visits were generally not being made in those communities with recent, significant flood plain development. Almost 46 percent of the visits were made to communities reporting no permits granted in the flood plain. In contrast, only 12 percent of the visits were made to communities reporting 10 or more permits issued in the flood plain.

Table 4

Comparison of Construction in the Flood Plain with CAPE Visits Made in Fiscal Year 1981

Number of construction permits granted	CAPE visits made Number	Percent
0	405	45.8
1 to 9	202	22.8
10 or more	110	12.4
No annual report submitted	168	19.0
Total	a/885	100.0

a/Although FEMA reported that 1,037 CAPE visits were made in fiscal year 1981, only 885 were included in FEMA's automated files.

Annual reports not effectively used

FEMA's principal source of information on communities in the flood insurance program is an annual report. This report is a one-page form requiring information on such activities as construction permits granted, variances, population, and number of structures in the flood plain and in the entire community. We found that 20 percent of the communities did not submit the required annual report for calendar year 1980 and that FEMA did not effectively use the reports which were submitted.

To participate in the flood insurance program, a community must legislatively designate an official to submit an annual report to the FIA. The primary objectives of the annual report are to enable FEMA to

--be more responsive to the changes that occur in each community, including new corporate boundaries, new flood hazard areas, and new flood plain management measures, and

--evaluate the effectiveness of a community's flood plain management measures.

Each year FEMA sends the annual report form to participating communities and requests that it be completed and returned. If a community fails to comply with this request, FEMA sends a second request. FEMA takes no other action to obtain the annual report. For calendar year 1980, about 20 percent of the communities did not submit an annual report. FEMA headquarters receives the

reports, enters the data in computer files, and then distributes copies to the applicable regional office.

The low priority that FEMA gives to the annual report is demonstrated by the fact that for calendar year 1981 FEMA did not request communities to submit annual reports in order to save the cost of mailing and processing the forms. Regional views vary on the usefulness of the reports. For example, FEMA Region III officials told us that they do not normally use them for any management purpose. From past experience they have often found the reports to be incorrect or incomplete. Region IV officials did not know how many annual reports they had received nor did they have a system for assuring that all reports for their region were received. Nevertheless, they said that the annual reports serve as the primary tool for determining the need for a monitoring visit. Region VI officials review the annual reports to identify communities with large numbers of construction variances and use this to follow up by phone or visit.

FEMA could provide better direction and guidance to the regions in their selection of communities to visit if headquarters obtained and analyzed the data contained in the annual reports in conjunction with insurance coverage, claims losses, regional reports on prior community visits, and other information available to it. To achieve this, however, FEMA needs to obtain accurate, current, and complete annual reports from participating communities.

Results of community visits not evaluated

Regional monitoring visits have been successful in identifying problems at individual communities. The visits have been useful to FEMA in educating and assisting community officials in dealing with their flood plain management problems. However, headquarters does not know how well this approach is working in terms of the overall program because it does not systematically evaluate the results of these monitoring visits. Such an evaluation would provide FEMA with information necessary to better allocate its limited resources, to identify prevalent community problems that need special attention, and to assess overall community compliance.

The monitoring process followed by FEMA's regional offices identifies problems in a large percentage of the communities visited. We made a limited selection of 43 CAPE reports prepared by FEMA Regions III (Philadelphia), IV (Atlanta), and VI (Dallas) and found that problems were identified in 31 of the reports. As table 5 shows, 72 percent had at least one problem.

Table 5

Analysis of Selected CAPE Reports

Region	Number of communities visited	Communities with at least one problem	Percentage
III (Philadelphia)	15	11	73
IV (Atlanta)	12	9	75
VI (Dallas)	16	11	69
Total	43	31	72

Problems identified involved inadequacies in community flood plain management regulations and lack of evidence to substantiate enforcement of the regulations. For example, eight CAPE reports showed that the communities' regulations needed revision to require the documentation of elevation and anchoring certificates. Nineteen CAPE reports showed such problems as failure to require elevation or anchoring certifications and inadequate documentation to support variances for building in the flood plain.

FEMA regional officials said that most local enforcement problems stem from a lack of understanding of the program and that many problems are corrected by the communities at the time of the CAPE visit or dealt with through correspondence. We found limited evidence in FEMA records to substantiate correction of the problems. The files contain no formal process to document and report on followup efforts to verify that problems are corrected.

We were not able to determine whether our findings were representative of all CAPE visits because FEMA headquarters has not analyzed or evaluated the monitoring reports it has received from the regions. Headquarters does not know whether (1) the number of visits was adequate, (2) the types of communities selected were appropriate, (3) problems were resolved satisfactorily, or (4) the types of problems found and the underlying causes are generally applicable to other communities. Consequently, FEMA has no basis for providing effective direction to its future monitoring program nor does it have overall knowledge about how well participating communities are enforcing the flood plain management regulations.

Criteria and policy statement needed on community suspensions

FEMA has the authority to suspend communities from the flood insurance program if they fail to enforce flood plain management regulations. Few communities have been suspended although

regional officials believe that some are violating the regulations. When communities are suspended, flood insurance cannot be sold or renewed within the community and Federal financial assistance cannot be made available for acquisition or construction purposes.

Many people perceive FEMA headquarters as being reluctant and unwilling to suspend communities--a situation which undermines FEMA's ability to obtain compliance with the regulations to mitigate flood hazards. FEMA needs to develop suspension criteria and issue a formal statement regarding its policy on suspending communities.

Headquarters records show that through March 1982, 10 communities have been considered for suspension from the program for failure to enforce flood plain management regulations. Only three of these communities have actually been suspended. Problems with six communities were or are being resolved without suspension, and one case is still pending. The time to resolve these problems ranged from 7 to 28 months.

FEMA records on these communities showed repeated contacts with community officials and between FEMA regional and headquarters personnel in an effort to satisfactorily resolve the problems. Records on three cases concerned deliberate refusals by community officials to enforce the regulations, yet they were never suspended. After much time and effort on FEMA's part, compliance was finally obtained when FEMA seriously threatened suspension. In one instance, after repeatedly providing additional information to headquarters, regional officials asked what more was needed of them in order to have the community suspended. The community never was suspended. We had difficulty evaluating community suspension files in headquarters because FEMA has no objective criteria specifying the conditions and circumstances under which it will suspend communities. Decisions involving suspension action were based, in large part, on subjective judgment. The lack of suspension criteria is, we believe, a major reason for differing viewpoints among FEMA officials.

Officials and staff members of FEMA's Natural Hazards Branch in region IV (Atlanta) and region VI (Dallas) identified nine problem communities and said that the problems had not been adequately resolved. Three had been formally considered by headquarters and not suspended. The regional officials told us that two of these communities are still violating the regulations. They also mentioned four other communities as repeatedly violating regulations but said that they had not had much luck in having FEMA headquarters sanction or suspend the communities.

