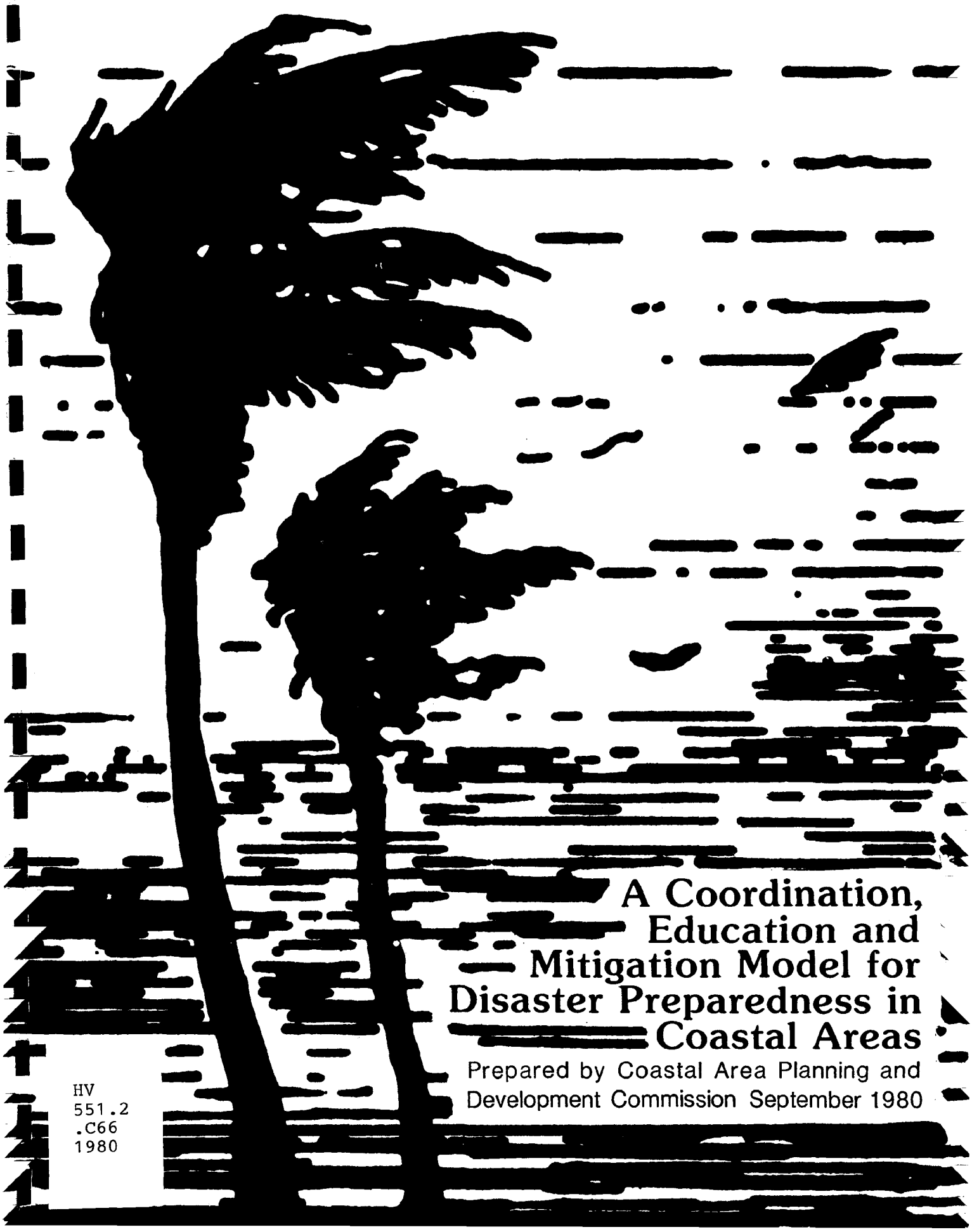

A Coordination, Education and Mitigation Model for Disaster Preparedness in Coastal Areas

Prepared by Coastal Area Planning and Development Commission September 1980

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1980

COASTAL AREA PLANNING AND DEVELOPMENT COMMISSION

P.O. Box 1316, Brunswick, Georgia 31521 (912-264-7363) Vernon D. Martin, Executive Director

Serving Bryan, Camden, Chatham, Effingham, Glynn, Liberty, Long and McIntosh Counties

September 30, 1980

Mr. John W. Macy, Jr., Director,
Federal Emergency Management Agency,
1725 I Street, N. W.,
Washington, D. C. 20472

Dear Mr. Macy:

On May 2, 1980, FEMA contracted with the Coastal Area Planning and Development Commission (APDC) to develop a prototype regional disaster preparedness program. The program was designed for use in any area of the United States and is adaptable to any type of disaster threat.

The document presented here contains the results of research conducted in order to determine the needs of state and local government in disaster preparedness and the tools currently available to address those needs. Based on the findings, a regional disaster preparedness program is outlined as well as an implementation strategy. The program is designed to be implemented by substate/regional planning agencies under the direction of state emergency management agencies. The planning agencies will serve as coordinators and will provide direct technical assistance to state and local governments.

As a result of the work accomplished, the Coastal APDC has proposed a two year "test" program. The prototype is to be tested in one region, i.e. the eight-county coastal Georgia region, for one type of disaster, i.e. coastal storms, but will be adaptable to any region and to any type of disaster. Because of the similarities in preparing for all types of disasters, the process used in coastal Georgia can be used throughout the United States. The proposal is currently under consideration for funding by FEMA.

We believe this cooperative effort by FEMA, the Georgia Civil Defense, local governments of coastal Georgia and the Coastal APDC presents a unique approach to disaster preparedness. Through the use of substate/regional agencies as a technical assistant, the capabilities of federal, state and local government can be increased in disaster preparedness, response and recovery.

Sincerely,

Vernon D. Martin
Executive Director

VDM:WH

Coastal Georgia

A COORDINATION, EDUCATION, AND MITIGATION MODEL

FOR

DISASTER PREPAREDNESS IN COASTAL AREAS

Prepared by
Coastal Area Planning and Development Commission
Brunswick, Georgia

September, 1980

"The contents of this report reflect the views of the contractor who is responsible for the facts and the accuracy of the data presented herein, and do not necessarily reflect the official views or policies of the Federal Emergency Management Agency."

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INTRODUCTION

The coastal area of Georgia (See Figures 1 and 2), encompassing the counties of Camden, Glynn, McIntosh, Liberty, Long, Bryan, Chatham and Effingham and served regionally by the Coastal Area Planning and Development Commission (APDC), includes 3,785 square miles and approximately 350,000 people in 1980. It is an area of diverse population centers and contrasts between slow, rural and rapid, urban development.

The city of Savannah, located at the northern end of the coast, with its many barrier islands and historic lure is a rapidly growing urban area. The city of Brunswick is located near Sea Island, Jekyll and St. Simons Islands and draws a significant tourist population. Two military installations, the Ft. Stewart Military Reservation and the Kings Bay Submarine Support Base, and preferred site for the East Coast Trident Submarine facility, have brought rapid growth to the area. The remainder of the area is rural in nature with timber, seafood and tourism industries as the economic base.

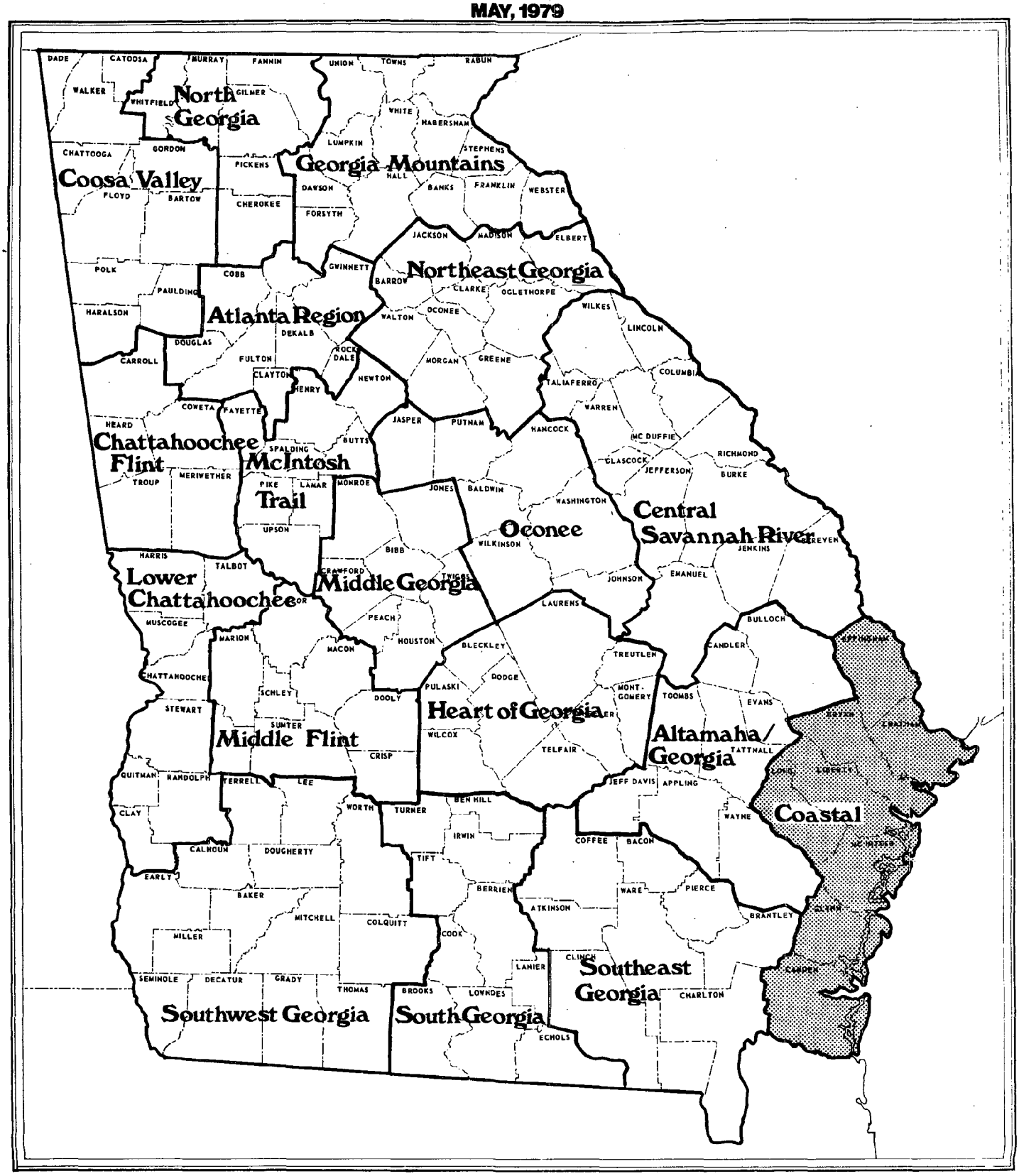
The Coastal APDC is one of eighteen such regional planning agencies in the state of Georgia and serves the eight counties and twenty-six cities within its jurisdiction. It is governed by a Board of Directors made up of local elected and appointed officials who represent the region. Through the implementation of its programs, the Coastal APDC is continually involved in planning activities such as land use, transportation, coastal resources, military growth related impacts, provisions for the elderly, criminal justice, tourism and industrial development. The Coastal APDC is the Area Agency on Aging, Regional A-95 Review Clearinghouse, Economic Development District, promotional center for the Coastal Georgia Tourism Program and the agency responsible for the Department of Housing and Urban Development (HUD), "701" regional planning programs.

The coastal area has been fortunate in the recent past in avoiding a major disaster, particularly a hurricane, coastal Georgia's most prominent threat. In 1964, Hurricane Dora passed near the Georgia coast and in 1979 Hurricane David struck land near Savannah. However, because neither of these storms possessed the potentially devastating forces such as a hurricane like Camille, residents are becoming increasingly complacent and ignorant regarding pre and post disaster plans and procedures. This problem has been complicated by the fact that two areas in the region, the Fort Stewart and Kings Bay areas (See Figure 2), have and will continue to experience tremendous population increases, with most of the new inhabitants having little or no knowledge of the actual dangers and impacts resulting from a hurricane landfall or the close proximity of a hurricane center.

GEORGIA
AREA PLANNING AND DEVELOPMENT COMMISSIONS

FIGURE 1

MAY, 1979



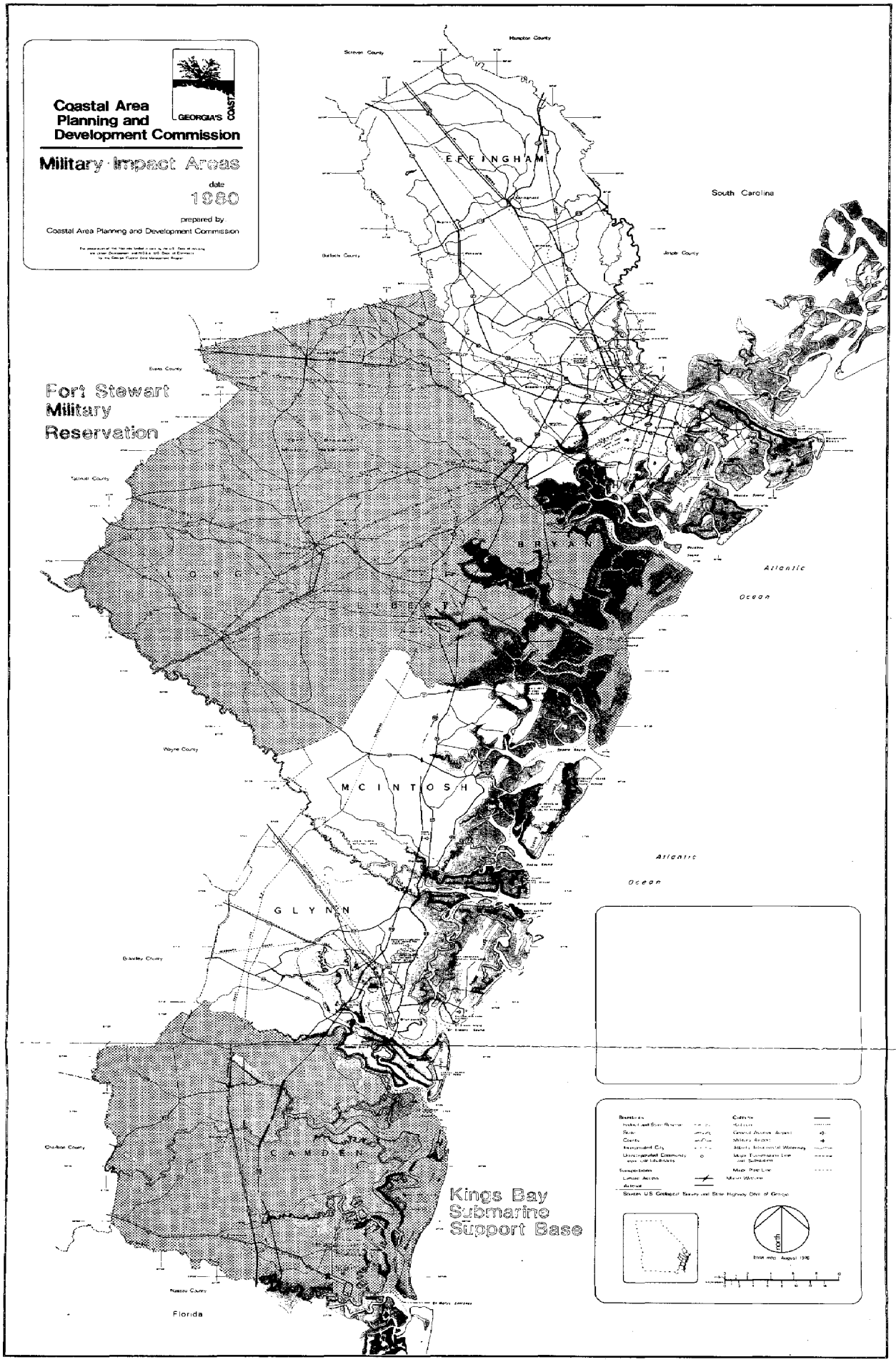

Coastal Area Planning and Development Commission
GEORGIA'S COAST
Military Impact Areas
date
1980
prepared by
Coastal Area Planning and Development Commission
Fort Stewart Military Reservation
Kings Bay Submarine Support Base
EFFINGHAM
LIBERTY
BRYAN
LONG
MCINTOSH
GLYNN
CAMDEN
South Carolina
Florida
Atlantic Ocean
Atlantic Ocean
Screven County
Hampton County
Bulloch County
Jasper County
Evans County
Tattnall County
Wayne County
Bradley County
Charlton County
Nassau County
Sources: US Geological Survey and State Highway Dept. of Georgia
north

Figure 2

During the past year, the Coastal APDC has become increasingly aware of the proliferation of storm related plans and growing interest on the part of local officials to consolidate and improve these efforts. Additionally, local elected and appointed officials have become more cognizant of the need to formulate prudent development guidelines which take into account the unique problems associated with the effects of natural disasters, such as hurricanes, on property.

As a result of an analysis of various preparedness efforts, it became clear that some coordinative mechanism must be established to insure that all existing plans be up-to-date and consistent and that new plans mesh with existing plans. In Georgia, the State Civil Defense has been active in promoting regional and state plans. However, rapid and unique development along the coast necessitated that a local-based organization, aware of the specific needs and characteristics of the area, become involved in the coordination of efforts. This local coordination effort was determined to be needed because, in a majority of the eight coastal counties, county staff is minimal and does not possess the expertise to develop, implement, and educate the public regarding disaster preparedness planning. Civil Defense directors in the small, rural counties are, typically, part time officials, who, though they are dedicated to their jobs, do not have sufficient time or resources to devote to the enormous tasks associated with preparing their communities for potential disasters. The Coastal APDC, because of its close working relationship with local governments in the area, appeared the logical agency to assist the Civil Defense in undertaking such planning and coordinating tasks.

The Coastal APDC's Board of Directors also recognized the increasing need for a coordinated disaster preparedness effort and directed APDC staff to investigate alternatives for the future. As a result, in December, 1979, the Coastal APDC submitted a proposal to the Federal Emergency Management Agency (FEMA) for a "Coordination, Education and Mitigation Model for Coastal Georgia Storm Preparedness." Because it was suspected that the apparent needs of Georgia's coastal area in developing a comprehensive disaster preparedness program were shared in many other areas, the proposed program was intended to be a model program for the nation. Since the program had national implications, it was determined that it should be expanded to include all disasters rather than just storm-related disasters.

This document presents the basic elements of a comprehensive and coordinated disaster preparedness program and the means by which such a program can be implemented. To achieve this end, research was undertaken to determine where the responsibility rested for disaster planning, response and recovery. Research was also conducted to identify the needs of local and state government in disaster preparedness and the types of assistance that could be provided to build the capabilities of both.

To guide the research project, a task force was formed consisting of federal, state and local representation. This was done to ensure that all data sources were utilized.

Data gathered by the Coastal APDC is supplemented throughout this document by examples of work undertaken by others. Without the cooperation of those who contributed, the work undertaken would not have proven as conclusive as it has.

The document that follows is intended to be a "guide" to the development of a comprehensive disaster preparedness program in any area of the United States. The use of substate/regional agencies such as the Coastal APDC, as a mechanism for providing technical assistance in the development of such a program, has been determined to be a viable means for increasing the capabilities of federal, state, and local governments in the development and implementation of disaster preparedness activities.

I. ABSTRACT

Local chief elected officials in counties and municipalities throughout the United States are responsible for the safety and welfare of their citizens. In times of emergency, such as natural or other disasters, local officials must be able to respond confidently, quickly, and with all possible resources.

Few local governments can afford to maintain the capabilities to deal with regional problems such as disaster preparedness. Substate/regional planning agencies are tools of local government and, as such, provide technical assistance to these governments in many functional areas. It follows that these areas can be expanded to include disaster preparedness programs, including the elements of planning, education and public awareness, mapping, and mitigation.

The means of planning for disasters implies multi-jurisdictional coordination between local governments and all agencies providing emergency services. The primary emergency services agency in each state (i.e. Civil Defense) is the lead agency providing the tools for emergency management. The capability of those agencies can be increased at the local level through the use of substate/regional planning agencies.

II. OBJECTIVES OF THIS STUDY

The Federal Emergency Management Agency (FEMA) as well as state emergency services agencies are constantly exploring new mechanisms for encouraging participation of local government and agencies in disaster preparedness planning. The purpose of such exploration is to reduce the number of lives and dollars lost to a variety of natural or man-induced disasters throughout the country.

In an effort to assist FEMA in analyzing current disaster preparedness efforts throughout the country, the Coastal APDC undertook this study. Research concentrated on coastal and Great Lakes states and resulted in the formulation of a model comprehensive preparedness program.

With an emphasis on storm preparedness programs, but broadening the scope to include "all" disasters, the following work items were addressed:

- Research on existing storm preparedness efforts undertaken by state/substate regional agencies throughout the country; Identification of ways in which a comprehensive program can be most effectively implemented at the substate/regional level.
- Outline of an advisory council for a hazard mitigation program.
- Expansion of the role for mitigation activities.
- Research on means of securing maximum involvement of various state, federal, and local agencies in a demonstrative activity.
- Implications of this project to other coastal areas and exploration of the role of national interest groups or other institutional entities in maximizing the utility of conclusions and processes developed in other geographic settings.
- Assessment of possible utility of this demonstration project for federal agencies other than FEMA.
- Establish a work program and budget for implementation of the project.

The overall objective of this study was to develop a process whereby the efficiency and effectiveness of disaster preparedness programming can be increased at the local level.

III. METHODS

The methods described here provide a basis for determining the needs of local governments in disaster preparedness, response, and recovery.

To determine where legal responsibility lies for planning, response, and recovery, all 25 coastal and Great Lakes states were surveyed by telephone. Appendix I contains a copy of the survey used. Copies of applicable state laws were obtained from the states and were reviewed for content. The agency contacted in each state was the primary agency responsible for civil defense, emergency services, or public safety.

To determine the current involvement of substate/regional planning agencies in disaster preparedness, 73 such coastal agencies were surveyed by telephone. The questionnaire used appears in Appendix II. Copies of relevant documents were requested. Information collected was analyzed with regard to planning, mapping, education and public awareness, and mitigation activities. In an effort to obtain information regarding the roles in disaster preparedness played by substate/regional planning agencies outside of coastal areas, survey forms and "requests for information" were placed in the newsletters of national interest groups. Appendix III contains copies of those articles appearing in the National Association of Development Organizations' (NADO) newsletter, National Association of Regional Councils' (NARC) newsletter, as well as the National Association of Counties' (NACo) newsletter. Regional Coastal Information Centers (RCIC) and the Natural Hazards Research and Applications Information Center at the University of Colorado as well as the American Planning Association were also contacted. In addition to the telephone surveys of all coastal and Great Lakes substate/regional agencies and to the survey through the newsletters of national interest groups, FEMA also provided a list of agencies/groups which were known to have some involvement in disaster preparedness programs. These agencies/groups were surveyed by telephone using the survey form appearing in Appendix II.

Specific elements of a comprehensive preparedness program were determined through the analysis of plans and programs in other areas of the country as well as in Georgia's coastal area. Personal interviews were conducted with local agency heads and officials and the Georgia Civil Defense. From this information, functional areas of disaster preparedness, response, and recovery responsibility were identified.

Mapped information needs were determined through telephone interviews with state emergency service agencies, local civil defense directors, and other users. Inquiries about such information appear on the state and regional agencies' survey forms in Appendix I and II, respectively. The National Oceanic and Atmospheric Administration, producers of the Storm Evacuation Map Series, were also contacted.

Media uses, or ways in which the news media could assist in a disaster preparedness program, were identified through telephone surveys of civil defense directors, others involved in disaster preparedness, and the news media itself. Appendix IV contains the survey form mailed to 38 news media in coastal Georgia. A 53 percent level of response was attained on the mail-out survey to local news media.

In an effort to identify special disaster preparedness needs of businesses and industries, a survey was administered at a meeting of the Savannah Area Chapter of the American Society of Safety Engineers on July 14, 1980. Appendix V contains a copy of the survey.

Mitigation alternatives were identified from data collected through telephone surveys of state emergency preparedness agencies, regional planning agencies, local building inspectors, and from FEMA, Region IV, Insurance and Mitigation Division. Numerous printed documents were obtained and are listed in the bibliography section of this document. Federal and state programs offering local incentives for mitigation activities were also researched and analyzed. The needs of local government were assessed in terms of the responsibility placed on local government and the tools they have for implementation.

Maximum involvement of groups participating in disaster preparedness was determined at three levels of government: local, state and federal. Existing plans and provisions for responding to a disaster were identified using the eight-county coastal Georgia area as the study area. Similarities and differences in the elements of these plans were discussed and recommendations were made based on the comparison. Roles of various groups were also identified in terms of pre-designated responsibility and actual response. Based on a comparison of similarities and differences, recommendations were made for improved coordination and maximum involvement of all groups.

Applicability to all types of disasters was determined by surveying various agencies in coastal states who are involved in disaster programs. From that information, examples are listed showing how mapped information, elements of storm preparedness plans, educational and awareness programs, and mitigation efforts can be applied to all types of disaster events. The process for developing an advisory committee and subcommittees is also described with applicability to various situations.

The feasibility for use as a national model was studied initially by identifying national interest groups which could serve as vehicles for transferring the program to other geographic areas. Through contact with those groups, viable means of transfer were established. Substate/regional planning agencies as well as state emergency service agencies were contacted to determine possible use of the process and conclusions derived in this study. Finally, federal agencies, other than FEMA, were contacted to determine how they might use the substate/regional approach to increase capabilities in disaster preparedness planning.

DEFINITION OF TERMS

Within this document, various terms are used frequently. To ensure that these terms carry the same meaning for each reader, a glossary is presented here.

Annex -- each additional chapter to the basic disaster response plan addressing specific functions (i.e. evacuation, shelters, communication).

Base Flood Level -- the expected level of static flood water elevation.

Coastal High Hazard Area (velocity zone) -- critical area of the flood plain in coastal areas subject to high wind velocities.

Coastal States -- States included in the survey which border the Atlantic, Pacific or Gulf coasts.

Coastal Substate/regional Planning Agencies -- substate/regional planning agencies bordering on the Atlantic, Pacific or Gulf coast.

Flood Frequency -- the probability of occurance of a flood of given magnitude. The recurrance interval is the average number of years during which an event equal to or greater than a given value is expected to occur once (e.g. 100 year flood).

Flood Plain -- the area of normally dry land adjacent to a body of water which would be expected to be covered by a flood of specified frequency.

Floodway -- That portion of a stream channel and bank that must remain free of encroachments in order to pass a specified frequency discharge without increasing the water elevation more than a designated height.

Floodway Fringe -- The remaining area of the flood plain outside the floodway.

Great Lakes States -- states included in the survey which border the Great Lakes.

Local Chief Elected Officials or Local Heads of Government -- the primary elected official of a political subdivision (i.e. mayor, county commission chairman, chairman of the county board of supervisors, head of the parish police jury).

Local (Disaster) Response Plan -- the written document for a political subdivision outlining procedures for responding to a disaster.

State Emergency Service or Emergency Management Agency -- the agency in each state with primary responsibility for disaster preparedness planning, response and recovery.

Substantial Improvements (to an existing structure) -- structural expansion or improvement with cost not to exceed a specified amount (specified in local zoning ordinance).

Substate/Regional Planning Agency -- an agency governed by local elected and appointed officials which provides direct technical assistance to local governments. Also called regional planning councils, planning and development districts, planning and development commissions and councils of government.

IV. RESPONSIBILITY FOR DISASTER PREPAREDNESS

OVERVIEW OF RESPONSIBILITY

The Federal Emergency Management Agency, as the primary national agency for disaster preparedness, response, and recovery, uses a regional approach in providing services. Its central office works through regional offices and they, in turn, with states in implementing their myriad of programs. State agencies responsible for emergency services, such as civil defense agencies, typically divide their state into large substate areas. These areas, often covering 20 counties or more, are usually served by one area coordinator who, because of limited staff and time, is not able to provide comprehensive disaster preparedness planning assistance to all of the individual local governments in the area. Substate/regional planning agencies, who typically serve much smaller conglomerates of local governments, could assist state emergency service agencies in providing technical assistance to local governments. In fact, state emergency service agencies have demonstrated a willingness to work at a substate/regional level to fill the gap that exists and to improve the level of services. In terms of disaster preparedness, of the coastal states surveyed, 40 percent currently use substate/regional agencies in some way. The functions they serve are limited but have been proven useful in data collection, evacuation planning, local review of state assisted disaster response plans, provision of map resources and assistance with the National Flood Insurance Program (NFIP). However, to date, a comprehensive program for disaster preparedness at the regional level has never been attempted. Sixty-eight percent of the State emergency service agencies indicated that additional involvement of regional agencies would be a valuable supplement to state disaster preparedness agency capabilities. Specific examples were in providing technical assistance in preparing plans and further developing educational and awareness programs.

LEGAL RESPONSIBILITY FOR PLANNING

Primary responsibility for disaster planning, response (evacuation), and recovery varies from state to state in coastal regions (see Table 1). Of the 25 coastal and Great Lakes states surveyed, the primary responsibility for local preparedness planning rests solely under the responsibility of local chief elected officials in 15 or 60 percent of the states. In nine, or 36 percent, the primary responsibility rests with the state agency providing emergency services while in 64 percent of the states surveyed, the responsibility was solely that of the local government or was a shared responsibility between state and local governments.

Table 1

Legal Responsibility for Disaster Response Planning, Evacuation, and Recovery

(Atlantic, Pacific, Great Lakes, Gulf States)

	PLANNING			EVACUATION				RECOVERY		
	State	Local	State/Local	Governor	Local	Governor/Local	Other	State	Local	State/Local
Alabama	X					X			X	
California		X			X				X	
Delaware			X			X			X	
Florida		X				X			X	
Georgia		X				X			X	
Illinois	X				X				X	
Indiana		X				X			X	
Louisiana		X				X			X	
Maine	X			X				X		
Maryland	X						X	X		
Massachusetts	X						X	X		
Michigan	X			X				X		
Minnesota		X					X		X	
Mississippi	X					X			X	
New Jersey		X					X		X	
New York	X				X			X		
North Carolina		X				X		X		
Ohio		X			X				X	
Oregon		X				X			X	
Pennsylvania		X		X					X	
South Carolina		X		X					X	

	State	Local	State/Local	Governor	Local	Governor/Local	Other	State	Local	State/Local
Texas	X						X	X		
Virginia		X					X		X	
Washington		X					X			X
Wisconsin		X			X				X	
TOTAL	9	15	1	4	5	9	7	7	17	1

NOTE: "State" refers to state agency for emergency services (i.e., Civil Defense)

"Local" refers to heads of government in local political subdivisions

"Other" refers to a shared responsibility between more than one official or agency or a "recommendation only" authority.

LEGAL RESPONSIBILITY FOR RESPONSE (EVACUATION)

A local chief elected official has the responsibility to protect the health, safety and welfare of the citizens of his community. However, this does not imply that the power to order and enforce an evacuation is inherent within the office of mayor. For example, in the state of Georgia a mayor's power to enforce evacuation is given to him by resolution of the governing body of the entity he serves. If he is not given that power by resolution and an evacuation is necessary to protect the health, safety, and welfare of the citizenry, he may call on the Governor to enforce evacuation.

In the response phase, four states or 16 percent of those surveyed designated the governor as having the legal authority to order evacuation of the endangered population. In 20 percent, or five states, the local chief elected official possesses the authority, while in nine, or 36 percent of the states, the authority is held by both the governor and the local chief elected official. Each has the authority to execute an evacuation order independently of the other. In five, or 20 percent of the states, responsibility is shared with other officials such as local police, state police, or the state Department of Health. In some states, the type of emergency dictates the proper authority to issue the evacuation order. For example, the Department of Health may order evacuation due to a hazardous material event. In emergency situations involving fires, the local fire chief may hold the authority to order evacuation although this is implemented with concurrence of the chief elected officials. In three states, there is no authority to order evacuation or the authority is unclear. Recommendations can be made by the governor or local officials, but effectiveness depends entirely on public response. In these situations, local preparedness programs are more vital than ever. If the public is trained to respond to the recommendations through hazard awareness programs, loss of lives can be reduced substantially. Effective response depends on effective preparedness measures.

LEGAL RESPONSIBILITY FOR RECOVERY

The telephone survey conducted during the research period indicated that in recovery operations, seven states or 28 percent holds the state primarily responsible for recovery while in fifteen states or 68 percent local chief elected officials are primarily responsible. In one state, the responsibility was state and locally shared. In summary, the results indicated that in 72 percent of the states surveyed the primary responsibility for recovery rests solely with local governments or in a shared role of local and state governments.

SUMMARY

In a 1980 Comptroller General's report, the results of a study of disaster response planning activity in six states (Connecticut, Georgia, Mississippi, Missouri, New Hampshire and Oklahoma) were reported. Results of the study showed that:

-- "most state agencies did not have adequate implementing procedures for disaster tasks assigned,

-- local communities' emergency plans either were not compatible with state emergency plans or needed to be reviewed for compatibility, and

-- States have not developed training programs to train state and local personnel in their responsibilities during a disaster."[1]

The results reported above should in no way be interpreted to mean that states have been negligent in disaster preparedness planning. All coastal states encourage that local plans be consistent with the state plan for emergency response and that training programs be undertaken. However, because most substate civil defense areas cover many counties, staff is usually limited and the time available to monitor each local plan closely and implement comprehensive training programs is minimal.

In practical terms, disaster preparedness, response, and recovery is realistically initiated at the lowest level of government. When these capabilities are expended, state assistance is requested, and when the state is not able to respond, federal assistance is sought. Regardless of where primary responsibility lies for developing disaster preparedness, response, and recovery plans, actual implementation will take place at the local level. Therefore, the success of such planning efforts depends on the activities of local officials and their ability to perform effectively.

In all states surveyed, organization of local civil defense units within political subdivisions of states is either required by law or is strongly encouraged. Even in states where local civil defense organizations are required by law, it has proved to be virtually impossible to enforce a particular level of activity in each organization. Therefore, a local based technical arm, such as an existing substate/regional planning agency, could be a useful provider of necessary assistance. Despite the fact that regional agencies have no implementation powers, they can provide the impetus for an active local preparedness program regionwide.

Whether mandated or encouraged, the effectiveness of local civil defense organizations depends on personnel, local support from elected officials as well as the community, and financial support and assistance from the state emergency service agency. Some of the coastal regional planning agencies surveyed encompass urban areas which may possess in-house planning capabilities (i.e. a professional staff for disaster planning), and who, typically, possess the greatest level of civil defense involvement and activity.

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[1]"States Can Be Better Prepared To Respond To Disasters," Report by the Comptroller General of the United States, Washington, D. C., March, 1980.

Many of these urban areas include more than one county and the concept of a regional approach to storm preparedness would greatly enhance the local capability for effective response. Rural areas of the country possess disaster preparedness planning problems somewhat different from those in urban areas. In some of the areas, civil defense officials are fulltime employees of local government while others are volunteers or serve in dual capacities. In rural areas, for example, a county clerk may serve as local civil defense director. In the cases of such part time directors, heavy reliance is placed on civil defense area coordinators for providing technical assistance.

The demand placed on civil defense area coordinators is great. In many cases, it is physically impossible for them to provide continuous "in-depth" technical assistance to all local governments who require it. Twenty counties or more may be included in such a civil defense substate area. If, in that area, all political subdivisions are required by law to develop and maintain disaster response plans and do not possess the in-house capabilities to do so, many local governments are left without the necessary guidance. States frequently provide local governments with a document after which to model their own plans. This may be the overall state disaster response plan or a model county plan and can provide a sound base for planning. However, because it does not reflect the specific needs of each locality, local governments must tailor the model to fit their needs. In order to be effective, such models must either be very basic in nature with the process for development clearly defined or be accompanied by staff to assist in adaptation to local needs. Many area coordinators simply do not have the staff to individually assist each and every local government in the initial development of a program and the necessary annual review and revision process. This results in a lack of preparedness efforts, plans not being maintained, or plans that are not realistic and cannot be implemented.

Some areas have improved preparedness measures through experience such as the Gulf Coast area which has experienced a high frequency of coastal storms. Areas that have not experienced frequent damage from storms are not as well prepared. Again, the civil defense area coordinator is called upon to fill the gap created by the local governments' lack of experience in actual disaster situations.

V. BACKGROUND -- REGIONAL AGENCIES

OVERVIEW OF SUBSTATE/REGIONAL PLANNING AGENCIES

The phrase "substate/regional planning agency" refers to a multi-county/multi-functional public organization involved in a variety of programs and services that assist local government. Such organizations are also called regional planning and development commissions or districts, area or regional planning councils, councils or associations of government, and economic or area development districts.

Regional agencies are, for the most part, voluntary associations of local governments, created for the purpose of providing information, assistance in obtaining federal funds, and a forum for addressing multi-jurisdictional problems. Examples of areas of activity of such agencies include: comprehensive land use planning, housing, A-95 review, tourism promotion, transportation, environmental quality, human resources, grantsmanship, economic development, community development, public safety, mapping, and demographic data collection. In general, characteristics of such organizations are:

"- They are organized on a multi-jurisdictional basis (usually multi-county).

- They seek to achieve governmental coordination and cooperation across legal jurisdictional boundaries to handle mutual needs and problems.

- They are multi-functional in scope and work with a variety of programs and problems.

- They are advisory and lack operational authority. They do not have the governmental powers of taxation regulations (with few exceptions).

- They are legal entities which exist through the agreement of their member governments."[2]

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[2]Robert J. Marshak, "Areawide Disaster Response: Civil Preparedness and Regional Councils," Defense Civil Preparedness Agency, Human Sciences Research, contract DAHC 20-73-C-1025, Work Unit 4412E, February, 1974.

HISTORY OF REGIONAL PLANNING AGENCIES

Regional agencies exist as creations of the particular state(s) in which they are located and provide a means of dealing with multi-jurisdictional problems. Records indicate that in 1929 the first regional effort in the nation was undertaken in the state of New York, where a regional land use plan was developed. Today, as in the 1920's, areas of activity cross jurisdictional boundaries in ever increasing fields. This is evident in transportation, law enforcement, land use planning, and public safety, to name only a few. Most counties and communities, especially in rural areas, do not have the technical or financial resources to deal with such concerns. Regional planning agencies serve as "tools" of local government. They have repeatedly proven, by their track records, to be an effective means of providing assistance to local governments.

A total of 671 substate/regional planning agencies exist in the United States as of 1980. The 1977 Census of Governments showed that such agencies served 99 percent of all counties in the nation. "Also shown by the 1977 Census of Governments, two-thirds of all states (34) have regional councils covering all or virtually all of their territory. Two others, Washington and California, have about 90 percent coverage while five (Pennsylvania, Kansas, Oregon, Nebraska, and Wisconsin) have about 80 percent coverage. New Jersey, Ohio, and Illinois have 70 percent of their counties served by regional councils, while Montanna and Wyoming are about 50 percent covered. Finally Nevada has about 30 percent coverage."[3]

Partially as a result of expansion of federal programs and increases in requirements of these programs, substate/regional agencies are becoming even more effective and multi-functional in their service to local governments. A recent survey of the NARC indicated that regional agencies are involved in at least ten federal programs:

1. The HUD Comprehensive Planning Assistance Program (701).
2. Areawide Water Quality Management (208).
3. Air Quality Management (Section 175).
4. Solid Waste Management (Environmental Protection Agency).
5. Areawide Agencies on Aging (AAA).
6. Health Systems Agencies (HSA).
7. Criminal Justice Planning (Law Enforcement Assistance Administration).
8. Economic Development (Economic Development Administration).

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[3]Bruce D. McDowell, "Most States Support Regional Agencies, All Could Do More." Washington, D. C., 1979.

9. Metropolitan and Rural Transportation (Department of Transportation).

10. Title V Federal Regional Agencies (i.e. Coastal Plains Regional Commission).

As the above list indicates, the gamut of activities and programs which regional agencies participate in is broad. An expansion to include disaster preparedness, response, and recovery planning would seem a natural progression. Areas in which these agencies could assist state and local governments in such activities are dealt with specifically in subsequent sections of this document.

ADVANTAGES OF INVOLVEMENT OF REGIONAL AGENCIES

Regional agencies possess many advantages which make them a useful tool for implementation of local, state, and federal programs such as disaster preparedness, response, and recovery. On a broad national scale, among these advantages are:

1. Substate/regional agencies are not a threat to "home rule" as their boards of directors are local elected and appointed officials.

2. Substate/regional agencies are not an extension of any state or federal agency.

3. Substate/regional agencies exist purely as an advisory body and technical assistant to local governments.

4. Substate/regional agencies serve as a liaison between federal/state and local governments.

Creative use of substate regional planning agencies by federal, state and local governments can provide significant assistance to local governments in meeting their own responsibilities. As noted in an address made by James H. Wilson, President of the National Association of Counties (NACo), it is not "a question of 'if' regional problems will be solved, but 'how' and by 'whom.' It is the responsibility of state governments to handle those problems which cannot be handled by governmental agencies smaller than the state. Use of a regional agency, controlled by local governments, will keep these solutions closer to the people."

VI. SUBSTATE/REGIONAL PLANNING AGENCIES AND DISASTER PREPAREDNESS

OVERVIEW

A comprehensive regional approach to disaster preparedness, response, and recovery programming has never been undertaken in the United States. Such a regional approach, including the elements of planning, mapping, education and public awareness, and mitigation, has been determined to have validity and potential for effectiveness in delivering technical assistance to local units of government.

FINDINGS OF THE STUDY

The results of a telephone survey conducted in the Atlantic, Pacific, and Gulf states indicated that 27 percent of the coastal regional planning agencies in those states were found to have done some type of work in disaster preparedness. The questions posed to these agencies appears in Appendix II and a summary of their involvement in disaster preparedness efforts in Appendix VI.

When reviewing Appendix VI, it should be noted that few of the agencies who appeared to have been involved in planning activities indicated that they are "currently" involved in such activities. Many of them indicated that in the past they had produced documents that were never implemented or had undertaken activities that were discontinued for lack of financial or staff support. Many were not comprehensive efforts and included only a few of the necessary elements vital to a workable disaster response plan.

In terms of educational efforts, results of the survey indicated that such efforts were not comprehensive and often utilized no physical tools. Mapping activity appeared in only three regions and was not geared to providing technical assistance in filling specific needs of local governments.

Mitigation activities undertaken by regional agencies basically included assistance, upon request, to local governments in administering the National Flood Insurance Program (NFIP), writing land use ordinances and subdivision regulations, land use planning, participation in the A-95 review process. Two states, Florida and Virginia, are participating in a state mandated review of development affecting more than one local government. The more active mitigation efforts involved specific hazard mitigation planning in only eleven regions.

Table 2 presents a composite of the data appearing in Appendix VI. The results portrayed in the table reflect those states for which direct technical assistance has been provided by regional agencies

TABLE 2

Coastal Regional Agencies (by State) Providing Direct Technical Assistance to Local Governments*

STATE	PLANNING	EDUCATION	MAPPING	MITIGATION
Alabama				
California	X			X
Delaware				
Florida	X			X
Georgia				X
Louisiana				
Maine	X			X
Massachusetts	X			X
Mississippi				
New Jersey				
New York				
North Carolina				
Oregon				X
South Carolina				
Texas	X	X		
Virginia				X
Washington				

* "X" indicates one or more coastal regional agencies in the state involved in providing technical assistance in the particular element of the program.

to local governments in the four elements of disaster preparedness programming. It is clearly evident from a review of the results obtained that no coastal state uses a comprehensive approach to disaster planning on a regional basis.

In an effort to insure that a complete analysis of regional agency involvement in disaster preparedness efforts was undertaken, a survey was conducted via national interest groups. Regional agencies involved in such efforts in landlocked regions responded, with results indicating minimal, isolated efforts and, certainly, no comprehensive approach. Table 3 presents a summary of the more significant programs undertaken by the responding landlocked regional agencies.

Finally, state emergency service agencies were contacted by telephone to determine their involvement in providing assistance to local government as well as their knowledge of other groups/agencies who were involved in disaster preparedness programs. From the completed research, only six groups/agencies were identified as having programs of special significance. Table 4 presents a summary of the findings.

SUMMARY AND RECOMMENDATIONS

From a review of all the data gathered, it is evident that in only two of the agencies surveyed are any activities approaching a comprehensive nature being undertaken. However, the work by these agencies, the Tampa Bay Regional Planning Council (Florida) and the Southwest Florida Regional Planning Council, does not focus on providing direct technical assistance to local units of government in the region. As indicated in Section IV of this document, "Responsibility for Disaster Preparedness", all local governments must be provided more comprehensive and intensive technical assistance in all elements of a preparedness program if they are, indeed, to be prepared.

The nature of regional agencies is advisory. Such agencies act at the request of member local governments in providing assistance. Many of those requests are motivated by a requirement being made of local governments to perform a certain task in order to comply with federal, state, or local needs. Such examples include ordinances and codes required by the NFIP and HUD 701 program for land use planning. Assistance in disaster preparedness could be a mere extension of existing services provided to local governments by regional agencies.

Most substate/regional agencies serve fewer counties than do civil defense substate coordinators. In general, they are well equipped to maintain close contact in the geographical area and to assist the civil defense area coordinator in providing technical assistance to local governments in disaster preparedness, response, and recovery. Working with state emergency service agencies, they can provide the direct assistance necessary to insure consistency with state plans, coordination with supporting groups and agencies, and a system for regular review and revision of all phases of the disaster planning program.

TABLE 3

Landlocked Regional Agencies' Involvement in Disaster Preparedness

AGENCY	PLANNING	EDUCATION	MAPPING	MITIGATION
Region 26 Council of Governments (Nebraska)	A regional disaster plan for the area is supplemented by county plans. Technical assistance in writing plan is provided on request. There is no system for review and revision of plan. Plans include a resource listing for the region by county. An interlocal cooperation agreement between counties.	Although there are no formal tools such as comprehensive awareness programs, the agency deals in educating the public by holding public meetings at the onset of of tornado season. Requests for assistance are also filled which include talks regarding the dangers of toxic chemicals.	None	Mitigation activities are informal and deal mainly in educating the public about potential hazards. Staff assists in formulating land use ordinances and plans. The agency also participates in the A-95 review process.
Kentucky Regional Planning Commission	This regional commission developed disaster response plans for three of its nine counties. Plans include the basic elements of disaster response in terms of general operation. No specifics were provided regarding a listing of resource equipment and personnel.	Training for local government agency personnel was addressed, however, no comprehensive educational program was provided for.	None	None
Utah United Basin Association of Governments	This three-county association anticipates completion of a regional plan in September, 1980. The plan is designed to provide emergency preparedness in energy related crises. Elements included are relocation of the population, provision for health/medical care, and energy field supplies.	None	None	None
Acadia Planning and Development District (Louisiana)	One parish inventory for temporary housing and staging areas, post-disaster service, and storage areas. Solid waste disposal sites and model emergency ordinance.	None	None	None
Barren River Area Development District (Kentucky)	State Civil Defense contracted with this agency to prepare emergency response plans for each of ten counties. Contains resource list, agency role assignments. Regional advisory council exists. No system for plan review and update. After plans were developed, agency played no active role.	None	Agency is redrawing flood prone area maps.	Assist in developing zoning and subdivision regulations, NFIP administration on request.
Top of Alabama Regional Council of Governments	With two other regional councils prepared "Disaster Mutual Assistance Program" for 13 county area. Funded by DCPA. Contained equipment, service and personnel inventory. Program is no longer active.	None	None	Assist in administering NFIP

TABLE 4

OTHER AGENCIES/GROUPS INVOLVED SIGNIFICANTLY IN
DISASTER PREPAREDNESS PROGRAMMING

ELEMENT	AGENCY/GROUP	PROGRAM SUMMARY
Planning	Virginia Office of Energy and Emergency Services	The agency provides a prototype for county plans and technical assistance to counties in preparing their own plans. There are three substate emergency service areas covering a total of 100 counties. Some municipalities also participate in the planning activities. Seventy of the 130 jurisdictions (54 percent) have plans.
	Texas A & M University	Through the Texas Sea Grant Program a hurricane flood relocation plan will be developed for three counties in the Galveston area. This metropolitan evacuation plan will be based on analyses of road networks, evacuation zones, flood vulnerability, and a survey of behavior responses, expected vehicle volume and shelter requirements.
	Texas Coastal and Marine Council (TCMC)	NONE
	North Carolina Department of Crime Control and Public Safety	This agency has developed a prototype called the Carolina County Plan. It includes such elements as warning and alert systems, a readiness action checklist, guides for developing evacuation routes and shelter systems, re-entry, general local responsibilities, communications, public information, exercises to test the plan, and recovery assistance. The prototype is provided to local officials for use in preparing county plans.
	Mobile County Civil Defense (Alabama)	This one county evacuation plan provides general guidelines for operations and a personnel resource listings. Services' appendices list specific groups and agencies and the services or resources they provide. The county also has emergency ordinances. There is no identified means of coordination with adjoining counties.
	Baldwin County Civil Defense (Alabama)	This one county Hurricane Shelter and Evacuation Plan provides general guidelines for operations. No specific resources are identified and no means of coordinating with adjacent counties is provided.
	Florida Sea Grant Program	This agency provides assistance to local, regional, and state officials in planning as requested.
	Northwestern Indiana Regional Planning Commission	This agency prepared an evacuation plan for several lakeshore communities concerning hazardous materials.
	Cape May County, New Jersey Civil Defense	This one county plan provides for emergency operations for hurricane and floods. All operations are keyed to four storm conditions. County staff duties assigned. Evacuation plan includes three characteristics: no route intersects with another, routes are signed in color code daily, have agreement with service facilities along routes to service breakdowns.
Education	Virginia Office of Energy and Emergency Service	The agency conducts annual briefings for local officials to make them aware of state requirements and plans. Some regional planning agencies are used in organizing these briefings. Annual workshops are conducted for local emergency service directors. A local officials handbook for disaster preparedness is also produced at the state level. The state provides information to local directors for public awareness programs conducted locally. The state has produced map brochures for distribution to local directors for further dissemination. The state must rely on local involvement to carry out a successful public awareness program.
	Texas A & M University	One specific brochure will be produced (patterned after the Texas Coastal and Marine Council brochures) in conjunction with the plan. Other material will be developed for general distribution and media use.
	Texas Coastal and Marine Council	This is a state agency but separate from the Texas Department of Public Safety, the primary agency for disaster preparedness in Texas. TCMC has conducted an intensive hurricane awareness program for the public through the distribution of a hurricane survival checklist, maps keyed to various coastal areas, use of media and slide presentations, direct mailing of such information on request. In addition, the TCMC has produced a hazards awareness guidebook for use in conducting its awareness program.
	North Carolina Department of Crime Control and Public Safety	This state agency is nearing completion of a program package for inclusion in the existing public school curriculum, grades K-12. It is designed to address the nature of disaster and responses and will be incorporated in a broad range of courses of study.
	Mobile County Civil Defense (Alabama)	The county produced a map brochure for public distribution showing shelters, evacuation routes, flood stage areas, and an action checklist.
	Baldwin County Civil Defense (Alabama)	NONE
	Florida Sea Grant Program	Pilot project for natural coastal hazard awareness and preparedness. Has developed and implemented educational program to assist local civil defense directors. Series on information center and liaison to local, regional and state officials.
	Northwestern Indiana Regional Planning Commission	NONE
	Cape May County, New Jersey, Civil Defense	General informational program for county residents.