Three regional officials and one staff specialist said that they believe that headquarters is reluctant to suspend communities and that the threat of suspension is not being taken seriously by problem communities. This undermines the ability of regional staffs to accomplish their flood hazard mitigation efforts. In

addition, eight other people knowledgeable of the program told us that FEMA headquarters has been reluctant to use its suspension authority. These people included two State flood plain management officials, two former FEMA employees, and two program officials and two staff office officials at FEMA headquarters. A State coordinator for the flood insurance program, in a letter to us, stated that:

> "It has been this kind of overcautious attitude that the [FEMA] Washington office has that has upset so many states and regional flood insurance staff. It does not take many such occasions before the State and regional people feel that the central office will never suspend anybody. Such an attitude is hard to break."

FEMA headquarters has provided regions with procedural guidance on dealing with communities that fail to enforce required flood plain management regulations. A July 1981 memorandum to regional offices from FEMA's State and Local Programs and Support Directorate provided guidelines for determining, documenting, reporting, and acting on cases of community lack of enforcement. However, the memorandum noted that criteria setting out the conditions and circumstances dictating initiation of suspension actions could not be established. The reasons given were that it was difficult to apply uniform standards of measurement to extremely varied community situations and that FEMA did not have enough experience with suspended communities. We do not agree. FEMA has monitored community enforcement activities since 1977 and has made about 2,400 CAPE visits which disclosed numerous and varied enforcement problems. We believe that the CAPE reports of these visits, along with the views of regional staff, would be sufficient to develop adequate suspension criteria. We recognize that as additional experience is gained, the criteria may need to be revised.

The Chief of the Natural Hazards Division at FEMA headquarters told us that FEMA is committed to a stringent monitoring program and intends to suspend communities that are not enforcing their flood plain regulations. However, a formal policy statement to this effect has not been issued.

COASTAL COMMUNITIES UNABLE TO ENFORCE REGULATION

Communities are unable to enforce the regulation pertaining to breakaway walls and enclosure of structures below the base flood elevation (the 100-year flood level) in their coastal high hazard areas. FEMA has recognized this problem but has been unable to resolve it.

Flood plain management criteria for coastal high hazard areas are written to minimize the potential for damage below the base flood elevation. One criteria requires that structures be elevated so that the lowest structural member of the lowest habitable floor is at or above the base flood elevation. Another criteria specifies that the ground level or areas below the lowest habitable floor cannot be used for human habitation and can be enclosed only with breakaway walls that will collapse under the stress of wind-driven water. A homeowner or occupant can use this area for storage or parking. This criteria does not specify the type of breakaway walls permitted. Consequently, either lattice or solid breakaway walls are allowed.

We toured the coastal high hazard areas when we visited the five regular program communities selected for our review. (Since South Padre Island was in the emergency program the breakaway wall regulation does not apply to it.) At Folly Beach, Bethany Beach, and Galveston we observed that the ground floors of many single-family homes were enclosed at least partially with solid walls. This condition was not as evident at Ocean City and Deerfield Beach because of the extensive high-rise development in these two communities. We were not able to determine whether the solid walls we observed were actually breakaway walls and whether the enclosed areas were being used for living space. We would have had to inspect the premises to make these determinations. We also could not determine whether the ground level of the homes had been enclosed before the community entered the flood insurance program; if so, such homes would not be subject to the breakaway wall regulation. However, at one community the building inspector pointed out six homes to us which he said were in violation of the breakaway wall regulation. According to him, the ground level walls of these homes were not breakaway. It also appeared to us that the enclosed areas of these homes were being used as living space.

Community, State, and FEMA officials told us that the breakaway wall regulation was a problem. They said that after approval of initial construction, occupants often enclose the ground level of elevated structures in V zones with solid walls and build living space such as bedrooms, recreation rooms, and kitchens. In such instances, enforcing the breakaway wall regulation is difficult because (1) occupants often do not obtain construction permits for these additions, (2) community resources do not allow continual reinspections of previously approved premises, (3) the solid walls generally require the inspector to gain entrance to the home, and (4) attempts to correct violations can be a problem politically. Further, local officials told us that they questioned the value of the breakaway wall criteria because they are subject to varying interpretations. As a result, communities have varying definitions for breakaway walls, ranging from wood lattice to concrete block.

FEMA recognized the weakness in this criteria and on March 7, 1980, it published a proposed rule in the Federal Register which stated, in part:

> "The regulations did not specify the type of breakaway wall. Many property owners have used solid breakaway walls, which have the appearance of being normal walls. As a result, numerous instances of potential violations have been reported to the Federal Insurance Administration (FIA). Property owners naturally wish to add more habitable space to their structures and often finish the lower area. Not only is the use of these lower areas after the building permit is issued very difficult to control, but also it is difficult for local building inspectors to do continuous inspections of previously approved premises. More importantly, solid breakaway walls can become detached from a structure during a hurricane and create a serious hazard * * *."
>
> * * * * *
>
> "The rule change prohibits the use of any type of solid breakaway wall to enclose the area below base flood elevation in a V zone for new construction or substantial improvements to existing construction. The area below base flood elevation can be enclosed with open wood constructed lattice breakaway walls or remain open. The prohibition against use of the area for human habitation will remain unchanged * * *."

On October 20, 1981, the Office of Management and Budget's Administrator for Information and Regulatory Affairs asked FEMA to reconsider the proposed regulation on the basis that it represents "the kind of Federal intrusion into the management of local affairs" that Executive Order 12291 was designed to discourage. The President issued this executive order on February 17, 1981, to reduce the burdens of existing and future regulations and ensure well-reasoned regulations. The order grants the Presidential Task Force on Regulatory Relief authority to resolve any issues raised under the order. The task force is chaired by the Vice President and composed of Cabinet-level officials.

We discussed OMB's position on FEMA's proposed regulation with the Chief, Information Policy Branch, Office of Information and Regulatory Affairs. He explained that OMB turned back the regulation because it believed the regulation involved the Federal Government in details that were the responsibility of local governments. He stressed that FEMA could explore other alternatives that would not be as "intrusive" on local communities. He suggested that use of the insurance mechanism--that is, charging

higher premiums for structures more prone to flood damage--might be an acceptable regulatory approach. He also said that if FEMA believed that alternative approaches were not adequate and the problem with breakaway walls was serious, it could ask the Presidential Task Force on Regulatory Relief to consider the merits of the proposed regulation.

All flood plain management criteria could be considered as "intrusive" on local communities. However, the Congress intended that local communities meet certain conditions in return for the benefits of flood insurance. To obtain flood insurance for their citizens, participating communities have already agreed to adopt and enforce flood plain management regulations designed to reduce or avoid future flood losses and damages. Furthermore, the proposed changes to the breakaway wall criteria would clarify the intent of the criteria and make them easier for communities to enforce.