TABLE 4
(CONTINUED)
OTHER AGENCIES/GROUPS INVOLVED SIGNIFICANTLY IN
DISASTER PREPAREDNESS PROGRAMMING

ELEMENT	AGENCY/GROUP	PROGRAM SUMMARY
Mapping	Virginia Office of Energy and Emergency Services	In addition to map brochures for the public showing low lying areas, evacuation routes, and shelters, state guidelines for plans provide for an evacuation and shelter map to support the evacuation section of the local plan. No large scale mapping is provided for local Emergency Operations Centers.
	Texas A & M University	NONE
	Texas Coastal and Marine Council	NONE
	North Carolina Department of Crime Control and Public Safety	NONE
	Mobile County Civil Defense (Alabama)	NONE
	Baldwin County Civil Defense (Alabama)	NONE
	Florida Sea Grant Program	NONE
	Northwestern Indiana Regional Commission	NONE
	Cape May County, New Jersey Civil Defense	NONE
Mitigation	Virginia Office of Energy and Emergency Services	The agency is also the State Hazard Mitigation Office. A state hazard-mitigation plan provides guidelines to local governments for lessening flood impact. A hazard mitigation handbook for local officials is also produced.
	Texas A & M University	NONE
	Texas Coastal and Marine Council	NONE
	North Carolina Department of Crime Control and Public Safety	NONE
	Mobile County Civil Defense (Alabama)	NONE
	Baldwin County Civil Defense (Alabama)	NONE
	Florida Sea Grant Program	NONE
	Northwestern Indiana Regional Commission	NONE
	Cape May County, New Jersey Civil Defense	NONE

Implementation of all of the above mentioned programs is the responsibility of local governments and should remain there. However, implementation cannot be realized without sound program policies, objectives, and the hardware for getting such jobs done. Even though implementation of disaster preparedness programs must occur at the local level in each political subdivision, there is an inherent responsibility to coordinate such efforts with neighboring communities. Just as economic development and land use policies affect entire regions, so does disaster preparedness. In the event of most disasters, it is unlikely that only one political subdivision would be affected either by the hazard itself (i.e., hurricane or chemical spill) or by the subsequent movement and relocation of people. Thus, it follows that a regional approach to disaster preparedness is the most effective means of dealing with the problem. The problem itself is regional in nature and implies cooperation of all agencies involved. Since the problem is a regional one, the solution should be derived through a regional approach.

Regional disaster preparedness programs can be implemented through substate/regional planning agencies. Such agencies can assist state emergency management agencies in coordinating disaster preparedness at the regional level. As a local based technical assistant, substate/regional agencies can serve as a liaison between federal, state, and local groups.

Recommendation:

Substate/regional planning agencies should be utilized by federal and state emergency preparedness agencies to build the capabilities of federal, state, and local government in developing regional disaster preparedness programs. Local technical assistance should include development and maintenance of disaster response plans, hazard awareness programs, map resources, and hazard mitigation activities.

VII. ADVISORY COUNCIL AND SUBCOMMITTEES

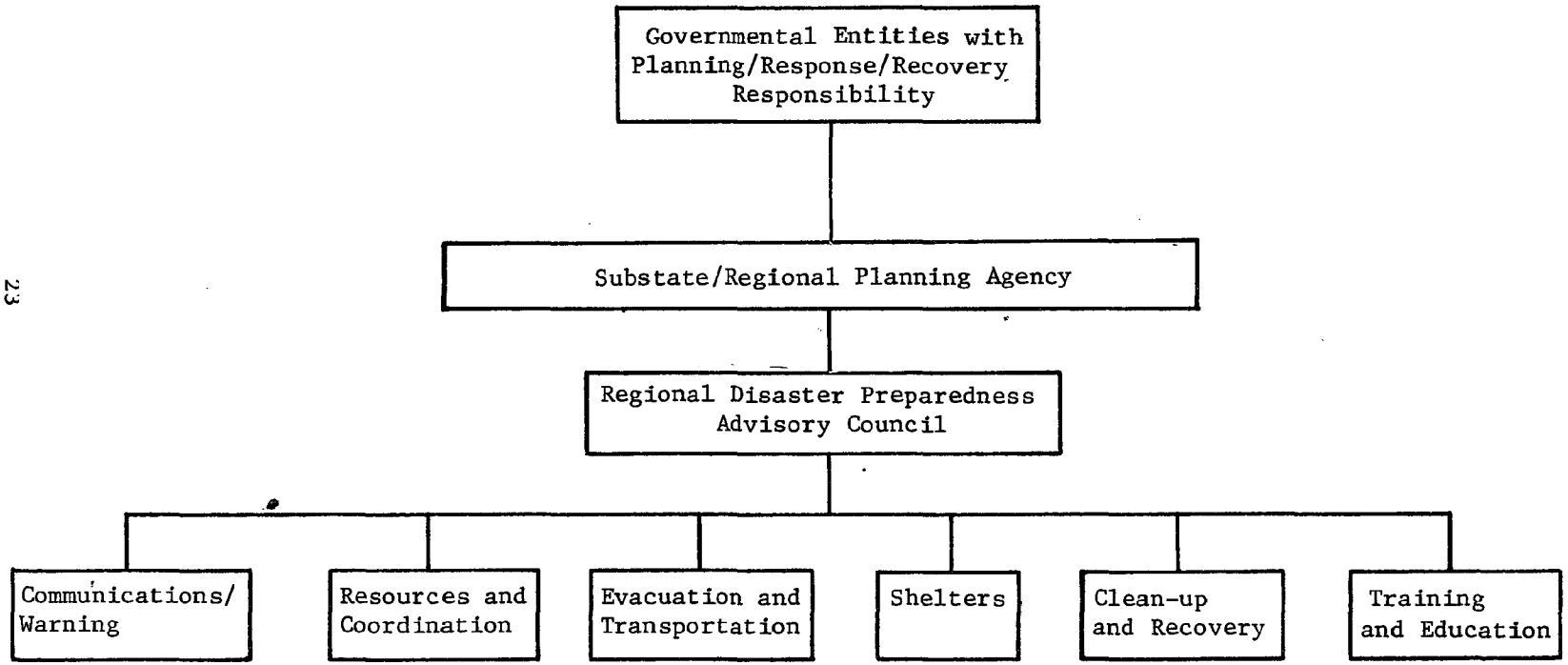
Direction and control of a disaster preparedness and response program is the guidance necessary to develop the program in a coordinated and organized fashion. To be effective in the implementation stage, the responsibility for direction and control during the planning process must be placed with those who will be charged with carrying out the plan.

To insure coordination in the development of the program, as well as implementation of each function, it has been found that advisory groups representing all involved agencies and groups have served in a valuable capacity. For example, in Mobile County, Alabama, a civil defense authority was created as the governing board of the Mobile County Civil Defense Organization. It represents membership from political entities in the county as well as the county itself. Such an organization also exists in Chatham County, Georgia. A Civil Defense advisory body to the Chatham County - City of Savannah Civil Defense Department. Advisory groups are found at the state level as well. In several states, these groups are composed of representatives from each federal/state agency involved in disaster preparedness. The group has input in formulation and review of the written state disaster response plan. Most substate/regional planning agencies use advisory councils to guide the development of their various programs. These groups, made up of local officials, business and industry, institutions, special interest groups, and the citizenry, effectively represent the views of the region. If a comprehensive disaster preparedness program is to be undertaken at the regional level, it follows that a regional advisory council and subcommittees should be appointed to direct the program.

Advisory groups transcend levels and departments of government to coordinate activity and to serve the citizens in the most effective manner possible. A study completed in 1979 by the Advisory Commission on Intergovernmental Relations in Washington, D. C. indicated that, of the 50 states surveyed, in 23, or 46 percent, an Intergovernmental Advisory Committee assisted the governor in guiding the development of state programs. From the 25 coastal and Great Lakes states surveyed by the Coastal APDC, 14, or 56 percent, utilized such advisory committees. It has been shown by example that locally, and at the state level, as well as intergovernmentally, advisory groups work in many areas. The utility of advisory groups can be expanded to guide disaster preparedness programs. Since disasters can affect all or part of a region, such advisory groups should be representative of the region. Figure 3 provides a suggested organizational structure for the regional disaster preparedness advisory council and subcommittees. Initially, the advisory council on disaster preparedness should be composed of primary response groups/agencies. Council subcommittees, composed of secondary response groups/agencies, will provide assistance to the council on specific areas of interest.

FIGURE 3

REGIONAL DISASTER PREPAREDNESS ADVISORY COUNCIL AND SUBCOMMITTEES



In order to provide a concrete example of how the regional advisory council and subcommittees should be organized, a careful analysis was made of the state of Georgia's disaster response plan and which agencies/groups had primary or secondary responsibility in disaster situations. Since Georgia's plan is similar to that of other states, it should be possible for the results and methods presented here to be transferred for use by others. Appendix VII contains a list of state and voluntary groups and agencies in Georgia with primary and support responsibility in disaster preparedness, response, and recovery and their roles as defined in the state plan. ("P" denotes primary responsibility and "S" denotes secondary responsibility). These roles are summarized in Table 5. Functional areas of interest can be outlined using the state disaster response plan as a baseline of information. From those areas, groups with primary and secondary roles at the state level can be identified.

In terms of response roles at the regional and local levels, primary and secondary response agencies/groups and service providers should be identified by interviews with those chief elected officials and others with authority for preparedness, response, and recovery. In general, a realistic assessment of what agencies/groups actually provide a service during disaster situations should be made. In order to give guidance in identifying primary and secondary providers, Appendix VIII offers examples of questions which can be posed to determine subcommittee members. For illustrative purposes, listed below are, (for coastal Georgia), options for membership on the regional advisory council and particular subcommittees. Representatives from the following agencies/groups may include, but are not limited to:

Advisory Council

State Civil Defense
Local Civil Defense
Chief Elected Officials
State Patrol
Department of Transportation (DOT)
Department of Natural Resources (DNR)
Department of Human Resources (DHR)
National Weather Service (NWS)
Coast Guard

Training and Education Subcommittee

State Civil Defense
Local Civil Defense
Local Elected Officials
Boards of Education
Board of Regents
Local fire departments and police
Local departments of government (i.e. utilities, street maintenance)
Private industry safety engineers
Local planning commissions

TABLE 5

ROLES AND RESPONSIBILITIES

	DEPARTMENT OF ADMINISTRATIVE SERVICES	DEPARTMENT OF AGRICULTURE	DEPARTMENT OF AUDITS AND ACCOUNTS	BUILDING AUTHORITY	BUREAU OF INVESTIGATION	DEPARTMENT OF COMMUNITY AFFAIRS	COMPTROLLER GENERAL'S OFFICE	DEPARTMENT OF DEFENSE	DEPARTMENT OF EDUCATION	FORESTRY COMMISSION	DEPARTMENT OF HUMAN RESOURCES	DEPARTMENT OF INDUSTRY AND TRADE	DEPARTMENT OF LABOR	DEPARTMENT OF NATURAL RESOURCES	OFFENDER REHABILITATION	OFFICE OF PLANNING AND BUDGET	DEPARTMENT OF PUBLIC SAFETY	PUBLIC SERVICE COMMISSION	BOARD OF REGENTS	DEPARTMENT OF REVENUE	DEPARTMENT OF TRANSPORTATION	VETERANS SERVICE	VOLUNTEERS, ETC.*
TRAINING/EDUCATION																							
1. Public Information	S							P1															
2. Training								P	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
3. Education		S				S		S	P		S							S				S	
COMMUNICATION/WARNING	S				S			P	S	S						S		S	S	S		S	
INVENTORY OF RESOURCES/COORDINATION/EMERGENCY SERVICE																							
1. Police Services	S				S			S		S				S	S		P		S	S	S		
2. Fire Services	S	S			S		S	S		P				S	S		S	S	S		S		S
3. Search, Rescue and Recovery	S				S		S	P		S	S			S	S		S				S		S
4. Engineering Services	S	S				S		S		S				S				S	S		P		S
5. Hazardous Material Events																							
A. Non-Radiological		S						S		S				P			S				S		
B. Peacetime Radiological	S	S						S		S	S			P			S				S		
6. State Military Support								P															
7. Fuel	S	P						S						S		S2	S	S	S		S		S
8. Utilities	S	S						S						S		S2	S	P	S		S		S
9. Procurement	P					S		S	S		S	S							S				
10. Coordination of Private Organizations/Volunteer	S					S		P	S		S		S	S				S	S		S		S
EVACUATION/TRANSPORTATION/RE-ENTRY																							
1. Evacuation					S	S		P	S	S	S			S			S	S	S		S		S
2. Transportation	S							S	S	S	S			S			S	P	S		S		S
SHELTERS	S				P			S	S		S			S					S		S	S	S
CLEAN-UP (Timber Removal and Salvage)	S	S				S		S		P			S		S		S		S		S		
RECOVERY OF SERVICES AND PUBLIC ASSISTANCE																							
1. Disaster Assistance Operations Center	S	S	S	S	S	S3	S	P	S	S	S	S		S	S	S	S	S	S	S	S	S	S
2. Damage Assessment and Reporting	S	S		S		S	S	P	S	S	S			S		S	S	S	S		S		S
3. Health and Social Services	S	S		S		S3		S	S		P		S	S			S	S	S		S	S	S
4. Temporary Housing	S					P		S	S		S		S	S					S		S	S	S
5. Mortuary - Identification Services	S				S			S			P						S	S	S			S	
6. Public Property Assistance	S		S				P	S						S								S	
7. Insurance Administration	S			S			P	S						S								S	
8. Investigation	S		S		P		S	S		S				S			S						
9. Unemployment and Re-employment						S		S			S		P		S				S			S	

Footnotes

(1) Office of the Governor
(2) Office of Energy Resources
(3) State Office of Housing

* To include private relief organizations (i.e. Red Cross, Salvation Army), private industry; professional associations and participants in mutual aide agreements.

Communication/Warning Subcommittee

State Civil Defense
Local Civil Defense
HAM radio operators
Radio
Television
Newspapers
DNR
State Patrol
NWS
DOT
Forestry Commission

Resource and Coordination Subcommittee

Local based state agencies (i.e. state agencies with "branch" offices in the region, such as DNR and DOT)
Emergency Medical Service (EMS) units
Business and private industry
Professional Organizations (i.e. doctors, attorneys, teachers)
Red Cross and other volunteer agencies
Local departments of government (i.e. tax assessor, city/county engineers)
Boards of Education
Hospitals

Evacuation/Transportation Subcommittee

State Civil Defense
Local Civil Defense
State Patrol
DNR
DOT
Boards of Education
Churches
Volunteer groups and professional organizations
Local police and fire departments

Shelters Subcommittee

Red Cross
Boards of Education
Motel/Hotel Owners
Health Department
Local police
State Civil Defense
Local Civil Defense

Clean-Up/Recovery Subcommittee

Local governmental departments (i.e. coroner, surveyor, building inspector, maintenance, city/county engineers)
Forestry Commission
DNR
DOT
Volunteer groups
Utility Companies
Private Contractors
Local Civil Defense
State Civil Defense
Private industry

The advisory council and subcommittees should represent interests throughout the region. It is important that their members be persons who are committed to the program and would attend regular meetings to help formulate programs and maintain them. A letter of committment from each agency or group represented can solidify the relationship with the Advisory Council. Regular meetings of these groups should be used initially to build a framework for disaster preparedness planning. That framework can be utilized in the development of individual county (or municipal) response plans so that all local plans in the region are coordinated and address needs common to each county or community.

Role of Regional Agencies

Because substate/regional planning agencies do not have a vested interest in any single agency represented on the advisory council, it can serve as a facilitator to bring together those groups involved in disaster preparedness.

The primary responsibility of the regional agency would be to serve as a coordinative and technical assistance mechanism. In the disaster preparedness area, the regional agency could provide technical assistance to state and local governments and agencies in planning, mapping, education, and mitigation. In the actual response area (evacuation), the agency would have no realistic role in that this will be undertaken by local and state entities. Finally, in the recovery stage, the agency could provide local and state governments technical assistance regarding immediate and long range recovery planning as well as assist in securing federal and state funding for recovery activities.

It should be stressed in this as well as all other portions of the disaster preparedness program that the role suggested for substate/regional planning agencies would not be a usurpation of the authority and responsibilities of any state or local agency. They will merely represent a supportive role by which all groups - cities/counties/state agencies/public interest groups/military/etc. - could be most effective and efficient in disaster preparedness planning and in implementing their plans in a coordinative manner.

Recommendation:

An advisory council should be formed representing the region served by the disaster preparedness, response, and recovery program. Membership should include groups/agencies expected to play primary roles in implementation. Advisory council subcommittees should be formed representing the region served by the disaster preparedness, response, and recovery program. Membership should include groups/agencies expected to play secondary roles in specific functional areas of implementation. Subcommittees should include, but are not limited to the following:

(1) Training and Education
(2) Communication/Warning
(3) Resources and Coordination
(4) Evacuation and Transportation
(5) Shelters
(6) Clean-up and Recovery

VIII. ELEMENTS OF THE PROGRAM

A disaster preparedness program is more than a document containing response procedures. It is a continuous coordinated effort to prepare the general public for emergency situations. It is also an effort to prepare responsible agencies and groups who direct, control, and support operations in emergency situations. It is the difference between having a written plan and active planning.

Elements of a comprehensive disaster preparedness program can be summarized in four basic areas: planning, mapping, education and public awareness, and mitigation.

PLANNING

Written disaster response plans are a means of solidifying operational procedures, identifying resources, and developing alternatives for dealing with the unexpected. By definition, a plan is "an orderly arrangement of parts of an overall design or objective." First, the component parts of a plan must be identified. The following parts, or functional areas, were identified by reviewing printed documents from various coastal areas, examining the results of a survey of other geographic areas, and contacting program users in the state of Georgia:

(1) Training and Education
(2) Communication/warning
(3) Inventory of resources/coordination/emergency services
(4) Evacuation/transportation/re-entry
(5) Shelters
(6) Clean-up and recovery

It is imperative that planning activities not be undertaken in an isolated manner. The activities of one city or county will depend on those of another. Plans must include concrete provisions, for example, for dealing with traffic related problems in host counties during evacuation periods, opening and operating shelters and reception centers, providing food and other life sustaining elemenets, and establishing communication networks during power outages. The subsequent narrative describes, in detail, each of the functional areas listed above and how each fits into the overall disaster response plan.

TRAINING AND EDUCATION

Response of individuals charged with carrying out the plan is dependent on their knowledge of the written plan and what is expected of them. Successful implementation of the plan can best be achieved through educational programs and training. Provision for such programs should be included in the written plan.

State emergency service agencies are primarily responsible for providing local civil defense directors with the training to carry out their duties. In addition, local officials must be trained to respond to the

duties assigned to them during an emergency. In 25 of the coastal and Great Lakes States surveyed only seven indicated that formal training programs include local officials other than civil defense directors. In Virginia, both civil defense and other local governmental officials participate in training seminars sponsored by the State Office of Emergency Services.

Those local elected officials responsible for implementation of response activities depend on their local civil defense directors for technical advice. Thus, under the guidance of the state emergency service office, local heads of government and local civil defense directors should be responsible for training programs for other local officials.

Each local official or governmental department expected to respond to a disaster situation (e.g. fire chief, police chief, county sheriff, superintendent of schools) should participate in the training program. Basic components of such a program should include:

(1) Identification of primary activity for each group
(2) "Classroom" instruction on how to carry out responsibility
(3) Simulation exercises to test responses and adequacy of the local plan.
(4) Identification of resource equipment.
(5) Identification of resource personnel and their duties.
(6) Regular review of the written plan.

Local officials should retain a copy of the written plan. It should contain checklists, simple charts showing the flow of activity throughout the governmental structures and simple descriptions of processes for requesting assistance. Examples of such material is shown in Appendix IX.

Supplemental printed material may also be beneficial. Guidebooks for local officials have served as a summary of responsibilities, federal and state assistance. Such material can be a reference for information presented to local officials in a formal training program.

Use of Subcommittee

As stated in the "Advisory Council and Subcommittees" section of this document, a subcommittee on training and education can be a useful tool in determining program content and resource persons to act as instructors. Made up of program users, the subcommittee can suggest particular areas of need and, as representatives of the region, can request appropriate resource people to conduct workshops or special training sessions. For example, industrial safety engineers or university personnel could provide excellent programs on emergency preparedness.

Role of Regional Agencies

Substate regional planning agencies currently assist local governments in developing training programs and workshops for their personnel. Traditionally, workshops have included programs on personnel management, hurricane preparedness, coastal zone management and historic preservation. Existing programs could be expanded to include more comprehensive efforts.

Recommendation:

A formal training and education program should be developed in each state for all local officials. It should include workshops, simulated response exercises, and printed guidebooks. Substate/regional planning agencies should be utilized to provide staff in aiding the development, distribution, and implementation of training and education programs.

COMMUNICATION/WARNING

The basic components for a disaster warning system are published by the Defense Civil Preparedness Agency (DCPA), now part of FEMA. Local disaster warning plans should be prepared to:

(1) Identify the agency/individual responsible for warning.
(2) Describe types of warnings that may be received and require dissemination.
(3) Explain method of dissemination.
(4) Provide for activation of the warning system.
(5) List actions to be taken.
(6) Include key agencies and personnel.
(7) Allow warning point authority to terminate warning.
(8) Provide for periodic testing of the system.
(9) Review/revise at least every two years.

The primary local source of warning will likely be the fire department, police department, civil defense office, or some channel that is operative 24-hours per day. A DCPA publication, Civil Preparedness Principles of Warning, (1977) describes how national, state, and local warning systems work. The relay system from the National Warning System (NAWAS) to the public must be achieved through local communication lines and none can be left out of the process. A general picture of the national system appears in Figure 4. It takes considerable time and energy to coordinate all communication lines in a region, no matter how small the area.

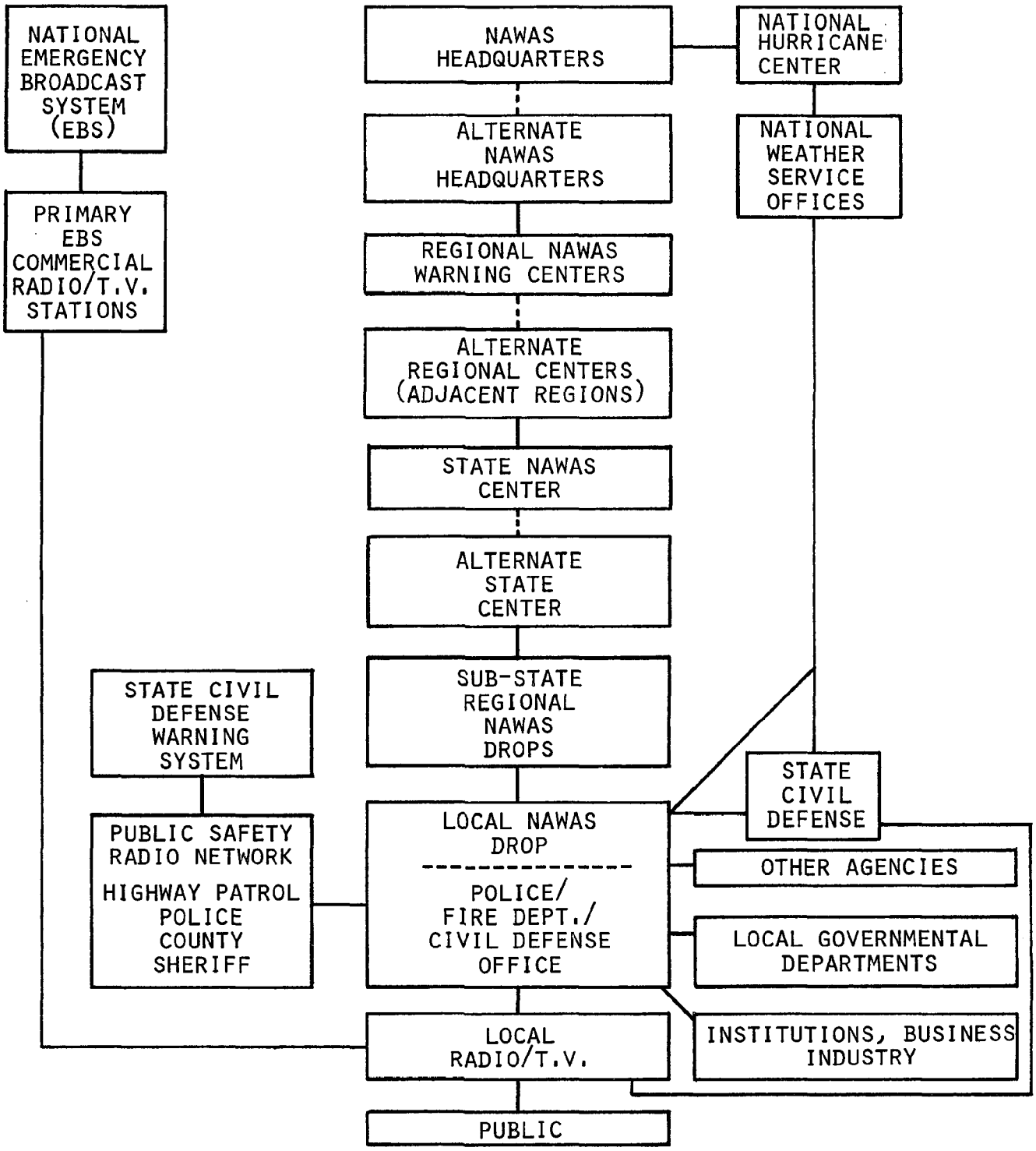
In time of actual emergency, the Emergency Operations Center (EOC) will be the focal point of such operations with representation from every agency or group expected to respond. Coordination between all groups and the news media is imperative. There must be a single source of information at the center to avoid constricting the activities of agency coordinators and to discourage unofficial information which may confuse the public.