FEMA's Assistant Associate Director for Natural and Technological Hazards informed us that he did not plan to pursue other flood plain management alternatives to resolve the problem with breakaway walls because he considered the proposed regulation to be the best approach. He was concerned that building permit applicants would not have any notice of the changes in rating for construction with solid breakaway walls because the flood plain management criteria for breakaway walls construction have not been changed. In this regard, present insurance rates penalize such construction by charging higher rates for structures with solid breakaway walls, even though they are currently permitted by flood plain management criteria. Also, another insurance regulation is being considered which would deny insurance coverage for the area enclosed with solid breakaway walls. The Assistant Associate Director preferred to solve the problem of solid breakaway walls by prohibiting them altogether but has no plans to pursue the matter.

We recognize that the economic incentive inherent in the insurance rating structure can be a useful tool in promoting flood plain management measures. However, we believe that reliance on the insurance mechanism is not sufficient to deal with the solid breakaway wall problem because those homeowners able and willing to pay the price or bear the financial risk could still construct solid breakaway walls. Furthermore, the insurance mechanism would not affect those homeowners who do not purchase flood insurance but must abide by the flood plain management regulations.

The objective of the breakaway wall regulation was to limit use of the area below the base flood elevation and reduce future flood losses. Permitting solid walls encourages homeowners to finish off this area for living space, which increases the value of property subject to damage from the 100-year flood. Allowing the construction of solid walls is contrary to a major program

objective of encouraging wise development in the flood plain to reduce the amount of property exposed to flood loss and damage.

CONCLUSIONS

Local communities have the responsibility to adopt and enforce flood plain management regulations to guide the rational use of the flood plain. This is the key to accomplishing congressional objectives in the flood insurance program.

FEMA's monitoring program is inadequate for ensuring that communities are enforcing minimum flood plain management regulations. Monitoring visits are beneficial in identifying problems and assisting individual communities to improve flood plain management. However, the number of these visits have been limited and the communities visited poorly selected.

FEMA does not systematically evaluate the results of community visits. Consequently, FEMA does not know how well communities overall are enforcing their flood plain management regulations or how well its monitoring approach is working.

FEMA's monitoring approach could be strengthened with adequate direction and control from headquarters. An effective centralized control system, with appropriate analysis of past results, would provide FEMA headquarters with the information necessary to direct future monitoring activities by the regions and enable the regions to efficiently and effectively allocate their limited resources to those locations and types of problems which need special attention. FEMA headquarters would then be in a position to assess overall compliance with the program.

Even with an effective process to better select communities for monitoring visits, we believe that regions IV (Atlanta) and VI (Dallas) must devote more resources to monitoring visits. Our analysis has demonstrated that the number of visits made in regions IV and VI is clearly out of line with the amount of insurance coverage, development pressures, and flood risk existing in these regions. The addition of just two more staffyears could increase the number of visits by 50 to 200.

Strong perceptions exist that FEMA headquarters is lenient in requiring that program regulations be enforced by participating communities. Present FEMA management intends to pursue an aggressive monitoring program and suspend communities that do not comply with flood plain management regulations. However, we believe that FEMA's decisions on communities with lax enforcement will be subject to continued criticism until it develops adequate suspension criteria and issues a formal policy statement to regional offices and program participants setting out FEMA's position on dealing with communities not adequately enforcing required flood plain management regulations.

Coastal communities are not adequately enforcing the breakaway wall criteria as they are presently written. Consequently, the solid breakaway walls allowed by the criteria increase the potential for higher future flood losses and damages. FEMA's proposed regulation to prohibit solid breakaway walls while permitting wood lattice breakaway walls is the most simple and equitable solution to the problem. The proposed regulation would be easily understood and enforceable by community officials, preclude use of the enclosed area for living space, and reduce the losses and damage from future floods. FEMA should appeal the OMB decision.

RECOMMENDATIONS TO THE DIRECTOR, FEMA

We recommend that the Director, FEMA:

--Establish a centralized control system to direct and guide the monitoring and enforcement program. This system should include the systematic selection and periodic updating of information on those communities in each region whose compliance with flood plain requirements is considered critical. These communities should receive priority for monitoring visits. The system should also include continuing evaluations of community visits to measure individual and overall community compliance and to evaluate the effectiveness of the monitoring program in each region.

--Reallocate staff resources to increase monitoring activities in regions IV (Atlanta) and VI (Dallas).

--Issue a policy statement to regional offices and program participants setting out the agency's position on suspending communities for failure to enforce required flood plain management regulations.

--Appeal OMB's denial of permission to issue the proposed regulation on breakaway walls to the Presidential Task Force on Regulatory Relief.

CHAPTER 5

FLOOD ZONE MISRATINGS: CAUSE FOR CONCERN

Misratings due to improper flood zone designations affect the financial integrity and credibility of the flood insurance program and FEMA's effort to make it financially self-sustaining. In five selected communities we found many properties located in zones different from the zones on which the insurance premiums were based. Some policyholders are paying too much; others are not paying enough. A statistical study done in 1981 for FEMA projected that the flood insurance program would fail to collect about $25 million during a 5-year period because of flood zone misratings and other errors. Another study recently completed for FEMA confirmed numerous specific flood zone misratings that resulted in undercharges on premiums.

FEMA has virtually no controls to detect improper flood zone designations on insurance applications submitted by insurance agents. It also does not require that insurance policies be re-rated when flood zone boundaries change and the flood insurance rate maps are revised.

PREMIUMS ARE BASED ON FLOOD ZONES

Generally, flood insurance premium rates in regular program communities are based upon the flood zone in which an insured structure is located, and the elevation of each new structure in the A or V flood zone. Flood plains are divided into various zones according to the risk involved.

FEMA's flood insurance rate maps generally delineate flood plains 1/ as follows: "A" flood zones are areas within 100-year flood plains; "V" zones are areas within 100-year flood plains with wave velocity--usually in coastal areas; "B" zones are, generally, areas subject to 100- to 500-year floods; "C" zones are areas outside the 500-year flood plain; and "D" zones are areas of undetermined but possible flood hazards. The flood insurance rate maps further divide the A and V zones into numbered subzones, such as A4 and V8, to recognize varying depths of flooding within communities.

Flood insurance premium rates in emergency program communities are the same regardless of where the properties are located, and thus insurance premiums cannot be misrated. Consequently, this chapter pertains only to the misratings of insurance policies in regular program communities.

1/A 100-year flood plain is the land subject to a 1-percent chance of flooding in a given year, and a 500-year flood plain has a 0.2-percent chance of flooding in a given year.

SOME PROPERTIES ARE MISRATED

Our review of 94 selected property locations in five regular program communities disclosed that 34 properties, or 36 percent, were misrated. This high percentage of misratings cannot be projected to the entire program, however, because we selected property locations which appeared to have questionable flood zone ratings.

We compared street addresses from new policies and insurance claims with the flood insurance rate maps for the five communities and selected properties whose locations appeared inconsistent with flood zone designations. We did not select all of the questionable policies we noted because we were primarily interested in sampling a variety of different locations in a community. For example, a Deerfield Beach condominium had nine policies classified in the C zone and one in the V8 zone. We selected only one C zone policy and the V8 zone policy. Our field review produced the following results in the individual communities:

Community	Properties selected	Properties misrated	Rated too low	Rated too high
Ocean City	5	0	0	0
Bethany Beach	7	1	0	1
Galveston	42	14	14	0
Folly Beach	24	7	6	1
Deerfield Beach	16	12	4	8
Total	94	34	24	10

We visited all of the above selected property locations, except in Galveston where we visited only six, and verified the remaining locations, as discussed below. Frequently we were accompanied by city building officials. We also verified most flood zone ratings, particularly those in Galveston, by comparing detailed city street maps with flood insurance rate maps. We also obtained confirmation of misratings from city building officials, insurance agents, and/or banking officials. For example, the city engineer accompanying us confirmed that the Deerfield Beach condominium property referred to earlier is actually in the V8 zone although most of its policies are rated in the C zone.

We did not attempt to calculate the total dollar effect of the misratings because of other variables affecting many of the premiums, such as the lack of elevation data and dates of construction. However, at our request, a South Carolina insurance agency recalculated the premiums on two of its policies misrated in the A13 zone instead of the correct V13 zone. The yearly premium on one policy should have been $138 instead of $50 and

on the second policy $203 instead of $55. Two properties in a Deerfield Beach C zone were improperly rated in the A4 zone. We determined that these misratings saved the insured $18 and $33 a year on their premiums. Conversely, one property in Folly Beach was rated too high and the owner was charged a premium of $124 instead of $50.

We discussed flood zone ratings with insurance agents writing policies in each community. Several agents said that the flood insurance rate maps are difficult to use because some streets do not appear on those maps and some properties are on the border of two flood zones. Agents doing business in Ocean City said that after zone V premium rates increased significantly in 1981, they took a more careful look at property locations and consequently some insured properties were properly reclassified from zone V to zone B. A Texas agent said that agents writing flood insurance for areas having multiple flood zones often choose the cheapest zone because they know they will not be held accountable. We checked 25 policies from this area and noted two insurance policies that were rated in the least costly A zone although the map shows that these properties are located over 10 miles away in the V12 zone.

FEMA studies

FEMA contracted for three studies of insurance flood zone ratings; two studies disclosed erroneous flood zone ratings and the third study was being completed at the time of our review.

The first study projected that the program would fail to collect net premiums of about $25 million in the 5-year period ending in January 1983 due to misratings and other errors. The study consisted of a statistical sample of FEMA insurance records, with a 95 percent confidence level. The number of agent errors due to improper flood zone designations and inaccurate base flood elevations was determined, an error ratio was calculated, and over/underpayments were computed. According to a preliminary report dated February 10, 1981, the study estimated that FEMA had not collected net premiums of $12 million during the prior 3 years due to inaccurate flood zone ratings and base flood elevation information. The study projected that about $12.7 million would not be collected in the next 2 years.

The second study was conducted for FEMA by an engineering consulting firm after claims had been received from Friendswood, Texas, on over 700 properties in B and C flood zones--zones expected to be less flood prone. The contractor stated in a preliminary October 1981 report that 15 percent of the 371 properties it had been able to plot on the flood insurance rate map were actually in the A zone. The remaining properties could not be plotted because the road or address range could not be found on the city map used, or the flood zone rating could not be determined from available information.

FEMA subsequently had the contractor do a field verification of its preliminary findings in Friendswood, Texas. The results were reported March 24, 1982, to the FIA Administrator. The onsite inspection procedure identified more locations and misratings than the preliminary study. Of 737 structures rated in zones B and C, 426 were rated correctly, 118 were within an A zone, 63 were misclassified between the B and C zones, 45 were outside the community's corporate limits, and 85 could not be located.

An FIA insurance examiner estimated that the 118 structures actually in the A zones may account for as much as $46,000 in uncollected yearly premiums, that misratings between the B and C zones have no financial effects, and the financial effect is unknown on the 130 properties which were not in the community or could not be located.

FLOOD ZONE RATINGS ARE NOT VERIFIED

FEMA has not established a system to detect questionable flood zone classifications submitted by insurance agents on individual policies. Consequently, in the absence of complaints, flood zone misratings submitted by the agents can remain virtually undetected with policyholders assessed premiums not reflecting the flood risk of the geographic area in which their insured structures are located. Both our tests and FEMA's contract studies indicate that the problem of misratings is severe enough to warrant a detection system.

We determined that the flood zone ratings submitted by insurance agents were being accurately entered into FEMA's computerized master policy files. However, only one systematic check exists for flood zone ratings. According to the FIA Insurance Information Program Specialist, flood zone classifications on new applications are computer edited to determine that the flood zone used by the insurance agent is one of the various zones shown on the community's flood insurance rate map. This procedure does not ensure that the insured property has been designated in the proper flood zone.

A first step for detecting misratings is knowing property locations. Many policies do not identify the specific location of the insured property. Instead, the policies list property locations as a box number, the owner's principal residence at another location, or "property address unknown." We excluded many insured properties from our review at five selected communities because their geographic location was not identified on the insurance policy.

EDS' Manager of Policy Regulation told us that over 439,000 policies, or 23 percent of the over 1.9 million policies active in April 1982, had unknown property addresses. He said that since January 1981 they have specifically required property addresses

on new applications, although he acknowledged that a few have slipped through their screening process. He said that screening procedures were tightened further in early 1982 to assure better policy addresses. He also said that missing property addresses on older policies are requested only if correspondence is necessary for some other reason.

Checking for misratings

A "desk audit" of insurance policies in a community provides one relatively quick and inexpensive way of checking for possible misratings. For example, from policy listings obtained from FIA we made a random selection of 91 properties in the various flood zones of four communities--generally the first policy listed on each page. This random selection was separate and distinct from our selection of properties that we visited in the communities. Twenty-one properties had to be excluded from our study because of inadequate addresses. The remaining 70 selections were compared to community flood insurance rate maps and local maps with the following results:

Community	Samples checked	Flood zone rating correct	Flood zone rating incorrect	Street not on maps	Zone not determinable
Deerfield Beach	23	11	6	1	5
Galveston (city)	17	7	3	5	2
Bethany Beach	13	9	1	3	0
Ocean City	17	3	2	5	7
Total	70	30	12	14	14
Percentages based on known addresses		43	17	20	20

It was relatively easy to identify property addresses with correct or incorrect zones and to identify streets not on the maps. However, 14 properties were on streets that crossed more than one zone or fell near the zone boundary. For those properties we could not determine whether the rating was correct. Once it is determined what flood zone a street is in, it takes very little time to scan the property locations on policy listings for additional policies with questionable ratings.

When we checked the 14 properties listed under "street not on maps," we noted that the local maps indicated that at least six of the properties were outside the flood map boundaries of the communities. EDS' Manager of Policy Regulation told us that

on new policies they now attempt to detect addresses not within the community but a number are missed because postal addresses extend beyond community boundaries.