Use of Subcommittee

The subcommittee on communication and warning will be a vital coordinative mechanism. This group, representative of each community, can identify literally every communicative branch in that region. Local communication

FIGURE 4

WARNING SYSTEM



and warning mechanisms should include business and industry, institutions, government offices, amateur radio operators, National Oceanic and Atmospheric Administration (NOAA) Weather Radio, and all possible news media. All hardware devices should be inventoried such as radio (both commercial and short wave), sirens (public as well as private), television, and any other possible devices in the community.

Each community system must tie into all others in the region forming an indoor and outdoor network for timely and accurate information for emergency response. The subcommittee can help assure the necessary coordination.

Role of Regional Agencies

Substate/regional planning agencies often have resources to aid in the development of communication systems. In day to day contact with other regions, state agencies, federal programs, local business and industry, and all governmental units, such agencies are in a position to draw together various resources. For example, an eight-county regional agency in Nebraska serves as a regional communication center for all types of emergency services. The center is operated 24 hours per day and coordinates with all communication branches in the region.

Regional agencies can also provide cost-benefit information to local government in determining the most effective type of system and use of existing devices.

Recommendation:

A regional network for communication should be established, including all possible resources.

Recommendation:

Local civil defense departments should designate a public information officer.

Recommendation:

An advisory council subcommittee on communication and warning should be utilized in coordinating communication resources in the region.

Recommendation:

Substate regional planning agency staff should be used in aiding research and applications of cost-effective communications systems and in coordinating resources of the region.

INVENTORY OF RESOURCES/COORDINATION/EMERGENCY SERVICES

Hardware and software resources are the tools of disaster response efforts. A "parts" inventory should represent each community's resources and the region as a whole. Many local governments have such listings in various forms. Some are written and some are not. In many cases, written listings are not detailed or maintained.

Five of the 73 substate/regional planning agencies surveyed have compiled a regional listing of resource equipment or personnel. None of the agencies had an annually maintained list of both personnel and equipment or a process for regular review. As an annex to local plans, such listings are generally not distributed to all departments of local government where an effective review process could occur. Services as well as equipment must be identified, such as:

Service	Equipment and Supplies
1. Medical services	1. Food
2. Engineering services	2. Clothing
3. Search and rescue	3. Medical supplies
4. Transportation	4. Vehicles
5. Debris removal	5. Heavy equipment
6. Water testing	6. Power generators
7. Fire protection	7. Ice
8. Temporary shelter	8. Household utensils
9. Temporary housing	9. Furniture for temporary housing
10. Unemployment counseling	10. Debris dumping sites
11. Financial assistance counseling	11. Chain saws
12. Veterinary services	12. Water pumps or storage equipment
13. Police protection	13. Water

These listings should be broken down by county and municipality. They should be specific and cross referenced in an index as to their location and type of function. Whenever possible, a simple map should show location of service. They should also include contact people and emergency telephone numbers or a means of contact. Appendix X illustrates such a listing.

Resource listings provide a pre-emergency evaluation tool in anticipating state agency support as well as a "call list" during the actual emergency stages. The listings contribute to the building of capacity of local government as well as state agencies in emergency response.

Each group or agency can be inventoried through the use of questionnaires or personal interviews, a process similar to that used in compiling census data. It should be noted that resource listings do not promise availability. Agencies/groups cannot be held legally responsible if equipment/service is not available. This points up the need for a regular revision or correction process. Each group having resources to offer should retain a copy of such a listing and notify the civil defense or appropriate office of any changes.

It is important to remember business and industry as well as professional associations in resource listings. For example, in the Savannah, Georgia area, the National Defense Transportation Association (NDTA) was an extremely valuable source of support during Hurricane David. The NDTA is a voluntary organization of professionals in the transportation field including the trucking and rail industry. This organization exists in most, if not all, states and has proven by its track record to be an integral part of the disaster response system.

To identify the resources of other businesses and industries, members of the Savannah Area Chapter of the American Society of Safety Engineers were surveyed. This group, made up of safety engineers in coastal Georgia and a portion of South Carolina, and representing manufacturers, the insurance industry, Occupation Safety and Health Act Administrators, and boards of education indicated that they did have resources they were willing to offer in disaster response. Specifically, 71 percent of those surveyed offered services such as insurance expertise, trained emergency medical staff, and fire protection. One respondent was a civil defense shelter host. All surveyed indicated they were interested in learning how they could assist further.

Use of Subcommittee

In the section on "Advisory Councils and Subcommittees," a subcommittee for resource and coordination is discussed. This is probably one of the most effective areas for such a group and where the results will be tangible.

Role of Regional Agencies

Unfortunately, many local governments, particularly small ones, do not have the capability to create a comprehensive inventory of area resources. As noted previously, the civil defense director may be the county clerk and, in the interest of time alone, cannot research every source of possible assistance. Substate/regional planning agencies can provide staff to fill those needs. They are the logical source of local assistance since they are responsible to all local governments in the region. In dealing with a myriad of groups and agencies, such staff is exposed to the entire region and can easily provide direct technical assistance in formulating, organizing, and publishing such a listing.

Recommendation:

A comprehensive equipment, services, and personnel resource listing should be formulated by political subdivision and compiled to reflect regional capabilities.

Recommendation:

An advisory council subcommittee on resources and coordination, representative of the region served, should be utilized in preparing resource listings.

Recommendation:

Substate/regional planning agencies should be utilized to provide technical assistance in developing coordinated resource listings for local governments, businesses, etc.

EVACUATION/TRANSPORTATION/RE-ENTRY

It has been shown that sole or shared legal responsibility for evacuating an endangered area rests with local chief elected officials in 72 percent of the states surveyed. That figure in itself illustrates the need for well organized evacuation plans and sound methods for determining required evacuation times and routes.

Most local plans do not contain scientific means for determining the time required nor the preferred routes, to evacuate an area. Particularly in hurricane evacuation, the means available have been geared to the severity of the disaster, estimated time of impact, and the estimated population to be evacuated. Too often the estimates have great potential for error. In addition, events leading to interference with a smooth evacuation have not been properly anticipated or taken into account.

Basic requirements of an evacuation plan would include:

(1) Number of people to be evacuated.
(2) Number of vehicles to be used.
(3) Identification of evacuation routes.
(4) Identification of evacuation zones for storm related and other disasters, where a segment of a population is in immediate danger and others are not.
(5) Identification of special population requiring assistance.
(6) Pre-determination of time required for evacuation with regard to type, severity of disaster, and expected impact.
(7) Procedure for affecting re-entry in the post-disaster state.

To date, the state of the art of evacuation planning is most advanced in two areas of the country: the Tampa Bay and Lee County, Florida areas. In these areas, one Flood Emergency Evacuation Plan is now being prepared for each area. Both are based on a flood evacuation plan for Lee County, Florida developed jointly by the Jacksonville District Corps of Engineers and the Southwest Florida Regional Planning Commission. The plan is based on population data, population response surveys, transportation network studies, and computer models for predicting height of a storm surge caused by a hurricane.

Use of Subcommittee

In addition to the mathematics involved in determining evacuation rates, it is necessary to incorporate the resources available for implementing evacuation. The process of developing evacuation procedures, coordinating resources, and identifying needs can be accomplished through the use of an "evacuation subcommittee" of the advisory council on disaster preparedness. Members of the subcommittee, individuals supporting actual evacuation procedures such as the State Highway Patrol, local police, Department of Transportation or volunteer groups and private organizations, are best equipped to provide direction for the development of such plans.

Role of Regional Agencies

Here as in other areas of planning, local officials do not possess the financial capabilities nor the staff, in most cases, to conduct such detailed studies. It would literally require full-time staff to meet those needs. Few local governments can afford that. In addition, county plans must be made in a regional context. Isolated plans are of little value when regional implementation is required as in a hurricane or other widespread disaster.

Such studies and plans can be prepared by substate/regional planning agencies. These planning agencies work across jurisdictional boundaries and can provide population data, transportation information, and, in storm related disasters, map resources to fully utilize computer storm surge models. The resources necessary for evacuation planning exist within the structure of the regional agency.

Each county or community must be provided with the necessary resources to formulate an evacuation plan specific to the needs of that area. Each plan must also form a network of coordinated plans throughout the region that will be affected. That notion implies not only interagency cooperation but regionalism.

Recommendation:

Evacuation plans should be developed for each county, burrough or parish (and municipality where necessary or practicable) which coordinate with adjacent political subdivisions and all groups/agencies providing assistance. Plans should be developed by county government in urban areas to include municipalities within the county and in coordination with regional planning commissions in non-metro areas.

Recommendation:

Evacuation plans should use the most accurate methods and data available in determining egress routes and should be updated by the county and substate/regional planning agency annually.

Recommendation:

An advisory council subcommittee should be used in coordinating plans and resources for effective evacuation.

Recommendation:

Federal and state emergency management agencies should extend capabilities by using substate/regional planning agencies to provide technical assistance to local governments in evacuation planning.

SHELTERS

The identification and operation of shelters is a regional effort. In the event of a disaster, neighboring communities must be prepared to receive the endangered population.

Specific requirements should serve as the groundwork for a coordinated shelter plan:

(1) Identification of facilities.
(2) Maximum capacity.
(3) Number of evacuees to be accommodated.
(4) Authority to open shelters.
(5) Operations responsibility -- equipment, supplies, minimum personnel, registration.
(6) Communication link with EOC.

Initial identification must include an analysis of the hazards likely to occur. Shelters from flooding must be at adequate elevations and flood resistent. Shelters from hurricanes must be at proper elevation, accessible from evacuation routes, and strong enough to withstand high winds. Shelters from nuclear events must, of course, be considered with respect to blast force and radiation protection. All shelters must be equipped with facilities to sustain human life for a prescribed period of time. Provisions for water supply, emergency power sources, hygiene facilities, and special needs of the elderly and the handicapped must be considered. Shelter locations should be mapped for use by local officials, major employers, institutions, special care facilities and the public.

Shelter listings must be maintained by the local civil defense with the assistance of local officials and shelter providers (e.g. school board). The listing as well as the shelters must be inspected regularly to insure the adequacy of the shelter and that the listing reflects a true inventory of shelters available for occupancy. Engineering services will be required, particularly in extremely hazardous beachfront areas, when condominiums, hotels, or other large buildings will be used for shelter. A building that appears structurally sound on the outside may not have adequate infrastructure to withstand winds of hurricane force.

A determination must be made regarding the number of persons that can be housed comfortably in the shelter. A capacity of ten square feet per person provides minimum space and could only be used for shelter during the course of a hurricane or other short term disaster and the initial recovery period. Extended shelter occupation would require forty square feet per person.

To determine the number of evacuees to be sheltered, one of two methods can be used:

(1) Actual population count determined by aerial photograph "roof top" counts, local planning department surveys, local special census and local water company data.

(2) Survey a sample population to determine how many will actually use designated shelters (many may go to relatives homes or other places).[4]

Use of a Subcommittee

As in an evacuation plan, certain mathematics must be applied when determining shelter needs. In addition, resources and procedures must be identified to ensure smooth operation. Procedures similar to the ones shown in Appendix XI can be used to alert shelter personnel about general operating procedures. Such requirements can be met through the use of an advisory council subcommittee on shelters. Since the subcommittee will be representative of the entire region, first hand knowledge of designated shelters can be applied to a needs assessment for the region as a whole.

Role of Regional Planning Agencies

Many communities do not possess the resources for meeting the requirements listed for a shelter plan. For example, communities may not be fiscally capable of surveying all structures for shelter adequacy or conducting detailed population studies. Substate/regional planning agencies are active in housing programs and have the technical expertise to assist communities in such planning. Demographic data is readily available as well as map and aerial photography resources. Circuit-riding engineers are even available in some regions as staff members of the regional planning agency.

Recommendation:

A coordinated regional shelter program should be developed by local civil defense organizations. This program should include results of inventories by local political subdivision.

Recommendation:

An advisory council subcommittee on shelters should be used in formulating a shelter program.

Recommendation:

Substate/regional planning agencies should be utilized as resource groups and technical assistants to state and local governments in formulating shelter programs.

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[4] Lee County, Florida - Flood Emergency Evacuation Plan - Technical Data Report, Department of the Army, Jacksonville District, Corps of Engineers, and Southwest Florida Regional Planning Council, Ft. Myers, Florida, 1979.

CLEAN-UP AND RECOVERY

Restoring a community to original or improved condition after a major disaster can require virtually every piece of equipment and all available manpower not only in the immediate area but from miles around. Such a situation implies regionalism more strongly than ever.

Basic components in a clean-up and recovery program include:

(1) Damage assessment
(2) Debris removal
(3) Road repair
(4) Utilities restoration
(5) Structural rebuilding
(6) Public property assistance
(7) Health and social services
(8) Temporary housing
(9) Mortuary and identification services
(10) Police protection
(11) Coordination of private organizations and volunteers
(12) Other state/federal assistance

Each of the components listed above will be the subject of an annex to the clean-up and recovery plan. Components 1 - 5 are aimed at the physical activities in repairing a damaged community. Since local resources must be the first line of defense, they must be coordinated in advance of the disaster occurance. Public property assistance refers to the process of obtaining assistance for rebuilding activities beyond the capability of local efforts. Components 7 - 11 include local activity as well as state and federal assistance. Other state/federal assistance could include such things as umemployment or reemployment counseling and insurance administration. With the multitude of assistance programs available, local officials must be cognizant of their own roles and how to obtain additional assistance. Resource listings will be invaluable in this phase. Each annex, in turn, will spell out personnel identification, equipment identification, cooperative agencies and what they can provide, the mission to be completed, who is in direction and control, a concept of operations, and administrative procedures.

Use of Subcommittee

In setting out operational procedures for each of the above listed areas, an advisory subcommittee on clean-up and recovery will be a prime resource provider.

It is especially important that local government understands fully its role and responsibilities, particularly in relation to state and federal assistance programs. There are conditions and limitations that accompany such programs. If local government does not fulfill its responsibilities, it may be difficult or impossible to receive benefits from relief programs. Therefore, local governments must first utilize each and every resource possible within the community. Once such resources are exhausted, state and federal assistance can be requested.

Because this subcommittee will work closely with all others, resources from the resource and coordination subcommittee will provide the "tools" needed for this element of the plan. Similar to the procedure in defining members on the subcommittees themselves, prime respondents for clean-up and recovery will be identified and their responsibilities and actions outlined. It is likely that such respondents will be much the same as those on the subcommittee.

Role of Regional Agencies

Disaster clean-up and recovery planning is an appropriate role for substate/regional planning agencies for a number of reasons:

(1) They are planning agencies and as such can provide technical planning assistance.

(2) In providing health and social services many substate/regional agencies are the substate Area Agency on Aging designated by the Department of Human Resources. Part of that role includes development of disaster plans for senior citizens.

(3) Public assistance is an existing area of activity through Community Development Block Grant Programs and other types of assistance programs. It is quite likely that regional planning staff would be called upon by local governments in the recovery stages for similar assistance in rebuilding the community.

(4) Regional agencies also act as a coordinator of groups and organizations in their role as liaison. Since the agency belongs to local governments, there is no agency or jurisdictional jealousy to deter coordination.

Recommendation:

Local units of government should develop comprehensive guidelines for post-disaster clean-up and recovery programs which are coordinated with other governments in the region.

Recommendation:

An advisory council subcommittee should be used in developing a post-disaster clean-up and recovery program.

Recommendation:

Substate/regional planning agencies should be used to assist state and local government in post disaster clean-up and recovery planning and services.

EDUCATION AND PUBLIC AWARENESS

Local public response to an emergency situation is a programmed response. The best laid plans for evacuation by local officials will be of little value if the public does not know what response is expected of them and why.

Currently, most awareness and public information programs for disaster preparedness are directed from the state level. State emergency management agencies provide printed information and guidance tools to local civil defense directors or civil defense substate regions who, in turn, provide the information to local civil defense directors. In some instances, requests for information may come from the local level directly to the state office. In any case, it is entirely the responsibility of local civil defense officials, as well as local chief elected officials, to disseminate that information to the public.

In cases of natural disasters, the beginning of the disaster prone season is an excellent time to launch an awareness campaign. The campaign can be conducted through a series of public meetings, adequate news coverage, and extensive distribution of printed information in banks, grocery stores, post offices, and local businesses. Radio and television spots as well as newspaper feature articles can be valuable in catching the public attention. In general, there are many tools that local governments can employ to produce an effective public awareness program. The basic tools are:

(1) printed material
(2) public meetings
(3) special activities
(4) audio visual aides
(5) the news media
(6) the use of private organizations and volunteers
(7) church/civic groups and volunteers

Printed Material

Printed material should be brief, easy to understand, and contain graphic "eye catchers" to attract the public attention. In general, it should contain basic information about the type of disaster addressed. For example, a hurricane awareness brochure should include:

(1) Definition of "hurricane watch" and "hurricane warning" and other NWS terms.
(2) Response activities to take place when a hurricane watch and/or warning is issued (i.e. means of securing the home, supplies to take to a shelter)
(3) Evacuation map showing, as a minimum, low lying areas expected to experience flooding, evacuation routes, and shelter locations and descriptions
(4) Information about flood insurance protection.
(5) Where to get information about an approaching storm and necessary response activities (i.e. radio and television stations).

Special material should be geared to groups such as boat owners, hotel/motel owners, children, and others. Printing and distribution of material can be managed in a variety of ways. There are many groups in the community that possess printing capabilities. In many areas, substate/regional planning agencies possess in-house printing facilities. Many large industries also maintain graphics departments with such capabilities, or a local printer may elect to print such information for the community at a reduced rate, possibly through advertising on the brochures. Distribution should be wide and every possible resource in the community should be used. Wire racks could be placed in local businesses, community centers, and other locations subject to public traffic. Printed materials can be sponsored by various businesses and industries in the community. For example, the Dow Chemical Company has sponsored such brochures. Local supermarket chains can receive promotional exposure from using grocery bags with information printed on them. A special pull-out section of a weekly or daily newspaper is an extremely useful tool. Such a publication could include articles about the past history of hurricanes in the area, flooding events, or tornado occurances. It could include maps of where such disasters have occured showing the geographic area affected. Interviews with local residents who have survived such disasters make interesting reading and prove a point. Local businesses may wish to purchase advertising space to support the publication of the special section. Insurance agents also may point out insurance precautions. Grocery stores may run ads for canned goods for "disaster diets." Telephone companies may print a special section for emergency telephone numbers in addition to the standard local listings i.e. ambulance, police and fire department. A special ad in the yellow pages can further encourage disaster preparedness. This illustrates to the general public that the business community is preparing itself for the hazards ahead.

Public Meetings

Public meetings are one of the best sources of information for the general public. In many areas the public attention is not turned to disaster preparedness because it seems such a remote possibility. Therefore, the key to encouraging attendance at such meetings is broad publicity through the use of, for example, the news media and the distribution of meeting announcements by civic groups and volunteers such as the Boy Scouts and Girl Scouts.

A regional disaster awareness program should include public meetings throughout the area on an intermittent basis. Such meetings should be held for the general public as well as special population groups. The elderly population may be unlikely to attend public meetings. Therefore, special sessions could be held at retirement homes, community centers for the elderly, and other places where the elderly may gather. Other segments of the population which have special educational needs include boat owners, hotel/motel owners, schools, institutions, and business and industry constituting major employers of the area.

Public meetings, whether for the general population or special segments of it, should be entertaining as well as informative. Basic information presented at hurricane awareness meetings, for example, should include:

(1) Science of hurricane development and hurricane history of the area
(2) Pre-season preparedness (encourage "family disaster plans")
(3) NWS hurricane warning system and/or other disaster warning systems
(4) Pre-disaster preparedness (i.e. in a hurricane awareness program this should include, but not be limited to, how to secure your home and/or business and property, what provisions to make, and what to do if evacuation is necessary).

See Appendix XII for examples of survival guidelines.

Special Activities

Special activities can supplement general meetings and presentations. Continuous displays or projects undertaken in the community can get people directly involved.

Classrooms are a good place to begin in the school system. Special presentations can be made to science classes with discussion of the development of weather patterns which cause hurricanes and tornados. A weather bulletin board can include historic hurricane and tornado activity patterns. During hurricane or tornado season, activity can be plotted on tracking charts and maps. Geography classrooms can be a marketplace for awareness maps showing flood elevation data, how development affects the flood plain, and the use of computer storm surge models. Earthquake and volcano activity can also be studied. General classes on government can be supplemented with information about the workings of the NFIP and land use ordinances. General safety classes can be held to include discussions of topics such as nuclear events, hazardous material effects, response to fires, and other types of disaster the community may face.

Major employers also present excellent captive audiences. The employer may institute a safety campaign. Display material can be placed in cafeterias to get employees thinking about public safety problems. Awareness brochures can be included with paycheck distribution. The company newsletter is also a good place to advertise. Staff meetings can be used to provide a forum for discussion with experts on disaster problems and solutions. Video tapes could be provided to the employer for use in alerting employees to hazards.

Other special activities should include concerted efforts to prepare the elderly and the handicapped for a disaster occurance in the community. These special population groups should be informed of how they will receive the warning that an emergency is forthcoming, what to do, and how to get help. In residential areas, the "buddy" system should be promoted. Friends and neighbors can look after elderly and handicapped citizens in their neighborhood who may need assistance. The special citizens should be aware of who to call for evacuation assistance, where they will be sheltered, how to secure the home (or seek assistance) in a

natural disaster, and what to take with them (i.e. medical or other special needs).

A hurricane (or other disaster) awareness week in the community can include visual displays at shopping malls, window displays prepared by school children, and news media feature stories and interviews. The week could be culminated by a local hurricane conference for the public with historic accounts, scientific information, and discussion of local plans to deal with an emergency.

Audio-visual Aides

Local libraries are warehouses for films, tapes, and other visual aides. NWS and civil defense materials could be incorporated into local libraries.

New materials can also be created by local groups (i.e. substate/regional planning agencies), schools and universities and the news media. Films could be produced by university students as special projects. Journalism or communications students may be able to make films or audio-visual packages as graduate projects.

Silent films or tapes can be prepared for the visually handicapped or deaf population. Video tapes and public service announcements could be prepared for the news media. Visual aides can also be stocked in places other than libraries and loaned to civic clubs and other groups. Banks, utility companies, local civil defense, and regional agency offices can also be depositories for such material.

News Media

The news media is one of the most valuable tools a community can utilize in promoting hazard awareness and disseminating public information. In addition to regular news coverage promoting public meetings, a series of special efforts can be undertaken. Special efforts could include:

(1) Feature stories and articles
(2) Interviews with noteworthy individuals (e.g. NWS forecaster, survivor of a disaster, safety engineer of a nuclear plant)
(3) Public service announcements
(4) Promotional activities

Special "pull out" sections of the newspaper are effective in getting public attention. As noted in a previous section of this document, such a pull-out section can be sponsored by a wide variety of advertisers.

Promotional support of local emergency service agencies can be as varied as local government desires and requests. Such support could include promotion for hurricane awareness week, for public or special meetings, to call attention to displays, and to advertise visual aides for loan. Contests could be held and hurricane tee-shirts or "campaign type" buttons given away.

Workshops could be held for the news media to ensure good communications. Representatives of local civil defense organizations and the National Weather Service can help the media gain a better understanding of weather language and local civil defense operations. Close coordination will provide the media with the means for attaining and disseminating accurate and timely information to the public.

News media involvement can be as extensive or innovative as the community requires.

Private Organizations and Volunteers

Every resource should be tapped in order to saturate the community with public information about disaster preparedness. Among these resources are churches, civic groups, professional organizations, volunteers, business and industry.

Monthly meetings of such groups can provide a forum for presentations and discussions about local plans, preparedness, and mitigation measures. It is not possible to reach the entire population through public meetings and news coverage. Particularly in rural areas, attendance at general meetings may be poor. Therefore it is necessary to go directly to those people most difficult to reach. Informal presentations can be made at rural churches, town meetings, civic clubs, and any other appropriate meeting place. Volunteers are special groups, also. Any group offering to assist in disaster preparedness, response, and recovery will be a good vehicle for disseminating informational brochures and sponsoring awareness meetings.

Business and industry and professional organizations should be target groups for information on hazard awareness and mitigation measures. The insurance industry as well as lending institutions are excellent audiences for mitigation program presentations. Since they deal with a public who may not fully understand hazard mitigation as it relates to flood insurance, such presentations can be helpful. Such groups can also host or sponsor public meetings. Realtors, developers, and construction contractors would be a good target audience for discussion of flood plain management and available alternatives, including cost-benefit analyses.

Groups that the awareness program has reached through special invitation should be used as a vehicle for reaching others. As is the case most often, the people that need the information most are not the people who are easily reached. An extensive natural hazards program using business, industry, and special groups exists in Texas. A "Hazards Awareness Guidebook" provides additional information. Table 6 contains a summary taken from the guidebook.[5]

Role of Regional Agencies

Public awareness programs are generally launched at the local level. The tools for getting such programs wide exposure exist for every community. A coordinative link is what pulls them together. Substate/regional planning agencies are such a link. They serve local governments in coordinating programs at the local level.

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[5]Sally S. Davenport and Penny Waterstone. Hazard Awareness Guidebook: Planning for What Comes Naturally. Texas Coastal and Marine Council, Austin, Texas, October, 1979.

TABLE 6

"Dos" For A Hazard Awareness Program

Carefully define program aims. Whom do you want to reach? What message do you want to convey?

Start your program with simple goals and realistic expectations.

Find out what others have done or are doing in hazard awareness, both in your area and in the nation.

Make your message specific. Let it indicate what constructive action can be taken. Tailor it to your chosen audience.

Repeat and reinforce your message regularly.

Use different types of media to reach different audiences.

Use existing organizations or networks, both in gaining support for your program and in disseminating your message.

Choose the individuals or organizations most likely to have credibility with the target audience.

Use the best available natural hazards data, but have media and public information professionals simplify and adapt the information for public use.

Build in an evaluation of the program, however simple, from the beginning.

Private and civic groups are active in working with regional agencies in addressing local issues. Often, such agencies serve as a mediator between governmental and special interest groups.

Regional agencies also serve as technical assistants in many ways including in an informational capacity. According to NARC, nearly half of the regional agencies in the United States publish newsletters and nearly all have a public information staff who deals with the news media on a continuing basis. All such agencies coordinate and arrange public meetings for local governments on a monthly basis.

By their nature, regional agencies are already in the public information business. In addition, regional agencies have graphic resources for developing printed material and visual presentations. Few local governments have that capability and many rely on their regional agencies for assistance. Thus, the tools for developing an educational hazards awareness program exist within regional agencies and could easily be put to work.

Recommendation:

Local governments should develop and implement a hazards awareness program, including printed material and public presentations. This program should involve all segments of the community and directly address special populations.

Recommendation:

The news media should be used as a consultant in developing a public hazard awareness campaign.

Recommendation:

Substate/regional planning agencies should be used by state and local government as a coordinator and technical assistant in developing educational programs for disaster awareness.

MAPPING

Map resources today are many and varied. This can be an advantage in providing maps for various uses. However, confusion can result when a variety of maps are used for the same purpose.

Some of the most widely used maps are identified here. The U. S. Geological Survey (U.S.G.S.) produces standard quadrangle map series at 1:24,000; 1:100,000; 1:250,000. State Departments of Transportation (DOT) produce standard county base maps and many use similar, if not identical, symbols for identification of features, usually at 1"= 1 mile or 1:63,360. Increased federal, state, and local use of similar mapped information has created a need for a uniform classification system. An example of this is the U.S.G.S. land use/land cover map series at 1:100,000. A similar approach to maps for disaster preparedness is now being recognized.

Three basic map needs for disaster preparedness programs were identified in the survey of coastal region planning agencies, civil defense officials, and local governmental officials:

(1) Planning.
(2) EOC use.
(3) Public information.

Each of these will be used with different objectives in mind. Maps for planning will contain much detail. Information such as contours, for example, will help locate areas of high ground for staging areas and shelter sites. However, contours themselves will not be necessary on actual implementation maps for the Emergency Operations Center (EOC). The subsequent information derived from use of contours, for example, staging areas and shelter sites, would, however, appear on EOC maps. Furthermore, maps for the public would contain yet less detail.

Maps for Planning

Maps for planning must show detail in natural and man-made features, particularly when used as a base for computer generated storm surge data in hurricane evacuation planning. In order to be used for planning purposes, the following information should appear:

(1) Identification of additional elevations (both maximum and minimum).
(2) Updates of population figures.
(3) Major development areas.
(4) Storm shelters, showing primary, secondary, and refuge sites with associated elevations.
(5) Major hospitals.
(6) Additional "area" names.
(7) Number of lanes in evacuation routes.
(8) Major bridges (identify type of structure, i.e., draw bridge).
(9) Addition of new road construction or other important roads.

The U.S.G.S. topographic quadrangle series mapped at 1:24,000 could be used for planning purposes, provided the information cited above was added. Although many of these maps are in need of basic revision, an advantage

in using U.S.G.S. quad maps is that the transportation network is quite detailed. Other detailed information shown on the maps includes elevation contours, drainage patterns, and population concentrations.

Currently, three types of maps for flood evacuation planning are reproduced in volume. Flood prone areas have been mapped by two sources: U.S.G.S. and the Flood Insurance Administration (FIA). U.S.G.S. quadrangle flood maps at 1:24,000 are no longer being reproduced in all areas of the country. FIA flood hazard boundary maps and flood insurance rate maps at 1:24,000 are the only consistent effort at mapping flood areas. In addition, the National Oceanic and Atmospheric Administration, National Ocean Survey (NOAA/NOS) has produced the Storm Evacuation Map (STEM) series. This quadrangle series is generally mapped at a scale of 1:62,500 and contains the following information:

(1) Contours
(2) Spot elevations showing minimum elevations
(3) Flood stages (i.e., 0-10 feet, 10-20 feet, and above 20 feet); these stages are delineated at closer intervals for more populated areas (i.e., major cities)
(4) Evacuation routes
(5) Major transportation systems, including roads, rail lines, and airports
(6) Brief history of hurricane occurance showing dates and storm surge height
(7) Population of developed areas, including incorporated areas, unincorporated but highly developed population centers, and summer/winter population figures, where applicable and useful.

The STEM series also provides excellent maps for planning and visual display. However, because of the extensive data collection, time, and money required, complete coverage of all coastal areas is not expected until 1986. Many of these maps are also in need of revision. Due to the urgent need for such maps, NOAA initiated a cooperative program asking assistance from state and local governments to complete and revise STEM maps. Virginia was the first state to enter into such an agreement. The University of Florida, Sea Grant Marine Advisory Program has entered into a similar agreement to complete STEM maps for the state of Florida.

State DOT's provide county base maps at a scale of 1" = 1 mile or 1:63,360. These maps are good for general planning but do not contain topographic detail necessary in determining elevations. DOT maps are not a cost-effective base for detailed planning needs without supportive data from U.S.G.S. maps, STEM series, or elevation surveys.

Many substate/regional planning agencies also offer maps of counties, municipalities and of their entire regions. These maps are revised regularly and contain basic information similar to DOT county highway maps. Substate/regional agencies often produce maps to fill special needs which provide a wide variety of information. These maps provide a good base for planning but would also require the addition of appropriate information to be independently useful.

Maps for the EOC

For EOC purposes, one map showing the entire county as well as its relationship to the region and adjacent counties would be preferred.

Of the four map sources noted, DOT and planning agency maps show the county as a whole. Only planning agency maps are likely to show the entire region. Use of these maps would require addition of the following:

(1) Evacuation zones for counties, cities, and major development areas.
(2) Schools.
(3) Hospitals, medical clinics, and other care facilities where a dependent population would be located (i.e. nursing homes).
(4) Major employers.
(5) Area command posts (i.e., communication, transportation).
(6) Major potential traffic congestion areas.
(7) Road blocks.

STEM series and U.S.G.S. maps at 1:24,000 could be used if quad sheets were adjoined to give a complete picture of the county area. However, the information listed above should still be ensured on either series.

EOC maps should be clear and concise. There appears to be little need for contours on such operational maps. Spot elevations may be added in critical areas. However, during the planning stages, evacuation routes and road block points would have been identified using elevation data. For this reason, such extra data would likely not be necessary.

It appears that DOT or substate planning agency county and regional maps would be most efficient and cost effective for use in EOC's. Overlays to the base map would serve useful purposes in showing any of the above information, in appropriate combinations.

With additional information added, other local officials could also utilize this format in response operations. For example, emergency medical service units may need to locate dependent populations such as elderly, residential complexes. In the recovery stages, public works officials could use the system to locate areas of need and identify related recovery team assignments.

Maps for the Public

Informational maps should be clear, concise, and easy to read. Basic information should include:

(1) Evacuation zones.
(2) Evacuation routes.
(3) Location of primary, secondary, and refuge shelters.
(4) Flood stage areas and minimum and maximum elevations.
(5) Hospitals.

The purpose of such maps is to inform the public, as simply as possible, whether they are in a danger area, where they should go, and how to get there. Hospital locations may not be necessary for long-time local residents but, considering the influx of newcomers to coastal areas as well as the tourist population, it appears a valuable addition for coastal areas, in particular.

Maps for the public should be included on a hazard awareness brochure explaining the nature of the hazard and specific steps to be taken. In most hazard awareness brochures produced to date, the two basic types of maps used have been the STEM series and simplified county base maps. The STEM maps, with the addition of previously listed items (flood stage areas and most minimum elevations are currently included on STEM), can provide basic information. However, to show an entire county or other large area will require splicing quads together and utilizing photographic reduction techniques. DOT or regional agency county road maps used as a base will most often require redrawing or photographic alteration to remove unnecessary map features.

Uniform Mapping System

Through the survey of state emergency services agencies, it was found that at local levels a variety of mapping techniques and tools are employed. In 56 percent, DOT county road maps were used as a base. Forty percent used some other form. STEM maps were used in only four states, or 16 percent. In many of these areas, STEM maps were not yet available. Only 40 percent produced maps for public information.

Hazard awareness maps currently do not reach a large number of people. As interest increases and methods for publication and dissemination are widely employed, a uniform system of symbols will alleviate confusion. In terms of maps for public distribution, DOT's and U.S.G.S. are the two major map producers in the United States. Map symbols found to be used by those two agencies, as well as map users, resulted in the proposed use of the following uniform symbols (see Figure 5).

Alternatives for Production

Actual technical assistance in drawing maps can be provided by a number of possible sources:

(1) City or county engineers or planners.
(2) DOT mapping division.
(3) State Civil Defense.
(4) Private contractor.
(5) College students/interns.
(6) Substate/regional planning agency.

City and county administrative offices often include a draftsman within the engineers office or planning department (if it exists). Drafting expertise can be obtained in altering maps for planning purposes and creating a display or working map with clear plastic overlays for the EOC or other governmental officials. Such draftsmen may also be able to provide expertise in preparing camera ready art-work for public information maps.

FIGURE 5

SUGGESTED UNIFORM MAP SYMBOLS

Buildings

Shelter (1-Primary, 2-Secondary, 3-Refuge. Primary shelters indicate the preferred or first shelters to become operational; Secondary shelters indicate those to be opened when primary shelters are occupied. Refuge sites indicate places where residents can take refuge only if they have no other alternative).

Hospital*

School or Institution*

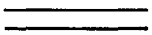
Major Employer*

*These installations are not necessarily shelters. They locate substantial numbers of people or dependent groups who may require special attention or assistance.

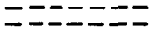
Transportation

Primary highway, hard surface

Secondary highway, hard surface



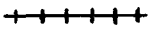
Light-duty road, hard or improved surface



Unimproved road

Dual highway

Evacuation route (number denotes # of lanes if more than 2, arrow denotes direction of travel)



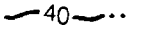
Railroad

Bridge

Airport

Topography

x7369 Spot elevation



Index contour

Low lying area (flood stage denoted by shading or color)

State DOT headquarters employ cartographers to prepare highway maps. It is possible that arrangements for assistance may be made with those offices. Other state agencies such as the DNR may have graphic personnel willing to provide assistance. Although many state civil defense headquarters have limited graphics and mapping capabilities, they may be able to provide assistance also.

Private contractors in the graphics field are another option, though an expensive one. High school or college students may provide cost-effective graphic assistance to local governments.

Most substate/regional planning agencies have graphics and mapping staff. Such agencies are probably the most cost effective means of providing technical assistance in transferring and interpreting data for planning maps and in providing real assistance in drafting overlays for EOC maps. As existing service providers to local government, the cost will be negligible.

Printing capabilities may be found at the following services:

(1) DOT or other state agencies.
(2) Corps of Engineers.
(3) State Civil Defense.
(4) College or university.
(5) Private printer.
(6) Newspaper.
(7) Substate/regional planning agency.

Actual printing may be done through any of the above having such in-house capabilities.

The actual process for obtaining planning maps will be through distributing agencies such as NOAA, U.S.G.S., DOT, or the regional agency. EOC maps will not be reproducible while maps for the public will involve the most extensive reproduction process. The most cost-effective method of reproduction is through use of black and white prints. The state of Virginia reproduced STEM maps in this manner by consolidating quad sheets depicting the entire coast of the state. Limited additions were made and the entire composite was reduced and printed on newspaper quality material. The result was a clear, easy to read, and reasonably inexpensive map for mass distribution. County line maps can be produced on page size paper in black and white or two color schemes.

Role of Regional Agencies

Substate/regional planning agencies are currently active in providing technical assistance to local government in map resources and expertise in designing and drafting map products. Such agencies maintain a resource library of map information and stay in close contact with resource agencies which might not otherwise be known to local governments. In this way, regional agencies constantly stay abreast of new developments in the mapping industry and stand ready to pass that information along to local government.

Specifically regarding disaster planning map tools, substate/regional planning agencies can provide advice to local government about the most cost-effective base map to use in planning, EOC operation, and for public information. They can supply technical expertise in adapting varieties of information to a specific base for planning purposes. In the drafting and printing phases, staff can not only advise local government of the most cost-effective means but, upon local decision, can actually do the work and print the final product.

Substate/regional agencies are the most cost-effective source of technical assistance in map resources to local government because, with their help there need not be created a new position to accommodate the need.

Recommendation:

Communities should develop and distribute hazard awareness maps for public information.

Recommendation:

Local government should be provided map resources identifying hazards and response tools.

Recommendation:

A standard format for hazards mapping should be developed to include uniform symbols (e.g. evacuation routes, shelters) and design guidelines, where practicable, for scale, color and typeface. Such maps should be created for use at the local, regional (multi-county), state and national scale and produced by substate/regional planning agencies and state and federal emergency management agencies.

Recommendation:

Substate/regional planning agencies should be utilized to provide technical assistance to local government in mapping, thereby, building the capacity of state and local emergency service agencies.

MITIGATION

Mitigation is a term used to mean activity which will reduce or lessen the effect of an event.

Protection against flooding is designed to protect existing development. A comprehensive regional plan should be the basis for flood mitigation efforts. The following table summarizes the options of local governments with regard to flood-loss prevention methods and devices. Many of these options will be discussed in greater detail in this section.

TABLE 7

Flood-loss Prevention Methods and Devices

Purpose	Method or device
Protection of existing development.	Flood-control works: Reservoirs Channel improvements Diversions Floodwalls and levees Flood warning and evacuation Floodproofing
Removal or conversion of existing development.	Public acquisition Urban redevelopment Public-nuisance abatement Nonconforming uses Conversion of use Public-facility reconstruction
Discouragement of development.	Public information Warning signs Recordation of hazard Tax-assessment practices Financing policies Public-facility extensions Flood-insurance costs
Regulation of flood plain uses.	Zoning ordinance districts Special flood plain regulations Subdivision ordinances Sanitary ordinances Building ordinances

Congress created the NFIP in 1968 in the face of yearly increasing property losses in the nation's flood plains. The purpose of the program was to make flood insurance available at an affordable premium and to encourage more careful planning in use of the flood plain. Basic requirements of the program are listed in Table 8.

TABLE 6

NFIP PROGRAM REQUIREMENTS

SUMMARY*

DATA AVAILABLE TO COMMUNITY	SUMMARY OF ADDITIONAL PROGRAM REQUIREMENTS
EMERGENCY PROGRAM	
Flood Prone - No Map	1. Community-wide building permit system allowing case-by-case evaluation of flood hazard. 2. General performance standard applicable to activity in flood-prone areas to ensure: • structural safety; • minimization of damage; • protection of utilities
Flood Prone with Flood Hazard Boundary Map	3. Obtain base flood elevation data from best available source. 4. Application of elevation and/or floodproofing requirements to new construction and substantial improvement and repair in flood-prone areas (based on best available data). 5. Mobile home anchorage requirements. 6. Maintain carrying capacity of channel. 7. Notify adjacent communities of alterations in water course.
REGULAR PROGRAM	
Base Flood Elevation Provided - No Floodway or Coastal High Hazard Area Identified	8. Elevation and/or floodproofing requirements for new construction for substantial rehabilitation and repair, and for mobile homes. 9. Certification of structural itegrity or floodproofing by professional engineer. 10. Demonstrate that new developments in 100-year floodplain do not increase base flood more than one foot.
Base Flood Elevations Plus Designation of Floodway	11. Adopt regulatory floodway. 12. Prohibit any activity inside regulatory floodway which would raise base flood. 13. No new mobile homes in mobile home parks in floodway.
Base Flood Elevations Plus Coastal High Hazard Area (Velocity Zone)	14. Anchorage plus certification of structural integrity by engineer. 15. Elevation above wave height. 16. Use of open breakaway walls in space below lowest floor. 17. No use of fill for elevation in Velocity Zone. 18. Protection of mangrove stands and sand dunes.

* This chart merely summarizes requirements. It does not list all of them, nor does it make necessary regulatory distinctions between residential and non-residential development, or between existing and new structures. For a fuller description of requirements, see NFIP program regulations.

SOURCE: Flood Hazard Management and Natural Resources Protection, Community Action Guide, The Conservation Foundation, Washington, D. C., pp. 15-16.

The community with a flood hazard area that does not participate in the NFIP is severely restricted from receiving federal financial benefits. "By law, federal agencies may not approve grant monies mortgage backing (Federal Housing Administration mortgage insurance, Veteran's Administration mortgage quarantees, etc.), direct loans, disaster relief in most circumstances, or improvement of property located in the community's identified flood prone areas."[6] Federal incentives are very strong. Virtually all lenders today require flood insurance protection when financing, building, or buying in the flood plain.

The responsibility of adopting and enforcing flood plain regulatory measures is on local government. The assistance provided to local government by FEMA is primarily through a Federal Insurance Administration (FIA) liaison and through the state flood plain management office. Model ordinances are provided and a loosely structured monitoring program. Staff is simply not available to assist each and every community in building and implementing a sound flood plain management program. The burden realistically rests at the local level.

Beyond the requirements of the NFIP, local governments have certain tools they can employ:

1. Zoning and local ordinances.
2. Subdivision regulations.
3. Building codes and techniques.
4. Building permits.
5. Open space and land acquisition.
6. Relocation of existing structures.
7. Sediment and control regulations.
8. Structural measures.
9. Discouragement of development.
10. Flood warning and evacuation plans.
11. Long range planning

The following narrative describes some of the options local governments can consider when employing these mitigation tools.

Zoning and Local Ordinances

Land use regulations or zoning ordinances are preceded by land use planning. With the adoption of zoning ordinances the community has, in essence, developed policies about the growth of the area. One of the most

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[6]Waananen, A. O., Limerinos, J.T., Kockelman, W. J., Spangle, W. E., Blair, M. S., Sangle, William and Associates. Flood Prone Areas and Land-Use Planning, U. S. Government Printing Office, Washington, D. C., 1977

effective means of controlling growth in the flood plain is to create specific zones identifying ecologically fragile or high hazard areas. Through the use of zoning ordinances, density can be controlled as well as the type of development and the presence of any development at all. Nonconforming uses in the flood zone may be continued as they exist but cannot be extended or enlarged. If the use is discontinued for a period of time, it may be eliminated. State legislation may permit amortization, whereby the use may be phased out over a period of time. Restrictions in the flood plain are widely varied.

Controlled density can mean fewer structures in the flood plain and fewer losses in the event of a flood. Guiding the type of development may restrict potentially high risk ventures from locating in the flood plain. For example, recreation structures such as picnic shelters would cost less to replace than industrial ventures and would be less restrictive structurally, in terms of flood water flow. One option is to disallow development completely in extremely high hazard areas. Ordinances may allow building in the flood plain with the understanding that if the structure is lost to flooding it will not be rebuilt.

For illustrative purposes, the city ordinances of Baltimore require owners of property abutting a watercourse to secure that property from interfering with the flow of drainage water in that watercourse. If the owner does not comply, the city will bring legal suit against the property owner. The city has also assumed the right to establish and regulate property uses in areas of future construction which are susceptible to flooding. Additionally, provisions have been made to control maintenance and development of such property. In Baltimore County, the concept of a "deferred planning zone" is proposed. Such a zone is designed to delay development in areas where utilities are not readily available. It could also be used to discourage development in the flood plain.

Subdivision Regulations

Subdivision regulations can also regulate development of the flood plain. Under such regulations, the developer must meet certain requirements in order to build. Subdivision plats should be submitted to the local planning body for approval prior to any development. Subdividing may be disallowed entirely for lands "not suited" in that it alters the flood drainage pattern from its natural state. Flood protection measures may be required for streets and building sites before dedication and sale is allowed. Such measures may include a requirement that public and private roads and bridges be designed and constructed to withstand flood water velocities and prevent isolation, utility outages, and disruption of transportation service. Additional requirements could include dedication of easements along waterways to allow unimpeded drainage. Inadvertantly, this is a tool for flood plain management. In Baltimore County, an adequate public facilities ordinance implies that no subdivision will be approved unless all services are provided (i.e. sewer and water, public schools, storm drainage and solid waste disposal).

Criteria for review in terms of flood frequency has also been developed in the regulating of proposed subdivisions. In the city of Baltimore, no residential, commercial, or industrial lot shall receive favorable

consideration if the property is subject to flooding by a fifty year storm frequency in particularly high hazard areas. Additionally, in Baltimore, all development must be located at least 300 feet (horizontally) from a stream bed, although the city department of public works can render a final decision requiring additional distance on a case by case basis, if the hazard warrants. All plans for development must not endanger life or property and must not aggravate flood damage by obstructing a waterway channel or by creating debris. This could be strengthened by specifically limiting the amount of natural ground cover to be disturbed, as is practical. In the city, a developer is also financially responsible for installation of storm drainage facilities.

Building Codes and Techniques

Building codes require compliance with a minimum of building standards. Codes can include requirements for elevation, building practices, and materials. Lot grading can be required to meet certain standards to prevent flooding.

Building codes may also require certain materials, such as adequate pilings, and inspection of the premises at stated intervals in the building process. Floodproofing techniques and materials can be set out in such codes. Feasible techniques may require research and recommendation by a qualified source. Departments of Natural Resources have been requested in some areas to provide such technical information. Floodproofing prevents or reduces loss or damage to structures that cannot economically be removed from the floodplain or that need to be maintained, such as navigation facilities. It is most effective during floods of short duration and with low flood stages and velocities.

Structural techniques include reinforcement of basement walls and floors to withstand floodwater pressures; permanently sealing exterior basement openings, using masonry construction; building low floodwalls and water-tight bulkheads, shutters and doors; and elevating the structure's lowest floor to at least two feet above base flood level.
Use of special equipment or materials could include special flooring cements; adequate electric fuse protection; anchoring buoyant tanks; sealing exterior walls; installing sump pumps, sewer check valves, water-tight windows and doors, and door and window shields; and using wire-reinforced glass. It is important to beware of creating structural damage due to high water pressure. Existing construction materials, age, and design features should be a consideration.

Operational floodproofing techniques should not be overlooked. Special preventative actions may be least costly and most effective during a flood. Waterproof valuable items, if possible, or remove them from the premises. Protect electrical equipment, discontinue use of areas subject to flooding, and postpone shipments expected during an anticipated flood event. Floodproofing on-site sewerage systems may be suggested, however, use of alternative systems such as holding tanks or public systems may be more effective. Additional references for floodproofing techniques can be found in "Introduction to Floodproofing" (Scheaffer and others, 1967) and "Floodproofing Regulations" (U. S. Corps of Engineers, 1972).

Financial incentives can be used to encourage public participation in mitigation activities. Just as financial incentives make older homes attractive for purchase and energy conscious repairs, floodproofing loans can help defer such costs. Howard County, Maryland is one such example. A county-wide revolving loan fund has been established for the purpose of providing financial aide to property owners who wish to floodproof structures in the 100 year flood plain, with an elevation at flood level plus two feet.

Building construction checklists, as specific suggestions for construction standards, can be provided to builders and developers as well as prospective new home owners (See Appendix XIII). Additional information about building techniques for flood and hurricane resistent structures can be found in From Currituck to Calabash and How to Live with an Island (Pilkey and others, 1975 and 1978).

Building codes can be reinforced by sanitary ordinances. For example, in Maryland, the Department of Health and Mental Hygiene will not permit the installation of on-site private water and sewerage systems on soils with poor drainage or with frequent flooding potential. The Department also regulates water and sewerage systems on lands with a slope exceeding 25 percent and areas within the 50 year floodplain. Storm drain plans must also conform to health department standards. The actions of the Department, in effect, thereby disallow subdivisions on land likely to be flooded by mean high tides or stormwater run off.

Building Permits

A permitting system is required through the NFIP. The local building inspector plays a vital role in the enforcement of such a system. The requirement of a registered land surveyors certificate of approval is the building inspectors support in ensuring that requirements have been met. The building inspector, in performing his duties, is responsible to protect the health and welfare of the residents of his community. The legal authority which binds his actions varies. For example, Baltimore interprets this authority to allow the inspector to force evacuation of any building in the path of flooding.

Open Space and Land Acquisition

In retaining the flood plain as open space, it is maintained in its natural state. No man-made obstructions are created, therefore, flood damage is minimal or non-existent in that open space area.

Some communities are following the federal government's lead in actively seeking to acquire flood plain property for the purpose of maintaining or returning it to its undeveloped state. Communities purchase such property through local budget appropriations, special loan programs, or special funding sources (e.g. state open space funding program). Developers can be encouraged or required to maintain open space area utilizing the flood plain. Such open areas are aesthetically pleasing, useful for recreation, and do not create a burden on the community in terms of flood loss.

Relocation of Existing Structures

Repeated loss in the flood plain area causes a financial burden for federal, state and local governments as well as private property owners. It is clear that mitigation alternatives should be explored. It has been found in several areas that relocation of structures in the flood plain is a cost-effective alternative.

For example, in one area, a model mobile home park was built on a reclaimed mining site. Mobile homes were relocated there from an area that realized repeated losses due to flooding. In Columbia, Mississippi, residents of fifty structures were moved from the flood plain into mobile homes provided by FEMA.

Structures constricting water flow can be replaced to lessen the otherwise restricted flow, thereby, reducing potential flood level. In Mississippi as well as Virginia, bridges have been identified which impede free flow of water and are being replaced, or will be as they require maintenance attention. Specific measures could include a county-wide inventory of bridges historically responsible for increasing flood water elevation and coordination with the State Department of Transportation to receive priority attention in replacement actions.

Flood plains can be redeveloped through the purchase of land which has been declared blighted or deteriorated. The California Community Redevelopment Law authorizes such activity. Redevelopment plans include provision for acquisition, clearance, disposal, reconstruction, rehabilitation, and relocation of displaced persons.

Buildings subject to periodic flood damage may be left unrepaired. Such structures can be eliminated by local government through existing nuisance abatement ordinances. Reconstruction may afford reduction of loss for public facilities such as roads, bridges, utilities, and community facilities. This may be a good opportunity to restore the facility in an improved state. Options for improvement may include elevation of roads and utilities, underground utilities, floodproofing, or relocating out of the flood area completely.