Our own field test and the Friendswood field verification, previously discussed, illustrate the benefits of verifying locations in the community. No one is currently required, however, to independently verify flood zone classifications. FEMA regional officials visiting communities to verify enforcement of flood plain management regulations do not verify flood zone ratings. FEMA could consider using its regional personnel to verify flood zone ratings when they are visiting a community. Claims adjusters visiting specific properties to verify claim losses are not required to check the flood zone ratings. We noted a claim paid on a property listed in Galveston's C zone, but information in the claim file and our own visual inspection confirmed that the property is in an A11 zone. FEMA could also consider using claims adjusters to verify flood zone ratings when they are in the field.

PROPERTY IS NOT RERATED FOR CHANGE IN RISK

FEMA does not require that properties be rerated when flood zone boundaries are changed. Consequently, current premiums may not reflect the existing flood risk to individual properties.

We noted during our review that some Deerfield Beach policies had A or A8 flood zone ratings--zones not currently in effect in that community. A policyholder is given the option of retaining a less expensive zone rating when changes in the geographical boundaries of the flood plain affect his or her insured property. The FIA Insurance Information Program Specialist said the insured are given this option because FEMA has no system to identify which policies are affected by boundary changes when a zone remains in effect elsewhere in the community. He also said that if FIA does receive a complaint and challenges a flood zone rating, it would be up to the insured and the insurance agent to prove the property was entitled to the old, lower rating.

A representative of the Insurance Services Office, an insurance advisory group, said that industry practice is to rerate fire insurance policies upon renewal to reflect changes in risk in a geographical area if the quality of fire service declines or improves--a situation comparable to changes in risk when flood zone boundaries are changed. Requiring insurance agents to rerate all flood insurance policies upon renewal to reflect flood plain boundary changes would have the benefit of ratings and premiums more accurately reflecting the current risk of the location, and be comparable with industry practice.

CONCLUSIONS

Correct flood zone ratings are essential to the financial integrity of the National Flood Insurance Program and FEMA's efforts to make it financially self-sustaining by 1988. However, FEMA has virtually no controls to assure that accurate flood zone ratings are submitted so that appropriate premiums will be assessed individual policyholders. Our tests and FEMA's studies all indicate that misratings are frequent enough to warrant FEMA's establishing a systematic check of flood zone ratings. To do so FEMA must first take a firm stand and refuse policy renewals which do not provide the specific geographical location of the insured property.

FEMA should also reevaluate its policy of not requiring properties to be rerated when they are affected by changes in flood plain boundaries. This could be easily achieved by requiring insurance agents to rate renewal policies in accordance with current flood insurance rate maps.

RECOMMENDATIONS TO THE DIRECTOR, FEMA

To improve the National Flood Insurance Program's credibility and financial soundness, we recommend that the Director, FEMA

--establish appropriate management controls to detect and correct flood zone misratings;

--adjust current premiums on all policies found to be misrated;

--require the specific geographical location of insured property on all renewals; and

--require insurance agents to rate policies, when renewed, in accordance with current flood insurance rate maps.

APPENDIX I

United States Senate

COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS

WASHINGTON, D.C. 20510

September 24, 1981

Mr. Milton J. Socolar
Acting Comptroller General
General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Socolar:

The purpose of this letter is to request that the General Accounting Office examine and report on several aspects of the National Flood Insurance Program.

Earlier this year, there was considerable testimony before the Senate and House Banking Committees and the Senate Appropriations Committee regarding the purposes and fiscal soundness of the program.

Congress stated in the Findings and Declaration of Purpose section of the National Flood Insurance Act of 1968 the following:

> "...The Congress further finds that (1) a program of flood insurance can promote the public interest by providing appropriate protection against the perils of flood losses and encouraging sound land use by minimizing exposure of property to flood losses; and (2) the objectives of a flood insurance program should be integrally related to a unified national program for floodplain management ... and
>
> ...It is the further purpose of this title to (1) encourage State and local governments to make appropriate land use adjustments to constrict the development of land which is exposed to flood damage and minimize damage caused by flood losses, (2) guide the development of proposed future construction, where practicable, away from locations which are threatened by flood hazards...

Many reports and newspaper and magazine articles in recent years have suggested that the Flood Insurance Program, far from supporting the above objectives of floodplain management and hazard reduction, may actually be encouraging settlement of the floodplain by subsidizing insurance which the private insurance industry, without subsidies, would be unable to provide.

Despite the widespread view that the Flood Insurance Program may be stimulating floodplain development, there has never been a study which directly examines this issue. We ask you to address this issue in your report.

With respect to the fiscal soundness of the program, we would also like you to include in your report a study of the process by which "actuarial rates" are established by the FIA. The National Flood Insurance Program was envisioned to become fiscally self-sustaining; but, the facts show that for every dollar collected by the FIA in premiums, the federal government pays out about two-and-one-half dollars. Since it is apparent that the rates charged by FIA do not reflect the true cost of providing insurance, we would like you to study whether it is possible that FIA can ever establish rates that would eliminate the federal subsidy and make the program self-sustaining.

In preparing your report, we would also like you to examine enforcement procedures carried out by the Federal Emergency Management Agency which are supposed to ensure the programs' regulations are being followed.

We have prepared the enclosed outline as a suggested guide from which we hope the report could be based. It is important, as noted in the outline, that issues should be addressed in the context of the various flood-prone areas covered by the program, i.e., barrier islands and beaches, coastal mainland and Great Lakes, riverine floodplain and inland lakes.

[GAO NOTE: The enclosed outline is not included.]

Finally, a related matter which we would like to have reviewed is an evaluation of the usefulness and purpose of the Federal Flood Insurance Fund as against direct annual

APPENDIX I

appropriations to the Federal Insurance Administration for this program. It appears that the existence of the fund may complicate and confuse budget and accounting procedures.

After reviewing this material, we would hope that members of your staff and our staffs could promptly meet to discuss this request. Since the National Flood Act must be reauthorized by May 15, 1982, we would hope that you could complete the report by May 1, 1982.

Thank you for your attention in this matter.