Erosion and Sediment Control

Erosion and sediment control ordinances are generally intended to mitigate sediment and erosion effects but can result in practices regarding flood plain management.

Bank stabilization can be accomplished through vegetative covering. Some agricultural practices can cause adverse effects on stream banks if shallow rooted grasses are substituted for native deeper rooted varieties. Logged areas, for example, can increase storm run off. Deep rooted vegetation can draw moisture from greater depths, and the soil is left with better capacity to absorb increased water flow.

Channel improvements such as removal of sediment and debris can improve carrying capacity of a stream.

Structural Measures

Construction of reservoirs for flood control can reduce the magnitude of floodwater levels. Development of watershed management programs and construction of channel improvements generally have a positive impact on flood flows. There are times when structural measures are the most logical, cost-effective and, possibly, the only means of protecting what exists in the flood area.

Storage reservoirs with gates to control the release of water will reduce peak discharge downstream. Even reservoirs that are full and spilling during peak inflow may reduce downstream flow by tapering or graduating the amount of discharge. Ungated reservoirs will produce a similar effect, although discharge openings in detention reservoirs should be designed to ensure that a greater than normal discharge does not occur.

Channel improvements to increase capacity may include straightening, realigning, installing stabilizing structures, changing floodway and bank vegetation, and paving. Eliminating bends will increase the slope of the channel as it reduces the length and, in turn, increases floodwater velocity. Deepening the channel will increase velocity but will also increase carrying capacity. Therefore, deepening is often more effective in reducing flood elevation. However, channel deepening which causes a lower flood elevation upstream has been shown to have little positive effect farther downstream. In some situations, channel straightening can actually have an adverse affect. If flow velocities are increased, problems may result in erosion and sedimentation. Paved channel beds may not be aesthetically acceptable.

In summary, channel modification may solve an immediate problem in the area treated but generally tends to pass the problem downstream. Similarly, groins and jetties on the beach will often collect sand but will starve the beach below them.

Levees confine river and overbank flows to protect the landward area. They reduce cross-sectioned area in the stream and increase velocity. They provide protection to the treated area but have little other effect downstream. To be effective, levees must be of substantial construction, continuous through an area with low banks, set back to allow for heightened flow, and may require supplemental drainage modifications for interior areas. Most flood control works are extensive and costly.

Discouragement of Development

Some argue that a prudent flood plain management technique would be to discourage further development. This may not always be feasible and, realistic. However deterrants can be employed to discourage development of the flood plain. They include public

information, warning signs, historic hazards data, tax assessment practices, and public facility extension policy. Flood insurance requirements may also discourage development.

Public information can bring to the public attention the hazards involved in living in the flood plain. Even when this tool would not serve as a deterrant, it would help citizens understand the choices and resultant objectives of local officials in the enforcement of land use regulations.

Warning signs may serve to discourage flood plain use. Though it probably would not be a popular tool when employed by local officials, warning signs could be placed on public rights-of-way when 100 year flood boundaries intersect. Subdivision plats could also be stamped by the permitting officer noting that the property is subject to flooding at a given interval.

Historic data filed with the appropriate county office would provide accurate and realistic background to the interested buyer of flood prone property. Title abstracts could include such data. Subdivision requirements may include a plat with flood area delineation which would be filed with county records, as a matter of practice.

Real property assessment is probably one of the most important considerations affecting land use. It reflects the high demand for land. Less agriculturally productive land may be sold for development. Unaware purchasers of low lying property can be alerted through a public information effort. In many coastal areas, the choices are few. Most of the land may be low and the ever increasing influx of people to the coast creates a need for modification of low lying areas to make them inhabitable. The pressure to convert flood plains for residential development is a very real one. When construction for flood loss prevention becomes necessary, the cost may be assessed against the land in part or as a whole benefiting from such services. At that time, it is particularly important to study cost-benefit analyses in protecting private investment from flood loss through sound building practices.

Flood Warning and Evacuation Plans

Improved communications and warning systems are vital in saving lives in time of flood occurance. In Buchanan County, Virginia, ten radio controlled reporting rain gauges and two additional alarm systems will be installed at various locations. A county flash flood coordinator will provide data to the NWS to increase forecast accuracy and subsequently issue early public warnings. A joint federal/state River Forecast Center in Sacramento, California, (National Oceanic and Atmospheric Administration/California DNR) keeps a close watch on weather conditions and river stages to promptly warn residents of approaching danger. During the flood season, river stage forecasts are issued.

Review of emergency plans for evacuation is also a form of mitigation. Generally speaking, there is probably no greater tool to reduce the effects of a potential hazard than to be prepared for its occurance.

Long Range Planning

Comprehensive planning is a concept that considers the economic, social, political, and physical issues of an area. When adopted by the local governing body, a comprehensive plan reflects the goals, policies and objectives of the body and the community.

The planning process is defined in six steps:

1. Identify the problems and define goals, policies, and objectives.

2. Collect and interpret relevant data.

3. Formulate a plan of action.

4. Evaluate the impacts resulting from that action.

5. Review and adopt the plan.

6. Implement.

Public participation must be a part of the planning process because the plan will reflect the posture of the entire community. Policies of the community will direct its growth for years to come and must be supported by the entire community. Such policies directing growth can preclude public facility extensions to discourage flood plain development. Local government can take a position that will not allow authorization, financing, or construction of utilities to serve floodprone areas. Since flood loss is a direct result of use of the land, such planning must carefully assess the hazards involved in the development of potential risk areas.

Other Mitigative Measures

Mitigation is a general term and applies not only to flood related disasters. Other emergencies such as tornadoes, earthquakes, hazardous material incidents, and nuclear events all require protective measures.

The first step in dealing with any disaster is preparedness planning. Sometimes it is difficult to prepare for devastation. The second step is then to inventory the options for further action. A poignant example is the 1972 earthquake in Managua, Nicaragua. Ten thousand people were killed, 20,000 injured, and 50,000 left jobless. Ninety-five percent of the city was destroyed and half the population were refugees. Managua had been razed by three earthquakes in the last 100 years. The problem was met with options for mitigation.

The techniques employed included risk planning. Geologic studies were undertaken to determine where the greatest risks were and the required design standard for sustenance in that area. Seismic building codes were employed and Transferable Development Rights (TDR). The latter meant that development would be transferred from the fault zone to

less dangerous areas. A government assisted land owners association would encourage Planned Unit Development (PUD) on land in the proximity of faults. National government acquisition of the fault areas appeared to be an unreasonably expensive venture. TDR would allow an owner of active fault property to sell his rights to develop that land to the owner of property in a geographic area less dangerous. Purchase of rights would allow the buyer of fault property to develop his geographically less dangerous property at higher density.

In planning for hazardous material events, an inventory or an assessment of such dangers would be the first consideration. Though transportation of hazardous materials makes planning a little more difficult, manufacturers or industries which deal in the use of such materials could be identified. Such businesses and industries may be the subject of siting assistance in the future to remove that activity from a vulnerable site (i.e. a residential area). Zoning ordinances can be effective in achieving this end. Such industries can be encouraged to take safety precautions to reduce the likelihood of an accident through professional organizations such as the American Society of Safety Engineers.

Nuclear emergency planning has for some time been coming to the forefront of disaster preparedness activity. Naturally, evacuation planning is vital to save the lives of those endangered by a nuclear incident. In addition, activities to mitigate the effects of such an accident could include protective action studies. Once the problem is identified, some protective action can be recommended. Operational response systems must be developed and tested for adequacy regularly. Training programs for those expected to respond in time of emergency should be conducted regularly to include every individual, particularly new employees, of a nuclear facility.

Finally, a public awareness program can be one of the most useful tools in reducing the loss of life through trained response. An informed public will also be less apprehensive about nuclear facilities and the possible hazards and, therefore, more cooperative with local officials.

Assistance or Training Needs and Providers

The planning and assistance needs of local government personnel charged with the responsibility and enforcement of disaster mitigation activities varies greatly. Research and experience has indicated that urban local governments with more sophisticated administrative infrastructures possess greater capabilities than do rural areas in adequately enforcing hazard mitigation ordinances. There are exceptions to this statement, however, counties and cities with larger populations generally have commensurately larger staff capabilities with greater expertise in the areas of hazard mitigation and related enforcement processes. On the other hand, more rural local governments tend to possess the lowest level capabilities in adequately enforcing hazard mitigation requirements. In order to provide a consistent level of enforcement of local hazard mitigation requirements among all local governments, it is necessary to implement training and assistance programs that can upgrade and complement the enforcement capabilities of

local government personnel. To illustrate this point, the NFIP will be assessed with regard to possible and/or preferable methods that can be used to provide for the professional training needs of local administrators. It should be noted that other federal and state mitigation programs possess many similarities to the NFIP and comparable stratagies can be employed to upgrade local enforcement/implementation capabilities in these programs. The NFIP is sited primarily due to its general federal/state/local governmental linkages. As with most mitigation programs, the majority of the "on-line" responsibilities rest with the local county and city governments.

Within all states, the flood plain management program office is charged with the responsibility of coordinating the state's program as well as providing technical assistance to local cities and counties in meeting specific requirements of the NFIP. Due to state manpower and budgetary constraints coupled with geographic and logistic limitations, most state offices cannot provide a sufficient level of technical assistance to individual local governments seeking help in upgrading their enforcement capabilities. In order to augment this system, the use of substate/regional planning commissions should be considered as a viable alternative.

Substate/regional planning commissions are multi-county and multi-functional organizations who work directly with local governments toward the implementation of various community development projects and programs. Through this established relationship, substate/regional planning commissions have maintained a close working rapport with counties and cities. They have also traditionally provided technical assistance to local officials in intergovernmental coordination activities. Through this working relationship, substate/regional planning commissions can complement the responsibilities of the state flood plain management office by providing liaison services between the state and local governmental levels. In particular, substate/regional planning commissions could assist these state offices in organizing and hosting local training workshops to upgrade the enforcement capabilities of of local flood plain managers. Substate/regional planning commission staff could also work directly with local flood plain managers toward correcting existing deficiencies in local ordinances and assist local officials in properly administering these ordinances. Through such a two-fold approach local governments could be provided direct assistance in upgrading their disaster mitigation capabilities.

In addition to providing training for local officials and flood plain managers, the substate/regional planning commissions could assist in educating the general public relative to disaster mitigation activities. Again, workshops and local seminars could be hosted to reach the general population which would include lending institutions, land developers, industries, and other private and public groups concerned with physical development. This public awareness program will allow these groups to become aware of the federal/state and local responsibilities and requirements applicable to development located in a hazard area. Historic information regarding previous hazards could be presented to illustrate the susceptability of local areas to flooding and other natural disasters and the likelihood of recurrence. Institutional requirements of the NFIP as well as other

applicable programs could be explained to provide a greater awareness and understanding of these regulations. In addition, methods to improve building practices, subdivision regulations, zoning ordinances and other ordinances administered at the local governmental level could be presented at workshops to illustrate their necessity and the benefits derived by the community and its residents from the successful management of high hazard areas. An understanding of existing programs, their goals and objectives, should lead to greater public acceptance of these programs and greater cooperation between the public and local administrators, thereby enhancing enforcement capabilities.

Printed information should be provided at these workshops in the form of pamphlets describing the goals and objectives of the NFIP and other relevant hazard mitigation programs. This information could also be disseminated through local service agencies such as public utility companies and local lending institutions as well as local governmental offices.

Substate/regional planning commissions have the capabilities to provide assistance to the state flood plain management office and federal agencies in sponsoring such public educational efforts due to their close working relationship with local governments and citizens. Substate/regional planning commissions have historically performed similar activities in other functional areas and, by utilizing an integrated approach, a more comprehensive educational approach can be obtained.

In order to upgrade the enforcement capabilities of local personnel, the initial audience for this approach should be local officials responsible for the administration of disaster mitigation ordinances and programs at the county and city level. Additionally, other entities including local lending institutions, land developers, industries, and the general public can also be reached through such an approach.

The need for obtaining a consistent level of enforcement capabilities at the local governmental level with regard to hazard mitigation cannot be understated. This task is vital to local administrators of individual programs as well as state and federal government administration. To better manage the program locally and gain cooperation of the general public, local officials must understand and be able to promote the goals and objectives of individual hazard mitigation programs and activities.

Federal, State and Local Involvement

Many governmental programs and agencies have key roles in the hazard mitigation process. Their duties can be direct "line" responsibilities where clear directives and legal authorities exist. They can also exist in a less structured environment but be supportive of the hazard mitigation process. In addition, hazard mitigation is composed of two separate components: (1) structural and (2) non-structural solutions. It is the intention of this portion of this discussion to focus on the non-structural element in the process and, through the use of the State of Georgia as a case study, to assess the local and institutional framework which either positively or negatively influences successful mitigation activities. Individual programs at the federal, state, and local governmental levels will be viewed for their contribution to the hazard mitigation process.

FEMA has the primary federal responsibility for ensuring that hazard mitigation activities are implemented. This responsibility is also carried out by appropriate state civil defense or emergency management agencies and through local governmental counterparts. Within this framework, the historical focus of all three levels of government have been on the (1) planning, (2) evacuation, and (3) recovery aspects of disaster situations. Until recently, minimal attention had been given to the mitigation portion of the overall program by those federal, state, or local agencies designated for disaster/emergency management. Due to the lack of enforcement powers within the FEMA efforts, it is imperative that other governmental programs be assessed for their contributions to the mitigation process. Research indicates that many significant objectives have been accomplished; however, this "patch-work" of success has not provided a systematic approach to the issue of hazard mitigation.

During the late 1960's and early 1970's, several federal programs were enacted that have major implications on the hazard mitigation process. In particular, the Housing Act of 1964, which provides Comprehensive Planning Assistance Program funds ("701") through HUD to states and local governments for physical planning; the Clean Water Act which provides funding to state and local governments for managing both surface and subsurface water quality; and the Coastal Zone Management (CZM) Act of 1972, which allows states and local governments to plan for the conservation of appropriate coastal resources are major components of the existing system of hazard mitigation. It should be simultaneously noted that the primary purpose of each of these federal acts was not hazard mitigation, per se, but a seperate and distinct objective. The Comprehensive Planning Assistance Program objectives were to allow states and local governments the opportunity to undertake comprehensive planning for community development betterment purposes. The Clean Water Act was specifically designed to meet environmental objectives associated with conservation, enhancement and protection of existing water resources. The CZM Act was specifically designed to address the increasing population growth projected for the nation's coastal areas and allow for the proper allocation of valuable and vulnerable coastal

natural resources. Since hazard mitigation activities are, in reality, a by-product of these three federal legislative initiatives, they represent a major awareness and desire on the part of state and local officials to adequately prepare for disaster/emergency management. State and local officials have utilized the financial resources provided through these programs to upgrade and enhance their hazard mitigation processes while simultaneously accomplishing the major program directives under each of these individual programs. An assessment of both the Comprehensive Planning Assistance Program and the CZM Program is in order to illustrate this point.

Upon enactment by the Congress, the HUD sponsored Comprehensive Planning Assistance Program made funding available to local governments and states on a two-thirds federal/one-third local basis to undertake comprehensive planning activities. Land use, housing, capital improvement community facility planning activities, etc. have been conducted at the state and local levels utilizing this program. In reality, these activities simultaneously upgraded the management capabilities of recipient state and local government, thereby, increasing their awareness of the need of hazard mitigation within state and local planning activities. Through HUD's promotion of state and local land use planning, these governments were provided the initial encouragement necessary to allow them to consider hazard mitigation activities within the overall comprehensive planning process. Local land use plans of coastal Georgia cities and counties do not contain a specific hazard mitigation component; however, direct references within these plans are made regarding the most prevalent natural disaster of the area, hurricanes. Attention is given within these land use plans to the siting and designing of future residential, commercial, industrial, and public developments in order to minimize the damage and loss of life associated with coastal storms. Many local officials who have had a historical knowledge of the need for hazard mitigation activities have had through this HUD program an opportunity to formalize local policies regarding the siting of future development in order to minimize storm related damage. All counties in coastal Georgia have also enacted local zoning ordinances which regulate the siting of specific land uses within their respective jurisdictions. Through the use of these local governmental "police powers", the hazard mitigation activities addressed in local comprehensive plans have been institutionally formalized. Again, it should be remembered that the overall purpose of this program was not to accomplish hazard mitigation objectives but to promote the health, safety, and general welfare of existing and future residents. The hazard mitigation component of this planning process has been a by-product that has provided local and state officials with initial opportunities to accomplish hazard mitigation goals within the overall comprehensive planning process.

In assessing the CZM Act of 1972, it has produced similar but more substantial hazard mitigation by-products. This federal program allows participating state and coastal local governments to plan for and manage coastal resources consistently with state and local governmental growth policies. Funding on an eighty percent federal basis to the state provides the staff resources essential in undertaking the required programmatic elements. As with the HUD Comprehensive Planning Assistance Program, the CZM program, sponsored by the Department of Commerce,

promotes the upgrading of management capabilities at the state and local governmental level. The CZM programmatic requirements must be successfully accomplished in order for a state's program to maintain eligibility for continued federal funding.

As a specific component of the CZM program, states are required to designate "Geographic Areas of Particular Concern" (GAPC). Although Georgia has withdrawn from the federally sponsored CZM program, several states have utilized the GAPD concept to designate "high hazard" areas within their respective coastal zone boundaries. These high hazard areas constitute potential geographic areas where hurricanes, earthquakes, and other natural disasters may conflict with physical development. Through the designation of such critical areas, future development can be redirected into other geographic areas less likely to incur natural disaster related damage. The primary purpose of the GAPC component within the CZM program is to allow for the designation of critical and vulnerable natural environmental areas and the conservation thereof. However, due to the major duplications between valuable natural resource areas and coastal high hazard areas, hazard mitigation activities are accomplished simultaneously with natural environmental preservation and conservation goals.

As noted from the above referenced material, the responsibility for implementing hazard mitigation activities rests with state and local governments. Cities and counties have historically maintained the legal and institutional authority for implementing hazard mitigation activities within their respective jurisdictions. As discussed in previous sections of this report, the primary legal responsibility for: (1) disaster response planning, (2) issuing orders for official evacuation, and (3) recovery activities rests with local government. The legal responsibility for carrying out hazard mitigation activities is much more clouded due to the lack of specific reference within state legislation to hazard mitigation responsibilities. However, due to the "police powers" conveyed to local governments by state constitutions, cities and counties have the clearest authority to implement hazard mitigation standards and regulations. Responsibility alone does not, however, ensure competent or timely performance. Only through the provision of financial and technical assistance to local communities can cities and counties hope to institute appropriate plans, regulations, and ordinances that will allow for the successful accomplishment of hazard mitigation objectives. Both the Comprehensive Planning Assistance and CZM programs reinforce this observation. Clearly, no systemmatic approach to the issue of hazard mitigation currently exists and there is an urgent need to establish a coordinated federal, state, local mechanism that will provide this assistance. The existing patchwork approach obtained through a variety of federal programs has yielded some important initial steps; however, much more work is required if cooperative implementation of hazard mitigation objectives at the federal, state and local governmental levels are to be attained.

Mitigation and Substate/Regional Agencies

Since the responsibility for engaging in realistic mitigation activities is at the local governmental level, local elected officials must develop, implement, and promote such efforts in their communities. It is not an easy task to fully consider economic, social, political, physical, and technical issues in disaster mitigation. It is a costly effort in terms of time and money. Local governments, for the most part, do not possess the financial resources to undertake extensive programs to find cost-effective tools and techniques for disaster mitigation. They are forced to deal with pieces of the puzzle in the best ways they can.

Since mitigation is "planning to reduce loss," the nature of mitigation activity is innate in substate planning agencies. Mitigation is necessary to protect existing land development. The first substate/regional agency was created in 1929 specifically to develop a regional land use plan. From their inception, substate/regional agencies have been involved in regional planning. It is a natural progression to expand the area of technical assistance now provided through existing resources to include hazard mitigation assistance. Previously stated resources such as demographic and map data, technical expertise in administration, soils capabilities, hydrology, law enforcement, and planning are there to be applied to any new field of work.

FIA representatives and state flood plain managers are exploring new means for encouraging local involvement in mitigation. FEMA's State Assistance Program is evidence of that. Substate agencies can help build the capacity of local government while acting as a liaison between federal and state agencies.

As previously presented, substate/regional planning agencies have many resources which they provide to local governments in their service as technical assistants in dealing with regional problems. It has been attested that disaster preparedness is a regional problem and substate/regional agencies can assist in providing a regional solution.

By the activity shown in Appendix VI, Coastal Regional Agencies' Involvement in Disaster Preparedness Efforts, it is obvious that these regional agencies are currently more active in mitigation than in any other area of disaster preparedness planning. The need to coordinate a comprehensive program through regional agencies is the next step in hazard mitigation.

In a particular area of mitigation, flood plain management, the University of North Carolina recently completed a study, "Managing Flood Hazard Areas: The State of Practice" (1980). A survey of 648 substate regional agencies showed that the method for management used most widely was technical assistance (82 percent). Survey results are shown in Table 9.

With regard to emergency preparedness, in general, Federal Disaster Assistance Administration (FDAA, now part of FEMA) administrator William Wilcox summarized the needs for emergency preparedness as he saw them during testimony to a Presidential Committee after the Three Mile Island (TMI) accident.

"I respectively suggest that pre-emergency planning and readiness require coordination, cooperation and communication. The need for these three C's in other types of community and area planning such as highway planning, economic development, and health and hospital planning, has been demonstrated by experience decades ago, and TMI may well have demonstrated the need for this type of planning and readiness structure in emergency operations, too. While the Federal Government must be sensitive to State and local laws and customs, it should, in my view, set the framework requirements for a specialized, regionalized, coordinated, emergency-response structure, designed in detail by the State's Governor or legislature.

The creation and effective planning by such a governmental or quasi-governmental agency should be a prerequisite for a licensee to operate a new nuclear power plant and should be required, after a reasonable time span, of existing plants as a condition of continued operation....

With respect to either emergency planning or operations, no advisory commission can compel effective plans and readiness. The commission, however, can suggest a structure that will encourage coordination, cooperation and communication. What I have proposed here will, in my view, do just that."

Recommendation:

States should provide greater financial and technical assistance to local governments to encourage hazard mitigation activities.

Recommendation:

Substate/regional planning agencies should be used by state and local governments as a technical assistant and liaison in more intense hazard mitigation efforts.

Recommendation:

Comprehensive land use plans and community development plans should contain a hazard mitigation element to identify implementation alternatives.

TABLE 9

FLOOD PLAIN LAND USE MANAGEMENT METHODS
ADOPTED BY REGIONAL AGENCIES

Land Use Management Methods	Percent of Agencies Using Each Method
1. Providing Technical Assistance to Local Governments	82
2. Including Flood Hazards in Regional Planning	75
3. Discouraging Investment in Hazard Areas Through A-95 Review	61
4. Making the Public Aware of Flood Hazards	61
5. Coordinating Local Programs	44
6. Monitoring and Evaluating Local Flood Programs	24
7. Designating Flood Hazard Areas	20
8. Regulating Flood Hazard Areas	11
9. Acquiring Flood Hazard Areas for Open Space	7
10. Relocating Existing Development	2

IX. COORDINATION

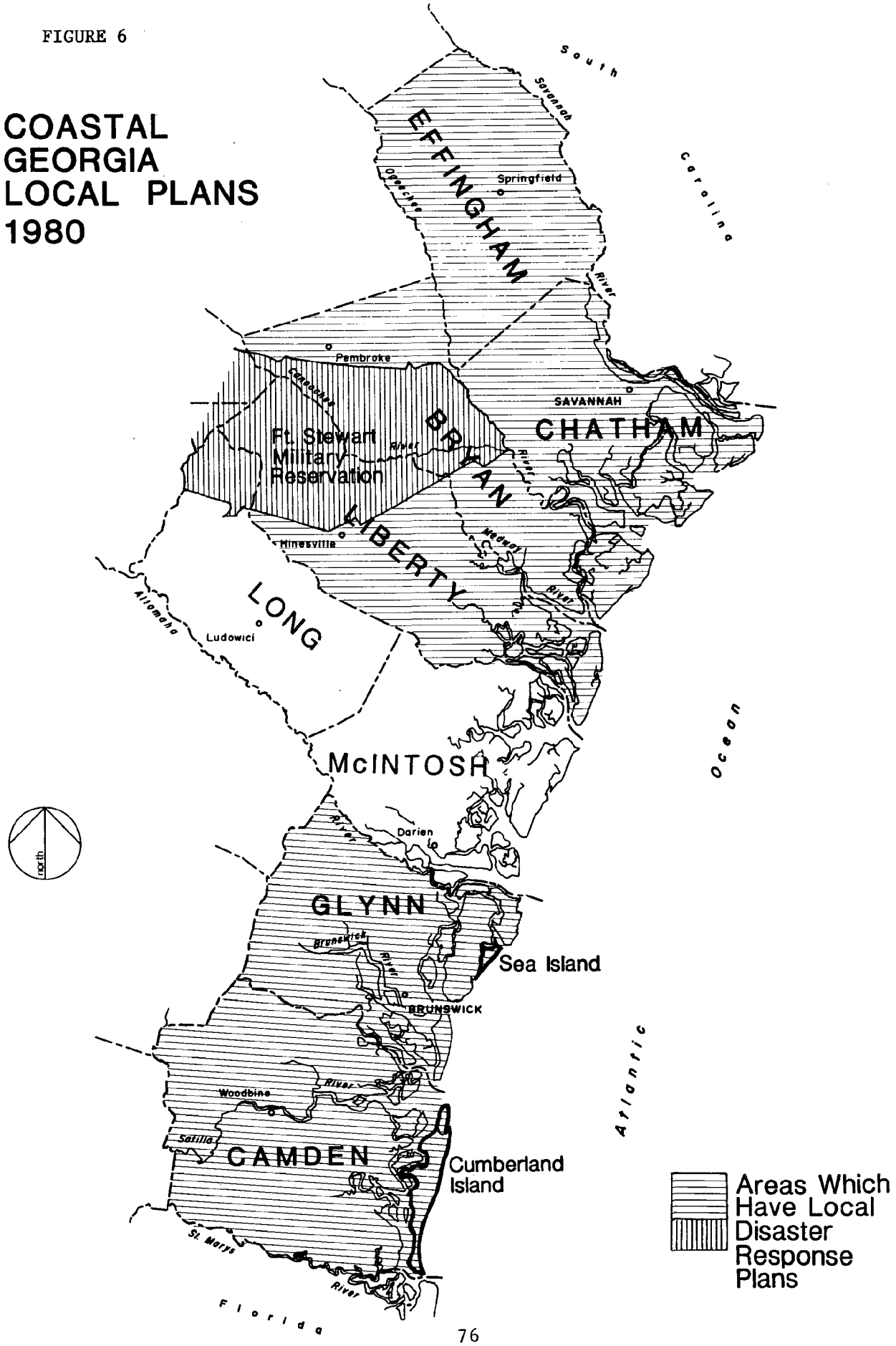
To achieve maximum involvement of all groups, it is important to identify the planning activities undertaken and the responsibilities of various agencies within the state. To demonstrate how these can be identified, existing plans in Georgia pertaining to the eight county coastal area were studied. Figure 6 shows the area and specific location discussed. In addition, the roles of involved groups and agencies at the local, state, and federal levels were studied.

EXISTING PLANS

An inventory of plans in Georgia began with the Georgia Natural Disaster Operations Plan (NDOP) prepared by the Georgia Civil Defense. Elements included in the plan are:

(1) Basic Plan (e.g. purpose, authorities, policy, concept of operations, etc.)
(2) Emergency functions
    (a) direction and control
    (b) communication, surveillance and warning
    (c) public information
    (d) training
    (e) education
    (f) police services
    (g) fire services
    (h) search, rescue and recovery
    (i) evacuation
    (j) engineering services
    (k) transportation services
    (l) hazardous materials
    (m) state military support
    (n) fuel and utilities
    (o) disaster assistance center operations
    (p) damage assessment and reporting
    (q) health and social services
    (r) shelter and temporary housing
    (s) mortuary and identification services
    (t) procurement
    (u) coordination of private organizations and volunteers
    (v) public property assistance
    (w) insurance administration
    (x) investigation
    (y) unemployment
    (z) timber removal and salvage
(3) Agency response index
(4) Subject index

FIGURE 6


COASTAL
GEORGIA
LOCAL PLANS
1980
EFFINGHAM
Springfield
Pembroke
SAVANNAH
CHATHAM
BRYAN
LIBERTY
Ft. Stewart
Military
Reservation
Hinesville
LONG
Ludowici
McINTOSH
Darien
GLYNN
Sea Island
BRUNSWICK
Woodbine
CAMDEN
Cumberland
Island
St. Marys
South Carolina
Ocean
Atlantic
Florida
north
Areas Which
Have Local
Disaster
Response
Plans

All other disaster plans in Georgia are encouraged to be consistent with the NDOP. Existing plans which pertain to the eight counties comprising the Coastal APDC are as follows:

(1) NDOP
(2) State Agency Standard Operating Procedures (SOP)
(3) Coastal Georgia Hurricane Evacuation Plan
(4) Five County Plans (hurricane or crisis relocation)
(5) Fort Stewart Hurricane Alert and Evacuation Plan (in Liberty County)
(6) Sea Island Hurricane Evacuation Plan (in Glynn County)
(7) National Park Service Hurricane Evacuation Plan (in Camden County)
(8) Area Agency on Aging Disaster Plan (senior centers in all of coastal counties)
(9) Georgia Power Company Disaster Plan (Camden, Glynn, McIntosh Counties)
(10) Emergency Broadcast System Emergency Plan (all counties)
(11) Business and Industry Plans

The following narrative will discuss basic elements of each. All state agencies assigned functions in the NDOP are required to maintain SOP's consistent with the state plan. Some of these agencies have separate and distinct written SOP's and some use the state NDOP. The purpose of all SOP's is to define procedures for the assigned function to be carried out by that agency.

Also under the umbrella of the NDOP is the Coastal Georgia Hurricane Evacuation Plan. This plan, created in 1978, provides basic procedures for the coastal area during a hurricane threat. Basic elements include:

(1) Basic Plan - scope, responsibility, etc.
(2) Operations
    (a) concept
    (b) organization
    (c) emergency communications and warning
    (d) hurricane response conditions
(3) Evacuation
    (a) reception and mass care centers
    (b) staging areas
    (c) evacuation routes
(4) Re-entry and clean-up
    (a) evacuee return
    (b) restoration and recovery
(5) Disaster assistance programs
    (a) disaster relief act
    (b) individual assistance
    (c) public assistance

Specific plans for two counties (Camden and Glynn) are consistent with the regional plan. Basic elements in the Glynn County plan are:

(1) Basic authority, purpose, etc.

(2) Functional responsibility assignments
    (a) communications and warning
    (b) public information
    (c) search, rescue, and recovery
    (d) police services
    (e) evacuation
    (f) engineering services
    (g) fire control
    (h) transportation services
    (i) petroleum and solid fuel services
    (j) utilities services
    (k) hazardous materials control
    (l) health and social services
    (m) radiological defense
    (n) administrative services
    (o) coordination of private organizations
    (p) training
    (q) shelter and temporary housing
    (r) damage assessment and reporting
    (s) public property assistance
    (t) nuclear civil protection
    (u) military support

Basic elements of the Camden County plan include:

(1) Authorities
(2) Scope
(3) Responsibility
(4) Operations
    (a) General
    (b) Field Coordinator
        Field Coordinator
        Control Groups
        Group Locations
    (c) Hurricane Warning and Emergency Communications
    (d) Response Conditions: Hurricane
(5) Evacuation routes
(6) Reception center
(7) Critical re-entry and clean-up
(8) Evacuee return
(9) Restoration and recovery
(10) Assistance programs
    (a) State
    (b) Federal

In addition to the hurricane plans for Glynn and Camden Counties, three counties, Bryan, Effingham, and Liberty have Crisis Relocation Plans prepared by the Georgia Civil Defense.

Basic elements of those plans are:

(1) Basic plan, scope, purpose, etc.

(2) Annexes
    (a) police service
    (b) fire service
    (c) reception and care service
    (d) food service
    (e) transportation service
    (f) engineering, maintenance and construction services
    (g) health and medical service
    (h) radiological defense

Two counties in the region, Long and McIntosh, have no civil defense organization and no plans. One county uses the regional hurricane evacuation plan in time of emergency.

The Fort Stewart Military Reservation in Liberty, Bryan and Long counties has a hurricane evacuation plan. The elements of that plan are as follows:

(1) Basic plan, scope, etc.
(2) Map of danger zone
(3) Hurricane operations
    (a) shelters
    (b) permanent structure listing
(4) Post-hurricane operation
(5) Protection of aircraft
(6) Checklists

A brief description of the remaining disaster plans relating to coastal Georgia counties follows:

- The National Park Service plan for Cumberland Island, in Camden County, is a basic SOP assigning tasks and check points to Park Service staff.

- The Area Agency on Aging, Disaster Plan for the Elderly is a resource listing of emergency contact people, such as senior citizen center managers, local civil defense, emergency medical services, etc., in the eight-county coastal area.

- Georgia Power Company maintains a comprehensive emergency assistance plan. It identifies staging areas, priorities, cooperation with fellow companies, etc.

- The Emergency Broadcast System throughout the state has a plan for activating warning systems. This is done in a consistent manner with the NAWAS and other communication lines.

- Copies of plans for Sea Island, and various other private, major employers could not be obtained. Private industry survey results indicated that only 31 percent of the respondents had written plans. That survey is discussed later in this section. It is assumed that these plans are, in essence, SOP's for in-house staff. Coordination with local government preparedness plans is uncertain but should be encouraged.

The following is not intended as a criticism but merely a comparison, evaluation, and resulting recommendations.

- The most obvious disaster planning deficiency is the lack of consistent local plans for each county. Of the six coastal counties only two have county hurricane evacuation plans. County plans do not consistently include maps of evacuation areas, routes and shelters, and shelter listings for the region. Neither the hurricane evacuation plans or the crisis relocation plans include comprehensive resource listings.

- Not all state agencies have concise SOP's. Some use the NDOP as a guide for emergency operations. The DNR Hurricane Evacuation Standing Operating Procedures for Coastal Georgia is one example of a detailed SOP. The only basic procedure left incomplete is identification of shelters to accommodate evacuees of DNR property.

- Mutual aide agreements do not exist between most of the above mentioned planning groups. Verbal agreements may suffice although written agreements are more binding and should alleviate any misunderstanding about services negotiated. (See Appendix XIV.)

- Provisions for an advisory body or task force are not definitive. The burden for development of such plans appears to be on the local chief elected official.

- The state NDOP is a guide defining responsibility of state agencies in providing assistance to local government. As much as is possible, it is also a guide for county and municipal plans. No means for formal review of local plans is provided.

- The NDOP requires local governments to employ all resources in dealing with a disaster although no specific means of coordinating such resources is defined.

- Close coordination between agency plans appears to be missing or weak. Camden and Glynn Counties are adjacent, yet there is no reference in their written plans to coordination between the two. Similarly, the National Park Service's written plan does not cite a mechanism for coordination of the Cumberland Island (located in Camden County) Plan with the Camden County Civil Defense organization or government. The Ft. Stewart plan does not coordinate with civilian groups or agencies, however, upon completing the document, it was sent to the local county civil defense, Red Cross and nearby Chatham County Civil Defense for their information.

- The plans described generally focus on the same basic functional areas, with the exception of the Area Agency on Aging plan for the elderly which contained only one element. The detail with which functional areas are described varies. Many plans seem to be structured toward administrative duties rather than physical response.

In summary, many of the basic tools for a comprehensive disaster preparedness program exist within the array of plans described. A mechanism for coordinating those tools can be provided through the

advisory council on disaster preparedness and through the use of the existing substate/regional agency. Such a group can coordinate local and state plans for optimum use at the local and regional level.

LOCAL, STATE AND FEDERAL ROLES

In order to effectively attain maximum involvement of all groups and agencies, roles and responsibilities must be defined in realistic terms. Local, state and federal groups must coordinate at their respective levels and intergovernmentally as well.

At the local level, plans for disaster response must be coordinated. This means the operating procedures of each city or county department must be cognizant of all others. Local roles can be defined through the process used to identify the advisory council and subcommittees (see Section VII). Other groups such as business, private industry and volunteer groups must also be included.

In a survey of two such groups, the news media and industry, it was found that such coordination did not occur. A survey of the Savannah Area Chapter of the American Society of Safety Engineers indicated that 86 percent of those responding were not involved in the local disaster planning process. A survey of all news media in an eight-county area of coastal Georgia indicated that 66 percent were not included in the local planning process. In order to make most effective use of community resources as well as to meet the needs of the community itself, all groups must be involved.

Coordination between state agencies must also occur. As shown in Table 10, there are 23 different state agencies which will respond to local needs. All have specific roles to play, identified and coordinated by the Georgia Civil Defense. In addition, each of those responding agencies should be aware of what the others will be providing and under what circumstances. For example, eleven state agencies provide transportation services to local government. It is important to know which will provide transportation for evacuation, transport of equipment and supplies and for debris removal. Ten state agencies provide information in communications and warning. In addition to those ten, the State Climatologist can provide vital information in forecasting severe weather patterns. Further detailed study of each state agency is required to determine whether duplication or voids in services exist. All groups at the state level must coordinate closely to make the most efficient use of all possible resources.

At the federal level there are 15 primary agencies providing service to local government (see Appendix VII). Coordination should occur between these agencies as well. Many provide assistance in the disaster recovery phase and all such assistance programs must form a network which local officials can tap easily and quickly. For example, HUD and FHA provide temporary housing and assistance in recovering housing facilities. Each agency should coordinate closely to complement the services of the other.

Table 10

STATE RESPONSE AGENCIES AND RESPONSIBILITIES

(P) Primary Responsibility (S) Support Responsibility

I. Training/Education

Public Information

(P) Department of Defense
(S) Department of Administrative Services
Department of Education
Department of Human Resources
Department of Natural Resources
Department of Public Safety
Board of Regents
Department of Transportation

Training

(P) Department of Defense
(S) Department of Administrative Services
Department of Agriculture
Department of Audits and Accounts
Georgia Building Authority
Georgia Bureau of Investigation
Department of Community Affairs
Comptroller General's Office
Department of Education
Forestry Commission
Department of Human Resources
Department of Industry & Trade
Department of Labor
Department of Natural Resources
Offender Rehabilitation
Office of Planning and Budget
Department of Public Safety
Public Service Commission
Board of Regents
Department of Revenue
Department of Transportation
Veterans Administration

Education

(P) Department of Education
(S) Department of Agriculture
Department of Community Affairs
Department of Defense
Department of Human Resources
Board of Regents

II. Communication/Warning

(P) Department of Defense
(S) Department of Administrative Services
Georgia Bureau of Investigation
Department of Education
Forestry Commission
Department of Natural Resources
Department of Public Safety
Board of Regents
Department of Revenue
Department of Transportation

II. Inventory of Resources/Coordination Emergency Services

Police Services

(P) Department of Public Safety
(S) Department of Administrative Services
Georgia Bureau of Investigation
Department of Defense
Forestry Commission
Department of Natural Resources
Offender Rehabilitation
Board of Regents
Department of Revenue
Department of Transportation

Fire Services

(P) Forestry Commission
(S) Department of Administrative Services
Department of Agriculture
Georgia Bureau of Investigation
Comptroller General's Office
Department of Defense
Department of Natural Resources
Offender Rehabilitation
Department of Public Safety
Public Services Commission
Board of Regents
Department of Transportation

Search, Rescue and Recovery

(P) Department of Defense
(S) Department of Administrative Services
Georgia Bureau of Investigation
Comptroller General's Office
Forestry Commission
Department of Human Resources
Department of Natural Resources
Offender Rehabilitation
Department of Public Safety
Department of Transportation

Engineering Services

(P) Department of Transportation
(S) Department of Administrative Services
Department of Agriculture
Department of Community Affairs
Department of Defense
Forestry Commission
Department of Natural Resources
Public Service Commission
Board of Regents

IV. Hazardous Material Events

- Non-Radiological

(P) Department of Natural Resources
(S) Department of Agriculture
Department of Defense
Forestry Commission
Department of Public Safety
Department of Transportation

- Peacetime Radiological

(P) Department of Natural Resources
(S) Department of Agriculture
Department of Defense
Forestry Commission
Department of Public Safety
Department of Transportation
Department of Administrative Services
Department of Human Resources

State Military Support

(P) Department of Defense

Fuel

(P) Department of Agriculture
(S) Department of Administrative Services
Department of Defense
Department of Natural Resources
Office of Planning and Budget
Department of Public Safety
Public Service Commission
Board of Regents
Department of Transportation

Utilities

(P) Public Service Commission
(S) Department of Administrative Services
Department of Agriculture
Department of Defense
Department of Natural Resources
Office of Planning and Budget
Department of Public Safety
Board of Regents
Department of Transportation

Procurement

(P) Department of Administrative Services
(S) Department of Community Affairs
Department of Defense
Department of Education
Department of Human Resources
Department of Industry and Trade
Board of Regents

Coordination of Private Organizations and Volunteers

(P) Department of Defense
(S) Department of Administrative Services
Department of Community Affairs
Department of Education
Department of Human Resources
Department of Labor
Public Service Commission
Board of Regents
Department of Transportation

V. Evacuation/Transportation/Reentry

Evacuation

(P) Department of Defense
(S) Georgia Bureau of Investigation
Department of Community Affairs
Department of Education
Forestry Commission
Department of Human Resources
Department of Natural Resources
Department of Public Safety
Public Service Commission
Board of Regents
Department of Transportation

Transportation

(P) Public Service Commission
(S) Department of Administrative Services
Department of Agriculture
Department of Defense
Department of Education
Forestry Commission
Department of Human Resources
Department of Natural Resources
Department of Public Safety
Board of Regents
Department of Transportation

Shelters

(P) Department of Community Affairs
(S) Department of Administrative Services
Department of Defense
Department of Education
Department of Human Resources
Department of Natural Resources
Board of Regents
Department of Transportation
Veterans Administration

VI. Clean-up/Recovery

Clean-up

(P) Forestry Commission
(S) Department of Administrative Services
Department of Agriculture
Department of Community Affairs
Department of Defense
Department of Labor
Offender Rehabilitation
Public Service Commission
Board of Regents
Department of Transportation

Disaster Assistance Center Operations

(P) Department of Defense
(S) Department of Administrative Services
Department of Agriculture
Department of Audits and Accounts
Georgia Building Authority
Georgia Bureau of Investigation
Department of Community Affairs
Comptroller General's Office
Department of Education
Forestry Commission
Department of Human Resources
Department of Industry and Trade
Department of Labor
Department of Natural Resources
Offender Rehabilitation
Office of Planning and Budget
Department of Public Safety
Public Service Commission
Board of Regents
Department of Revenue
Department of Transportation
Veterans Administration

Damage Assessment and Reporting

(P) Department of Defense
(S) Department of Administrative Services
Department of Agriculture
Georgia Building Authority
Department of Community Affairs
Comptroller General's Office
Department of Education
Forestry Commission
Department of Human Resources
Department of Natural Resources
Office of Planning and Budget
Department of Public Safety
Public Service Commission
Board of Regents
Department of Transportation

Health and Social Services

(P) Department of Human Resources
(S) Department of Administrative Services
Department of Agriculture
Georgia Building Authority
Department of Community Affairs
Department of Defense
Department of Education
Department of Labor
Department of Natural Resources
Department of Public Safety
Public Service Commission
Board of Regents
Department of Transportation

Temporary Housing

(P) Department of Community Affairs
(S) Department of Administrative Services
Department of Defense
Department of Education
Department of Human Resources
Department of Natural Resources
Board of Regents
Department of Transportation
Veterans Administration

Mortuary and Identification Services

(P) Department of Human Resources
(S) Department of Administrative Services
Georgia Bureau of Investigation
Department of Defense
Department of Education
Department of Public Safety
Public Service Commission
Board of Regents
Veterans Administration

Public Property Assistance

(P) Department of Defense
(S) Department of Administrative Services
Department of Audits and Accounts
Department of Community Affairs
Department of Education
Department of Human Resources
Board of Regents
Department of Transportation

Insurance Administration

(P) Comptroller General's Office
(S) Department of Administrative Services
Department of Audits and Accounts
Department of Community Affairs
Department of Education
Department of Human Resources
Department of Natural Resources
Board of Regents
Department of Transportation

Insurance Administration

(P) Comptroller General's Office
(S) Department of Administrative Services
Georgia Building Authority
Department of Defense
Department of Natural Resources
Veteran's Administration

Investigation

(P) Georgia Bureau of Investigation
(S) Department of Administrative Services
Department of Audits and Accounts
Comptroller General's Office
Department of Defense
Forestry Commission
Department of Natural Resources
Department of Public Safety

Unemployment and Reemployment

(P) Department of Labor
(S) Department of Community Affairs
Department of Defense
Department of Human Resources
Offender Rehabilitation
Board of Regents
Veterans Administration

Source: Natural Disaster Operations Plan, Georgia Civil Defense, 1979.

Finally, intergovernmental coordination must be achieved. Federal, state and local activities must mesh to provide efficient service in times of disaster. This is best illustrated in two areas. The NWS provides severe weather information to state emergency service agencies and also to local civil defense directors. The communication lines between all must operate quickly and concisely. The Federal Bureau of Investigation and state Bureaus of Investigation can be called to assist local police in times of emergency. Coordination between all levels of government is vital.

SUBSTATE/REGIONAL AGENCY ROLES

Substate/regional planning agencies can also assist. Because they are involved in so many local, state and federal programs, they are ideally suited to play the role of technical assistant and advisor. Such agencies currently serve as liaison between all levels of government and often coordinate efforts between different local governments. They also coordinate various state programs and various federal programs for use at the local level. Disaster related programs are a likely extension of existing services.

Recommendation:

Each coastal county should develop a hurricane response plan as part of a comprehensive disaster preparedness program. This plan should be coordinated with all appropriate plans in the area.

Recommendation:

Each inland county should develop emergency response plans as part of a comprehensive disaster preparedness program coordinated with all appropriate plans in the area.

Recommendation:

Business and industry should be strongly encouraged to develop in-house emergency response plans coordinated with appropriate city, town or county plans.

Recommendation:

State agencies and military installations should develop emergency response plans in close coordination with state emergency management agencies and appropriate city, town or county plans.

Recommendation:

Each plan should include, at a minimum, these elements: (1) training /education, (2) communication/warning, (3) inventory of resources/coordination/ emergency services, (4) evacuation/transportation, (5) shelters, (6) clean-up/ recovery.

Recommendation:

A regional advisory council on disaster preparedness should be utilized to ensure coordination of planning tools and written plans developed in the region.

Recommendation:

Mutual aid agreements should be formulated between agencies and units of government to ensure coordination and emergency service support.

Recommendation:

Substate/regional planning agencies should be used by state and local governments to provide technical assistance in developing disaster preparedness plans.

X. APPLICABILITY TO ALL DISASTERS

The tools available to local governments in preparing for disasters of all types are quite basic. They consist of the advisory body (as described in the "Advisory Council and Subcommittees" section) and the following:

(1) Plans
(2) Maps
(3) Educational and public awareness programs
(4) Mitigation activities

The processes used to arrive at each are the same for any disaster. Solutions to specific problems will be the only variable.

It has been determined that local government is the first "line of defense" against a disaster occurance. It has also been determined that disasters are not usually site specific problems but, more often, regional in nature. Most local governments, then, share the problem and the solution should be representative of the region as a whole. The advisory council on disaster preparedness described in section VII is such a planning body. For any disaster situation, the formation of such a council will be accomplished in the same manner. Primary respondents must be identified and designated as advisory council members. Their role is to guide the direction of the entire preparedness program. Similarly, subcommittee members will be identified as those with supporting roles in particular phases of preparedness, response, or recovery.

Plans

The elements of written response plans will basically be the same for all disasters. There will be added considerations, but the following serve as a foundation:

(1) Training and Education
(2) Communication/Warning
(3) Inventory of Resources/Coordination/Emergency Services
(4) Evacuation/Transportation
(5) Shelter
(6) Clean-up and Recovery

A subcommittee for each of the above can help guide development of a comprehensive plan. Training for responding personnel will be necessary no matter the type of disaster. Trained response is just that. Obviously, the type of disaster to be dealt with will have impact on the content of the training program. Experts in the area should be sought as resource personnel in developing training programs. In such training exercises, the plan itself should be tested for adequacy.

Communication and warning will always be necessary as long as there is population in danger. Types of communications and warning systems may vary depending on the type of emergency. During a fire or chemical spill requiring evacuation, a regular electrically generated warning system can be used. During a severe storm, power outages may require an alternative.

An inventory of resources is good management in whatever situation. Know what the options are. Make certain they are dependable resources. Local governments should maintain a resource listing of all emergency equipment, service, and personnel. The listing should be revised regularly and should be specific. In identifying such resources as equipment, services and people, private organizations and volunteers should not be overlooked. An advisory council subcommittee will be invaluable in drawing together the resources of each community and the region in total.

If evacuation is a necessary response, egress routes either out of a building, a city, or a county should be specifically identified based on carrying capacity and structural adequacy. Problems resulting in the blockage of smooth traffic flow (pedestrian or vehicular) should be anticipated. The evacuation plan should be tested when possible in a "fire drill" or similar drill.

A shelter plan is a part of all disaster plans. As stated under the shelter element of the planning section, a current listing of shelter locations must be maintained. That list for each type of disaster must recognize that different disasters will require different shelter criteria.

Clean-up and recovery procedures may vary depending on the emergency. However, the process of coordinating forces and equipment to execute recovery efforts will be the same.

Education and Public Awareness

Basic tools in implementing hazard awareness compaigns for the public include those stated previously in the "Program Elements" section. For example, the same groups can be used in spreading the word about nuclear preparedness efforts as are used in flood preparedness efforts. All can be accomplished through regular, ongoing efforts or special periodic activities. Civic groups and the news media, as well as professional organizations, are especially valuable vehicles for such a campaign. Special population concentrations and schools should be addressed by special presentation.

Mapping

In mapping for disaster preparedness, the risk area, jeopardized population, or location of the hazard itself may be identified. Whatever the case, the first step is in obtaining the base map. The base map will be chosen with regard to information necessary to properly identify the hazard in question. In flooding events, the major consideration is elevation. In hazardous

material transport, the concern will be major transportation networks used for that purpose. If the hazard is possible oil drilling accidents, a map of the outer shelf and locations of those operations will be important. Table 11 is a list (not all inclusive) of possible emergencies, major considerations and map resource agencies.

If there is need for special mapping, the next step is to locate a source of technical assistance. Most often, mapping assistance can be found through substate/regional planning agencies, county and municipal engineering or tax offices, private consultants, state agencies such as DOT and DNR, the Corps of Engineers, or colleges and universities. The type of service provided or negotiable with each group will vary.

In reproduction and actual printing, the options are similar to those listed in the mapping section. They include nearly any group that maintains in-house printing facilities. Local government may be able to negotiate an arrangement with any of the following:

(1) Regional planning agency
(2) Colleges or universities
(3) Schools
(4) Private industry
(5) DOT, DNR, or other state agency
(6) Corps of Engineers
(7) Local newspaper
(8) Commercial printer

The above lists are not intended to be all inclusive but to demonstrate possible sources of assistance. It may also demonstrate that resources for mapping storm related disasters are similar to those required in any disaster situation.

Mitigation

Mitigation, in general, is necessary to protect existing development and associated population, to protect fragile environments, and to reduce the financial loss incurred. The measures employed for mitigation are far reaching and include all types of disasters.