Sincerely,

John H. Chafee, Chairman
Subcommittee on Consumer Affairs

Arlen Specter
United States Senator

Enclosure

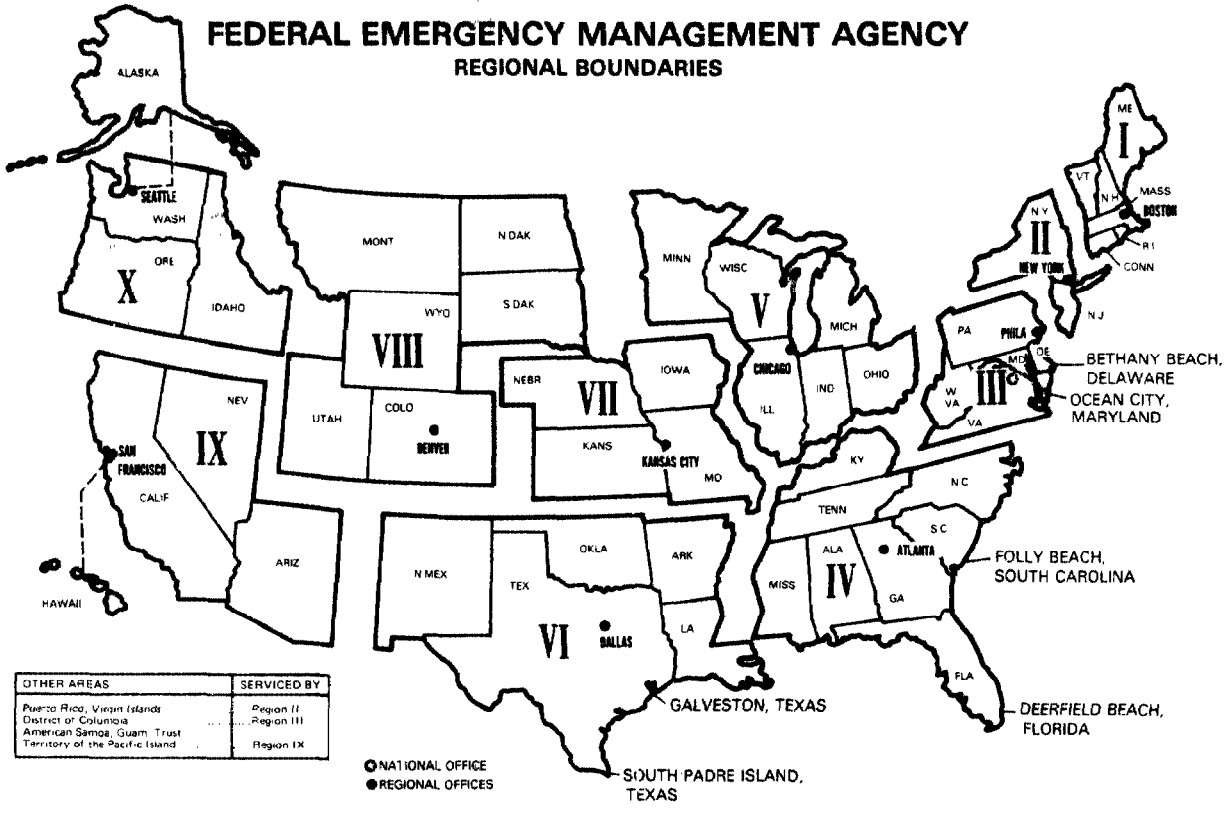
JHC/zst

APPENDIX II

SELECTION OF COMMUNITIES WE VISITED

The Chairman, Subcommittee on Consumer Affairs, Senate Committee on Banking, Housing, and Urban Affairs, and Senator Arlen Specter requested that we address the questions of whether the flood insurance program was stimulating development in the flood plain and whether applicable regulations were being adequately enforced. They did not request that any particular FEMA regions, States, or communities be included in our review, but they did ask that at least one community in the emergency phase of the program be included.

The three FEMA regions, five States, and six communities we subsequently selected are illustrated below. One of our selection criteria was geographical dispersion of the communities.



Initially, we narrowed the possible selection to coastal areas after discussions with FEMA officials and other knowledgeable people indicated that the more serious concerns with development and enforcement of flood plain regulations were in coastal communities. The subcommittee and Senator's offices agreed that we could limit our selections to coastal and barrier island communities.

We also analyzed data regarding (1) new development in the flood plain and (2) communities that advised FEMA that they needed assistance. The Atlanta and Dallas regions accounted for the most construction permits in the flood plain. These two regions and the Philadelphia region were three of the top four regions having communities that said they need technical assistance. The Philadelphia office is considered by FEMA officials to have the strongest monitoring program.

Discussions with FEMA personnel and other knowledgeable people indicated a wide variation in State involvement in flood plain management. Therefore, we selected more than one State in a FEMA region, where feasible. Florida and Texas were selected because they had issued more building permits than other Atlantic and Gulf coast States. Delaware, Maryland, and South Carolina were included because the local communities selected were from within those States. These five States account for about 46 percent of the nearly 1.9 million policies in force, about 54 percent of the over $99 billion worth of insurance in force, and 30 percent of the $1.249 billion in claims paid.

Barrier islands are most likely to have the most hazardous flood plains where wave velocity combines with flooding. In choosing six communities from a list FEMA compiled of 271 participating communities that are barrier islands or which share similar characteristics, we used the following criteria:

--The communities are incorporated and the geographic area is not too large.

--The communities have been in the program long enough for trends in development to be evident.

--The communities have reported construction permits issued in 1980 as evidence of development currently taking place.

--The communities have flood insurance policies in force and claims paid as evidence of flood risk.

--The communities represent a diverse range in population, size, and geographic dispersion.

The communities we selected met these criteria. All are incorporated coastal municipalities having beaches. Ocean City, Folly Beach, Galveston, and South Padre Island are entirely barrier islands. Bethany Beach and Deerfield Beach shared characteristics similar to barrier islands; that is, coastlines of unconsolidated materials deposited by water and continuously being reshaped by waves, currents, storm surges, and winds. All had entered their present phase of the program between April 1971 and November 1973. South Padre Island is in the emergency phase of the program and the other five are in the regular phase.

Folly Beach, Deerfield Beach, Galveston, and South Padre Island were among the top 100 coastal communities with respect to construction permits in flood hazard areas issued in 1980. Bethany Beach and Ocean City had more policies in force than other incorporated municipalities in their respective States. Galveston and South Padre Island were among the top 100 communities in terms of claims paid between January 1978 and September 1981.

Our analysis of these communities' population growth and housing units authorized for construction is presented in appendix IV.

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ANALYSIS OF POPULATION GROWTH AND HOUSING UNITS AUTHORIZED FOR CONSTRUCTION

POPULATION GROWTH

The U.S. population surpassed 226 million in 1980, which represents an increase of 11.4 percent over 1970. Further, the 1980 census shows a population redistribution from the North to the South and West, where most of our selected communities are located. The permanent population data from 1960 through 1980 for the five States and the six selected communities in our review is shown in table A.

Table A

Permanent Population Data From 1960 Through 1980

	1960 population	1970 population	1980 population
States:			
Delaware	446,292	548,104	595,225
Maryland	3,100,689	3,922,399	4,216,446
South Carolina	2,382,594	2,590,516	3,119,208
Florida	4,951,560	6,789,443	9,739,992
Texas	9,579,677	11,196,730	14,228,383
Communities:			
Bethany Beach	170	189	330
Ocean City	983	1,493	4,946
Folly Beach	1,137	1,157	1,478
Deerfield Beach	9,573	17,130	39,193
Galveston	67,175	61,809	61,902
South Padre Island	N/A	254	791

Source: U.S. Department of Commerce, Bureau of the Census.

Five of the six communities have had a growth in permanent population whereas Galveston's permanent population declined. Table B presents a comparison of the States' and their communities' growth in percentages.

Table B

Percent of Population
Increase (Decrease) From 1960 to 1980

States	Percent	Communities	Percent
Delaware	33.4	Bethany Beach	94.1
Maryland	35.9	Ocean City	403.1
South Carolina	30.9	Folly Beach	29.9
Florida	96.7	Deerfield Beach	309.4
Texas	48.5	Galveston	(7.8)
		South Padre Island	a/211.4

a/South Padre Island's percent of population increase is based on 1970 to 1980. Data for 1960 was not available.

The percentage change in population for the six communities is presented graphically in figure 1, along with the date when each entered the flood insurance program.

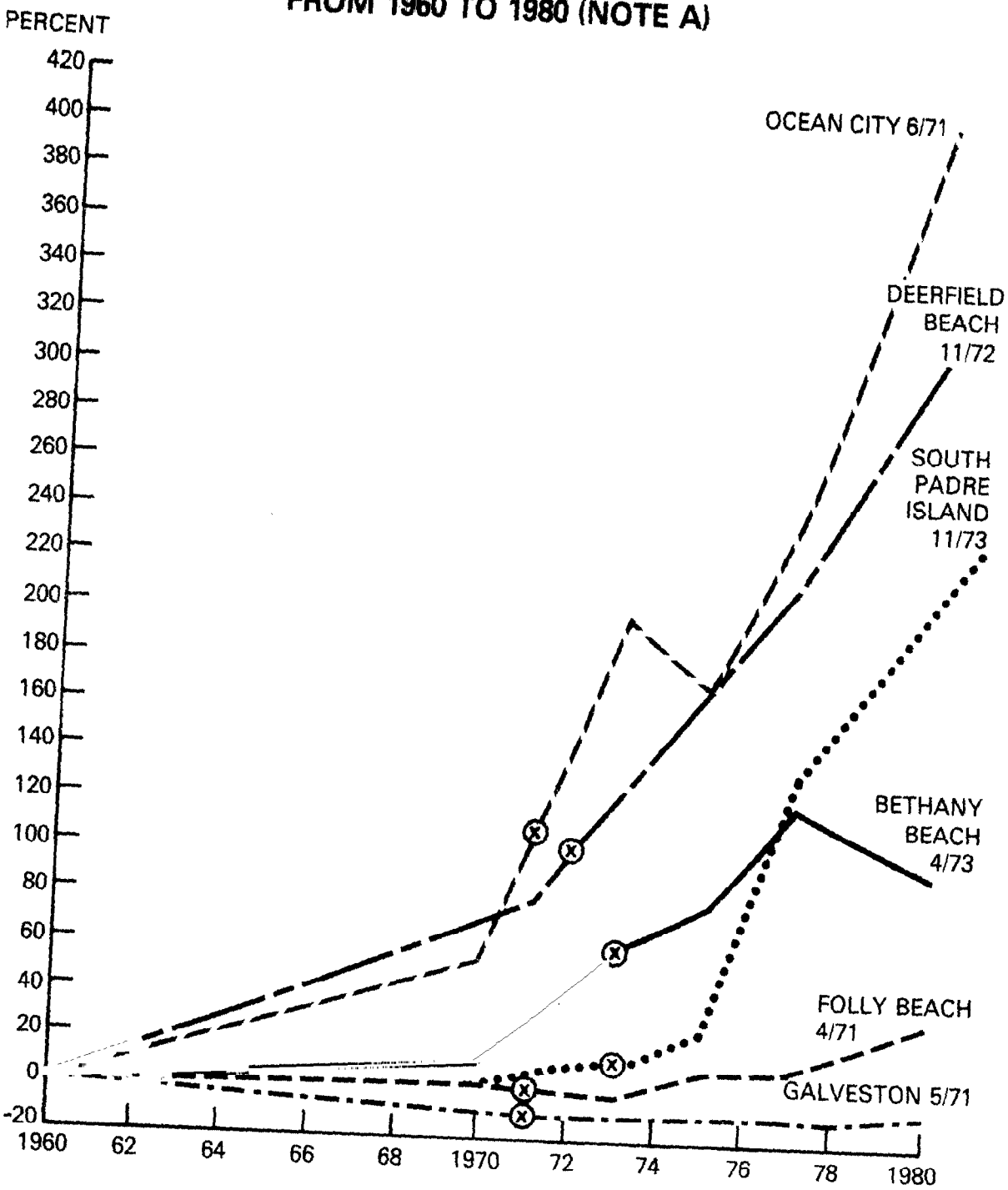
We cannot attribute the permanent population growth in five communities to their participation in the flood insurance program. Population in four of the five communities was growing before their entrance into the National Flood Insurance Program from 1960 to 1970, and this rate of growth continued from 1970 to 1980. The upward trend in Bethany Beach, Ocean City, and South Padre Island is misleading because of the small size of the permanent population. City officials from Bethany Beach and Ocean City attributed their population growth to retirees living year-round in the communities. South Padre Island is a resort community whose permanent population started to increase before it entered the flood insurance program under the emergency phase. This community developed rapidly after construction of the new Queen Isabella Causeway in 1974.

Like many Florida cities, Deerfield Beach has grown tremendously because it is basically a retirement community. According to Deerfield Beach officials, the population increase from 1970 to 1980 was due to occupancy of a large retirement complex having 8,500 units. However, we do not believe a relationship exists between this population growth and the community's entering the flood insurance program in November 1972 because the community had been growing previously and the large new retirement complex was not located in the coastal flood hazard area where flood insurance would have been required.

APPENDIX IV

FIGURE 1

PERCENT OF POPULATION CHANGE FROM 1960 TO 1980 (NOTE A)



A/ Population data between 1970 and 1980 is based on Bureau of Census estimates. Data not available for South Padre Island in 1960.

(X) Dates the communities entered the program.

On the other hand, Folly Beach did show an increase in population shortly after its entrance into the flood insurance program. We could not, however, establish a direct cause-effect relationship. Several other explanations are available. First, the real population increase in this community is rather small and even a slight percentage increase in population appears large. Second, other factors affecting this community offer plausible explanations for the increase. Folly Beach is a small, older recreation community plagued with beach erosion problems, making it less attractive to tourists. In recent years, the population has become more stable in that the community is being increasingly occupied by permanent, nonowner residents who work in surrounding communities.

The analysis of permanent population growth does not show the growth of seasonal population in these communities. For example, Ocean City had a permanent population of about 5,000 in 1980. City officials provided data that showed the average daily summertime population as 200,000 people. Galveston has had a decline in permanent population but is reported to have about 4 million tourists annually. To account for both permanent and seasonal population growth, we used housing units authorized in our six communities to see whether this data could be attributable to the availability of flood insurance.

NEW HOUSING UNITS AUTHORIZED BY BUILDING PERMITS AND PUBLIC CONTRACTS

We obtained data on new housing units authorized for a 10-year period in the Nation and in the three larger communities but were able to obtain this data only from 1977 through 1980 for the three smaller communities. This later data was too recent to relate to these communities' prior entrance into the flood insurance program. Total housing units authorized between 1970 and 1980 for the three large communities were as follows:

Deerfield Beach	16,410
Ocean City	10,083
Galveston	5,197

Housing units authorized were increasing in all three communities before they entered the flood insurance program. Galveston housing authorizations declined immediately thereafter. Nevertheless, subsequent increases and decreases in these communities appear to parallel the rise and decline of total housing units authorized in the Nation (see figures 2 and 3).

FIGURE 2
COMMUNITIES' HOUSING UNITS AUTHORIZED

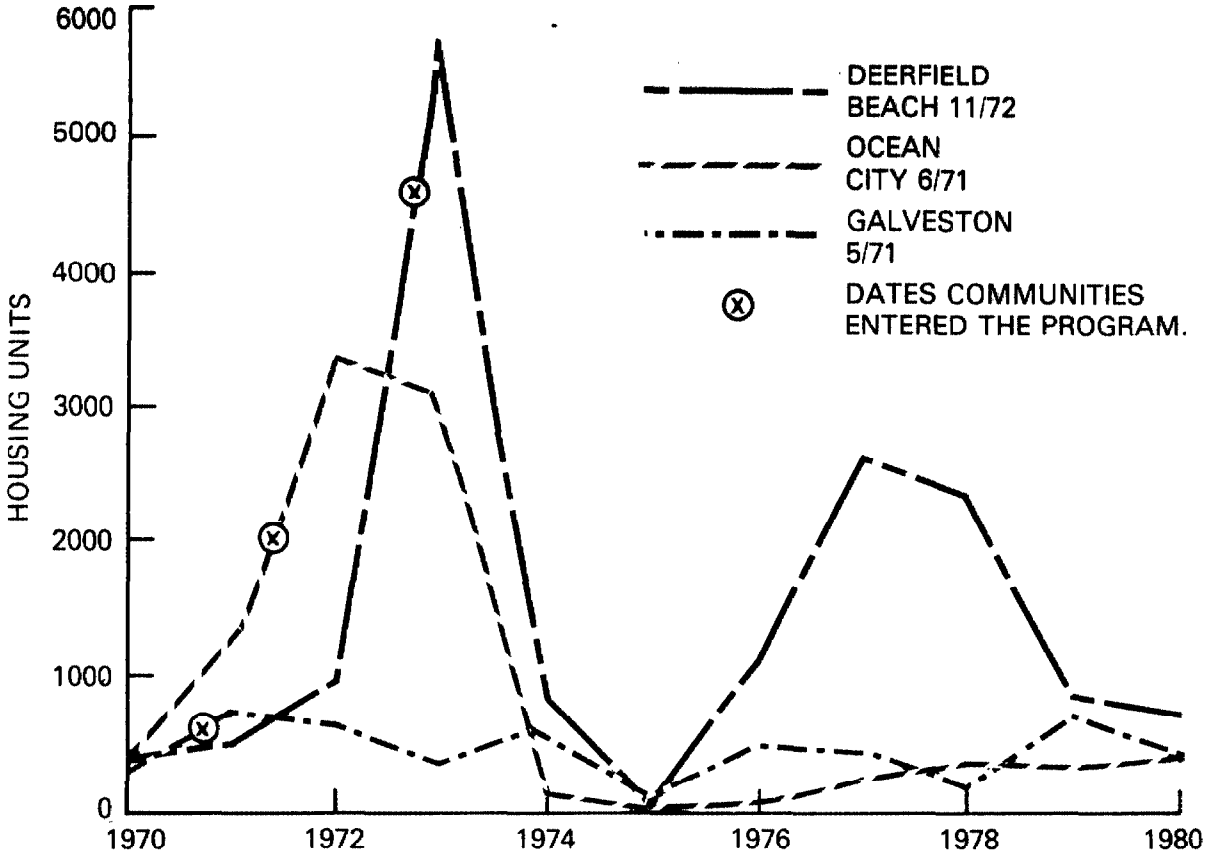
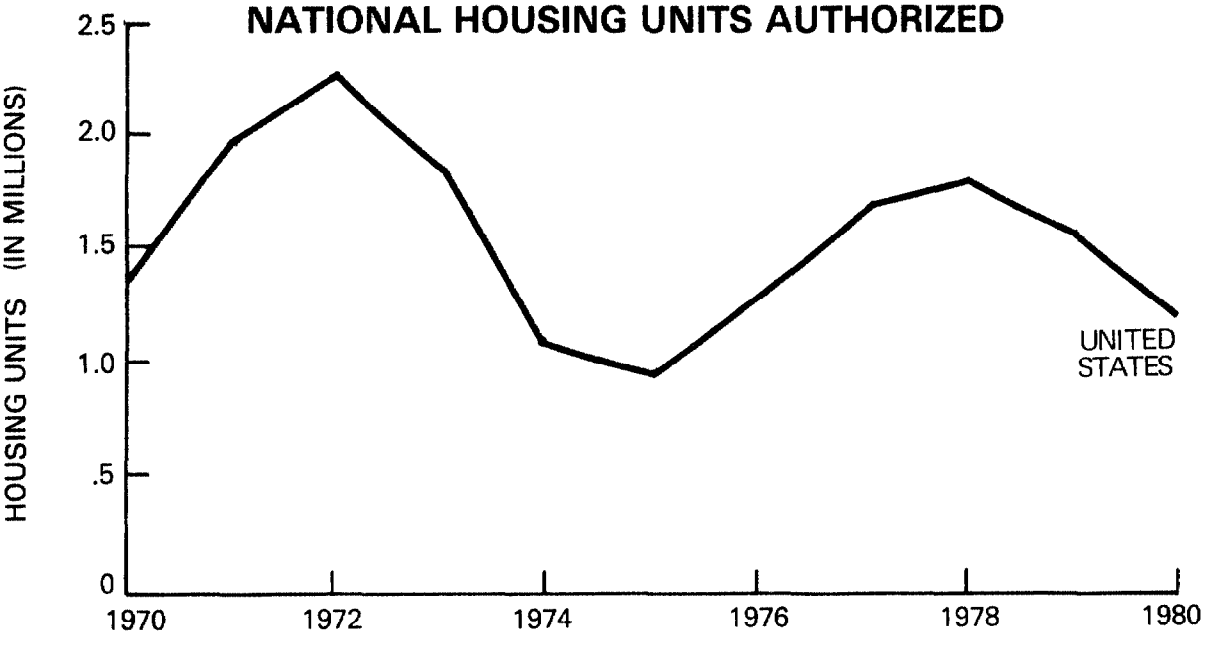


FIGURE 3
NATIONAL HOUSING UNITS AUTHORIZED



Authorized housing units in the Nation declined from 2.2 million units in 1972 to 0.9 million units in 1975. Both Deerfield Beach and Ocean City showed a marked decline in authorized housing units between 1973 and 1975 and between 1972 and 1975, respectively. Galveston experienced a gradual decline from 1971 to 1975.

Again in the late 1970's, authorized housing units in the Nation declined from 1.8 million units in 1978 to 1.2 million units in 1980. Authorized housing units in Deerfield Beach dropped during this period while Ocean City held fairly steady and Galveston had a slight increase.

Our analysis of authorized housing units revealed no direct relationship between the availability of flood insurance and increased development in the three communities we analyzed.

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