Four alternatives are the same for all disasters:

(1) Protect existing development from the hazard.
(2) Remove or correct existing development to prevent it from being damaged by the hazard or remove or correct the hazard source itself, if possible or practical.
(3) Discourage development near the hazard area.
(4) Regulate land use in the hazard area or regulate the hazardous use itself.

Table 12 contains a summary which illustrates possible mitigation measures for various hazards.

TABLE 11

MAP RESOURCES

TYPE OF EMERGENCY	MAJOR CONSIDERATION	MAP SOURCE
NATURAL HAZARDS		
Hurricane	Elevation Population location	NOAA DOT Planning Agency U.S.G.S.
Flash flooding	Rivers, streams Population Elevation	NOAA, DOT, DNR Corps of Engineers U.S.G.S., FIA Planning Agency
Tornado	Population location	DOT, U.S.G.S. Planning Agency
Earthquake	Fault location Population location	DOT, U.S.G.S. Bureau of Land Management Planning Agency
MAN-MADE		
Nuclear	Facility location Population location	U.S.G.S. DOT, Planning Agency
Hazardous Material	Manufacturers Transport routes Population location	DOT, U.S.G.S. Planning Agency
Forest Fire	Location of timber Location of nearest fire fighting station Location of streams Population location	U.S.G.S. Forestry Commission DOT, DNR Planning Agency
Oil drilling accidents	Location of rig Nearest beach or marsh to be affected	Bureau of Land Management NOAA, DOT, U.S.G.S.

TABLE 12

MITIGATION ALTERNATIVES FOR ALL HAZARDS

Natural Hazard	Purpose	Mitigation Measure
Tornado	Protection of existing development	-repair susceptible exterior of buildings -warning and shelter -removal of dead trees
Earthquake	Protection of existing development	-repair unsturdy buildings -warning and shelter
Man-Made Hazard		
Nuclear	Protection of existing development	-Warning and evacuation
Hazardous Material	Protection of existing development	-Warning and evacuation
Forest Fire	Protection of existing development	-warning and evacuation -increased fire fighting capabilities
Natural Hazard		
Earthquake	Removal or conversion of existing development	-transferable development rights -land acquisition -conversion of use -urban redevelopment -public facility reconstruction
Man-Made Hazard		
Nuclear	Removal or conversion of existing development	-public nuisance abatement -urban redevelopment -conversion of use -public facility reconstruction
Hazardous Material	Removal or conversion of existing development	-public nuisance abatement -non conforming uses -conversion of use
Forest Fire	Removal or conversion of existing development	-public acquisition -non conforming uses -conversion of uses -public facility reconstruction

TABLE 12 (CONTINUED)

Natural Hazard	Purpose	Mitigation Measure
Earthquake	Discouragement of development	-public information -warning signs -recordation of hazard -tax assessment practices -financing policies -public facility extensions -high risk insurance costs
Man-Made Hazard		
Nuclear	Discouragement of development	-public information -warning signs -recordation of hazard -financing policies -tax assessment practices -public facility extensions -high risk insurance costs
Hazardous Material	Discouragement of development	-public information -warning signs -Public facility extensions -high risk insurance costs
Forest Fire	Discouragement of development	-public information -warning signs -recordation of hazard -tax assessment practices -financing policies -public facility extensions -high risk insurance costs
Natural Hazard		
Earthquake	Regulate land use in hazard area	-zoning ordinance districts -special fault area regulations -subdivision ordinances -sanitary ordinances -building ordinances
Man-Made Hazard		
Nuclear	Regulate land use in hazard area.	-zoning ordinance district -subdivision ordinances -building ordinances
Hazardous Material	Regulate land use in hazard area.	-zoning ordinance districts -building ordinances
Forest Fire	Regulate land use in hazard area.	-zoning ordinance districts -special hazard area regulations -subdivision ordinances -building ordinance

A comparison of mitigation measures illustrates that many are applicable to several types of disasters. Predictable natural hazards such as flooding and earthquakes have much in common. They are both situations in which it is impossible to remove or severely limit the hazard. The most effective means for reducing loss is to reduce development.

Tools to discourage development in high risk areas can be applied to nearly every disaster; whether or not they are successful depends largely on public consent. Removal of existing development in such high risk areas is probably the alternative least used until recent years. However, repeated loss in high hazard areas has made the option more attractive. Land use regulation is one of the strongest tools when used properly. Local pressures for developable property may encourage variances which ultimately may reduce the effectiveness of ordinances.

XI. TRANSFERABILITY FOR USE AS A NATIONAL MODEL

In order to be effective and transferable, any "model" document or program must be accompanied by specific methods for implementation. The most innovative idea may not be used if it is not marketed.

National Interest Groups

One of the most effective means of marketing a model program with national implications is to use national interest groups as a vehicle for transfer. In terms of disaster preparedness and regional/local implications, such groups include, but are not limited to:

National Association of Regional Councils (NARC)
National Association of Counties (NACo)
National Association of Development Organizations (NADO)
American Planning Association (APA)
Council of State Governments
National League of Cities
U. S. Conference of Mayors
International City Managers Association (ICMA)
International Association of Police Chiefs
International Association of Fire Chiefs
International Association of Fire Fighters
National Fire Protection Association
National Sheriff's Association

These organizations gather annually to provide a forum for their members to discuss common areas of interest, problems, and more effective ways of doing their jobs. All of the organizations directly touch the local governments responsible for disaster preparedness, response, and recovery. This is a market place for offering problem solving techniques and the place for expanding existing capabilities.

Conferences regarding planning, economic development, transportation, housing, and management tools for local government touch literally every phase of disaster preparedness. Planning tools and techniques are the same whether used for land use planning for community growth, land use planning for flood plain use and mitigative measures, or transportation planning to affect the evacuation of hundreds of people from an endangered area. Economic development means the studied development of communities/counties and regions and, in short, working to mitigate the adverse affects of uncontrolled development. Housing can be addressed in the context of permanent structures but can also mean temporary housing necessary to accommodate disaster victims. Finally, management tools can include demographic information, mapped information, and educational tools to enhance public participation in local governmental affairs.

Not only will the annual meetings of national interest groups be used but other communicative mechanisms they possess, as well. Substate/regional agencies "talk to one another" through such organizations. Information is disseminated through monthly or weekly publications as well as through special requests.

In addition to the groups cited above, such centers as the National Hurricane Center and Natural Hazards Research Center at the University of Colorado are providers of information to local governments. The National Association of Flood Plain Managers is also a group of individuals with responsibility to local governments.

Coastal Regional Information Centers (RCIC's) are also local information sources (See Appendix XV). Three centers are currently operational serving the northwest, northeast and Great Lakes areas of the United States. The purpose of these agencies is to link requests for information with the appropriate sources. One RCIC has already agreed to serve as such an information link to transfer the data gathered in the Coastal APDC's model program (see Appendix XVI). Agreements with the remaining RCIC's are expected.

One of the primary tools for transferring information for use by others is a comprehensive training packet. Such a packet could be used as support material for presentations at conferences, seminars, and training sessions. The training packet for disaster preparedness should contain items such as:

(1) A checklist of key agencies (federal, state, local) involved in emergency preparedness and response.

(2) Methods used in:

  (a) Developing evacuation maps
  (b) Working with "host" localities and others in areas adjacent to the primary disaster area
  (c) Developing educational programs
  (d) Setting up response teams
  (e) Formulating plans
  (f) Developing land use ordinances for mitigation purposes.

(3) Examples of:

  (a) Evacuation maps
  (b) Educational material
  (c) Plans (local)
  (d) Model ordinances for mitigation purposes

State Agencies

Emergency management agencies in other states can use the comprehensive model for disaster preparedness and the technical assistance of substate/regional planning agencies to build their capabilities.

As in Georgia, most states are divided into substate emergency management areas. The number of substate areas varies from state to state as well as the number of political subdivisions within them. Generally, the state provides assistance to local governments directly or through these substate areas.

The model described here intends to provide assistance to the state and to local governments in developing a comprehensive disaster preparedness program. Not only does the process for development apply to all states, (i.e. use of advisory council, regionally coordinated county plans, uniform mapping, public education and mitigation tools), but so do the specific program elements themselves. Substate/regional planning agencies exist in all states, making their use as a technical arm of state emergency management agencies a viable alternative. As stated previously, in the survey of such state agencies conducted as a part of the research, it was found that 40 percent of the states currently use substate/regional planning agencies in some way. Specific uses were evacuation planning, data collection, local review of state assisted response plans, provision of map resources, and assistance in the NFIP. A total of 68 percent of all states indicated functions for regional agencies, in addition to those now performed, such as providing technical assistance in preparing plans and developing educational and awareness programs, would be useful in increasing state capabilities.

Other state agencies could use the model, as well. Agencies such as the DNR, DOT, and DHR, to name a few, are required to maintain an emergency coordinator and emergency plans. These emergency plans, in the form of Standing Operating Procedures, should contain the same basic elements as county plans they are coordinated with. Thus, state agencies can use the model presented here as well as local government.

Federal Agencies

The process and tools described in this document are also appropriate for use by federal agencies involved in disaster, preparedness, response, and recovery. Federal agencies providing such services are:

(1) U. S. Department of Agriculture (USDA)
(2) Department of Housing and Urban Development (HUD)
(3) Small Business Administration (SBA)
(4) U. S. Army Corps of Engineers
(5) U. S. Army
(6) U. S. Navy
(7) Federal Bureau of Investigation (FBI)
(8) NOAA/NWS
(9) Economic Development Administration (EDA)
(10) Federal Emergency Management Agency (FEMA)

Each agency listed above has some plan of action for times of emergency. Though the elements of an emergency plan will not be the same for all agencies, part or all of the basic format can be used. For example, the Army, Navy, and USDA Forestry Commission could employ all elements listed here for a disaster plan. On the other hand, in some

instances, only a portion of the elements may be applicable. For example, HUD's primary consideration would be temporary housing in the recovery stage and the FBI would be concerned with investigation in the recovery stage. EDA's recovery programs can be implemented more effectively in a community with sound long range plans as they could be developed through the mitigation element of the program.

FEMA, as the primary provider of disaster related assistance, will find the greatest benefit in the program. In the constant effort to help state and local governments be better prepared to deal with emergency situations, this program provides a framework for comprehensive planning, training and education, recovery and mitigation activities.

Coordination of resources certainly applies to all agencies, as does communication and training. The comprehensive and coordinated nature of a written plan is an intangible asset but produces tangible results.

The mapping element of the program will apply nationwide due to the fact that resources of many agencies are mapped. For example, HUD would need to know where staging areas are located in order to provide for temporary housing. The Navy and Army would benefit from storm surge model adaptation if they are located on the coast such as at Kings Bay Submarine Support Base in Georgia and a similar base in Kitsap County in Washington. The Corps of Engineers would also be concerned with hazards mapping such as that of low lying areas. A uniform symbol approach to mapping is not a new idea but could produce extreme benefits to all when extended to hazards awareness maps.

NOAA will benefit directly from work accomplished in the mapping effort of this program. That agency has determined that continued production of the STEM series is not possible without the involvement of state or local groups. Cooperative efforts in updating such maps would allow the continuation of the series.

The education and awareness element should be of concern to all federal agencies as well as state and local. Public knowledge about the operation or assistance of federal agencies simply makes the federal role easier to implement in time of emergency. Many of the same tools can be used by federal agencies as well as in substate/regional programs.

Mitigation is of special interest to all federal agencies. Disaster assistance is costing the federal government more money each year and FEMA is exploring ways to reduce loss. NOAA is also particularly active in hazard mitigation through the NWS, CZM, Sea Grant and its recent Coastal Hazards Initiative program. The model described here would be a useful tool not only in identifying specific mitigation alternatives but in viewing the program in total as a mitigative action to reduce the national loss of lives and dollars. In conjunction with NOAA's Coastal Mapping and Coastal Hazards Workshops, the entire model program could be transferred to other geographic areas.

The Corps of Engineers is constantly working to mitigate adverse effects in flood areas. For example, the Fort Worth, Texas district recently published a notice of intent to prepare a draft environmental impact statement for flood protection activity in Texas. The alternatives and tools developed in this model program could be implemented by the Corps in other areas.

The regional alternative for implementation of this program is also an attractive option for federal agencies. Most federal agencies use national regions to implement programs. Many currently use substate/regional planning agencies as a source of direct technical assistance, to further carry out these programs. Such examples are in HUD "701" land use planning programs, the Economic Development Administration (EDA) and its use of economic development districts, and the Farmers Home Administration.

Recommendation:

The "Coordination, Education and Mitigation Model for Disaster Preparedness in Coastal Areas" should be transferred to other geographic areas through FEMA and state emergency management agencies with the assistance of other state and federal agencies and national interest groups.

XII. STAFF/FINANCIAL RESOURCES NECESSARY TO UNDERTAKE THE PROGRAM

Budget for Implementation

The financial resources necessary for a regional agency to undertake the model program will vary from agency to agency, depending on current level of staff and agency work program. The budget presented in this section assumes that the comprehensive disaster preparedness program being undertaken by the substate/regional agency is a new program for the agency. A two-year "start up" period is projected for program initiation with maintenance of the program to continue one to three years after the initial two-year period.

	Year One	Year Two
Personnel Costs		
Disaster Preparedness Coordinator, Planner, 5% Planning Director, Cartographic and Secretarial Assistance	$ 31,804	$ 34,108
Fringe Benefits	8,905	9,550
Total Personnel Costs	$ 40,709	$ 43,658
Travel	3,000	3,500
Printing	4,000	7,500
Other Direct	1,000	500
Inkind Services	6,000	6,000
Indirect Costs	29,310	31,434
Total Costs	$ 84,019	$ 92,592

Staff Resources Needed

Two full-time staff positions are needed for the implementation of the comprehensive disaster preparedness program. These positions, a disaster preparedness/response coordinator and a disaster preparedness/response planner, will require supervision by a planning director, senior planner or executive director; cartographic, graphic and secretarial support. Appendix XVII contains, for illustrative purposes, position specifications developed by the Coastal APDC for the two primary staff positions.

Possible Funding Sources

Several alternative funding sources have been identified for providing financial impetus for implementation of a comprehensive disaster preparedness program by a substate/regional planning agency. It is probable that a "package" approach to funding will be the most practical and viable.

Below are listed the possible funding options to consider in the initiation of a regional disaster preparedness effort. A combination of the federal, state, and local resources is suggested, including cash and/or in-kind services:

(1) Local funding (i.e. direct financial contribution from local units of government.

(2) State support through agencies such as emergency service agencies, DNR, DHR, DOT.

(3) Federal support through agencies/programs such as HUD ("701" comprehensive planning program), CZM, Sea Grant, FEMA, Department of Health and Human Resources.

XIII. SUMMARY OF RECOMMENDATIONS

This document has presented data gathered through research completed by the Coastal APDC during the period May 1, 1980 through September 30, 1980. Sections VI through IX and Section XI contain specific recommendations that are proposed as a result of the conclusions reached. A summary of those recommendations appears below. It is recommended that:

- Substate/regional planning agencies should be utilized by federal and state emergency preparedness agencies to build the capabilities of federal, state, and local government in developing regional disaster preparedness programs. Local technical assistance should include development and maintenance of disaster response plans, hazard awareness programs, map resources, and hazard mitigation activities.

- An advisory council should be formed representing the region served by the disaster preparedness, response, and recovery program. Membership should include groups/agencies expected to play primary roles in implementation. A regional advisory council on disaster preparedness should be utilized to insure coordination of planning tools and written plans developed in the region. Advisory council subcommittees should be formed representing the region served by the disaster preparedness, response, and recovery program. Membership should include groups/agencies expected to play secondary roles in specific functional areas of implementation. Subcommittees should include, but are not limited to the following:

    (1) Training and Education
    (2) Communication/Warning
    (3) Resources and Coordination
    (4) Evacuation and Transportation
    (5) Shelters
    (6) Clean-up and Recovery

- A formal training and education program should be developed in each state for all local officials. It should include workshops, simulated response exercises, and printed guidebooks. Substate/regional planning agencies should be utilized to provide staff in aiding the development, distribution, and implementation of training and education programs.

- A regional network for communication should be established, including all possible resources.

- Local civil defense departments should designate a public information officer.

- Substate/regional planning agency staff should be used in aiding research and applications of cost-effective communications systems and in coordinating resources of the region.

- A comprehensive equipment, services, and personnel resource listing should be formulated by political subdivision and compiled to reflect regional capabilities.

- Substate/regional planning agencies should be utilized to provide technical assistance in developing coordinated resource listings for local governments, businesses, etc.

- Evacuation plans should be developed for each county, burrough or parish (and municipality where necessary or practicable) which coordinate with adjacent political subdivisions and all groups/agencies providing assistance. Plans should be developed by county government in urban areas to include municipalities within the county and in coordination with regional planning commissions in non-metro areas.

- Evacuation plans should use the most accurate methods and data available in determining egress routes and should be updated by the county substate/regional planning agency annually.

- Federal and state emergency management agencies should extend capabilities by using substate/regional planning agencies to provide technical assistance to local governments in evacuation planning.

- A coordinated regional shelter program should be developed by local civil defense organizations. This program should include results of inventories by local political subdivision.

- Substate/regional planning agencies should be utilized as resource groups and technical assistants to state and local governments in formulating shelter programs.

- Local units of government should develop comprehensive guidelines for post-disaster clean-up and recovery programs which are coordinated with other governments in the region.

- Substate/regional planning agencies should be used to assist state and local government in post-disaster clean-up and recovery planning and services.

- Local governments should develop and implement a hazards awareness program, including printed material and public presentations. This program should involve all segments of the community and directly address special populations.

- The news media should be used as a consultant in developing a public hazard awareness campaign.

- Substate/regional planning agencies should be used by state and local government as a coordinator and technical assistant in developing educational programs for disaster awareness.

- Communities should develop and distribute hazard awareness maps for public information.

- Local government should be provided map resources identifying hazards and response tools.

- A standard format for hazards mapping should be developed to include uniform symbols (e.g. evacuation routes, shelters) and design guidelines, where practicable, for scale, color and typeface. Such maps should be created for use at the local, regional (multi-county), state and national scale and produced by substate/regional planning agencies and state and federal emergency management agencies.

- Substate/regional planning agencies should be utilized to provide technical assistance to local government in mapping, thereby, building the capacity of state and local emergency service agencies.

- States should provide greater financial and technical assistance to local governments to encourage hazard mitigation activities.

- Substate/regional planning agencies should be used by state and local governments as a technical assistant and liaison in more intense hazard mitigation efforts.

- Comprehensive land use plans and community development plans should contain a hazard mitigation element to identify implementation alternatives.

- Each coastal county should develop a hurricane response plan as part of a comprehensive disaster preparedness program. This plan should be coordinated with all appropriate plans in the area.

- Each inland county should develop emergency response plans as part of a comprehensive disaster preparedness program coordinated with all appropriate plans in the area.

- Business and industry should be strongly encouraged to develop in-house emergency response plans coordinated with appropriate county plans.

- State agencies and military installations should develop emergency response plans in close coordination with state emergency management agencies and appropriate county plans.

- Each plan should include, at a minimum, these elements: (1) training/education, (2) communication/warning, (3) inventory of resources/coordination/emergency services, (4) evacuation/transportation, (5) shelters, (6) clean-up/recovery.

- Mutual aid agreements should be formulated between agencies and units of government to ensure coordination and emergency service support.

- Substate/regional planning agencies should be used by state and local governments to provide technical assistance in developing disaster preparedness plans.

- The "Coordination, Education and Mitigation Model for Disaster Preparedness in Coastal Areas" should be transferred to other geographic areas through FEMA and state emergency management agencies with the assistance of other state and federal agencies and national interest groups.

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Pennsylvania	Title 35 (Health and Safety) of the Pennsylvania Consolidated Statutes as amended November, 1978, No. 1978 - 323.
South Carolina	Section 21 of Act 199, July, 1979.
Texas	Executive Order WPC-11, Reorganizing the Disaster Emergency Council; Repealing Executive Order D. B. 23-B, August, 1979. Texas Disaster Act of 1975. Title 120 A, State and National Defense, Art. 6889-7, May, 1975. Texas Disaster Act of 1975, H. B. No 2032, August, 1979.
Virginia	Emergency Services and Disaster Law of 1973, as amended, Chapter 3.2. Transportation of Hazardous Radioactive Materials, Chapter 3.3.
Washington	Emergency Services, Chapter 38.52
Wisconsin	Emergency Government Chapter 22.16(6), Powers and Duties of Counties and Municipalities.

Appendices

APPENDIX I

STATE AGENCY STORM PREPAREDNESS SURVEY

State: _____

Name of Agency: _____

Address: _____

Phone Number: _____

Contact Person: _____

1. Number of counties within the state _____

2. Is state divided into civil defense sub-areas? If so, how many?

_____

3. Do local Civil Defense organizations exist at the:

   City level? _____

   County level? _____

   Multi-jurisdictional level? _____

4. If multi-jurisdictional, is there a regional disaster preparedness program for the jurisdiction? _____

5. Are local Civil Defense organizations mandated by law? _____

   a. If so, do they actually exist? _____

   b. What percentage of mandated organizations exist? _____

6. Are political subdivisions or civil defense organizations mandated to prepare disaster response plans? _____

   a. Where does the legal responsibility rest for planning? _____ for evacuation orders? _____ for recovery procedures? _____

7. If local governments are required to have plans, do they actually exist? _____

   a. Is there a means for ensuring regular review and update?

   _____

8. Is your disaster program storm related or does it relate/apply to other disasters (i.e. nuclear)? _____

9. Does your program function under an advisory group? _____

AWARENESS/EDUCATION:

10. Who sponsors local public information programs (i.e. C.D., N.W.S.)

_____

11. Does it reach all segments of population (i.e. schools, elderly, major employers) _____

12. If not, how is it conducted? _____

13. If so, how is it done: _____

_____

14. Are there formal training programs for local officials? _____

MAPS:

15. What do Civil Defense/local officials use to affect evacuation?

_____

16. Are NOAA Storm Evacuation Maps (STEM) used? _____

17. If so, have you altered STEM maps for your use? _____

    a. If yes, what changes have you made? _____

    _____

18. Is there a consistent mapping system throughout the state?

19. What do local officials use as a base map?

20. Do they show:

    a. points of low elevation _____

    b. contours and low lying areas _____

    c. shelters (primary, secondary, refuge) and associated elevations

    _____

    d. rail lines, airports _____

    e. bridges by type (i.e. draw) _____

    f. major population concentrations (summer/winter figures)

    _____

g. hospitals _____

h. dependent population (i.e. nursing homes) _____

21. Are any maps reproduced for public distribution? _____

22. What do you feel should be added to your maps for local officials?

_____

b. For public information? _____

_____

MITIGATION:

23. Is your agency involved in mitigation activity with local government (actively working to reduce loss in high risk areas i.e., flood plain)?

_____

b. If so, how? _____

24. Do laws/ordinances exist? _____ (If so, send copies)

25. Do mitigation measures go beyond requirements of the NFIP? _____
(Example: Subdivision Regulations) _____

26. Please send a copy of the state law affecting local government preparedness and any model ordinances regarding mitigation efforts.

Role of Regional Agencies

27. Do you use substate/regional agencies in your program? _____

28. If so, in what way(s)? _____

29. What additional roles do you see for such agencies? _____

_____

30. If you do not currently use substate/regional agencies in your programs, could for foresee any role they might play in the future? _____

_____

APPENDIX II

REGIONAL STORM PREPAREDNESS SURVEY

State: _____

Agency/Unit of Government: _____

Address: _____

Phone Number: _____

Contact Person: _____

1. Number of counties within your jurisdiction: _____

   Number of Barrier Islands: _____

2. Comments regarding organizational structure: _____

   _____

3. State agency mandated with legal responsibility for disaster preparedness: _____

4. Do local Civil Defense organizations exist within your jurisdiction: _____

   City _____

   County _____

   Multi-jurisdictional _____

5. Is there a regional disaster preparedness program for the entire jurisdiction? _____

6. For portions of the jurisdiction? _____

7. How many counties/cities are included under the program? _____

8. Is your disaster program storm related or does it relate/apply to other disasters (i.e. nuclear)? _____

9. Does your program function under an advisory group? _____

10. What elements are included in the program? _____

    _____

11. EVACUATION PLAN: _____

12. What method was used to determine necessary evacuation times?

_____

_____

By zone and severity of storm (Saffir-Simpson Scale)? _____

_____

13. If the plan is regional does each county have a detailed plan separate from the overall regional plan? _____

14. Total population served by the evacuation plan? _____

15. AWARENESS/EDUCATION PROGRAM: _____

16. Sponsored by who: (i.e., C.D., N.W.S.)_____

17. Does it reach all segments of population (i.e. schools, elderly, major employers) _____

18. If not, how is it conducted? _____

_____

19. If so, how is it done: _____

_____

20. MAPS: _____

21. What do Civil Defense/local officials use to affect evacuation?

_____

22. NOAA STORM EVACUATION MAPS? (STEM) _____

23. Have you altered STEM maps for your use? _____

24. If so, what changes have you made? _____

_____

25. If you use other maps, do they show:

a) points of low elevation _____

b) contours and low lying areas _____

c) shelters (primary, secondary, refuge) and associated elevations _____

d) rail lines, airports _____

e) bridges by type (i.e. draw) _____

f) major population concentrations (summer/winter figures)

_____

g) hospitals _____

h) dependent population (i.e. nursing homes) _____

26. Are maps reproduced for public distribution? _____

27. What do you feel should be added to your maps for local officials? _____

_____

For public information? _____

_____

28. MITIGATION: _____

29. Is your agency involved in mitigation activity with local government (actively working to reduce loss in high risk areas i.e., flood plain)? _____

30. If so, how? _____

31. Do ordinances exist? _____(If so, send copies)

32. What percent of your local governments are in the NFIP? ____

_____

33. Are guidelines met/enforced? _____

34. Do mitigation measures go beyond requirements of the NFIP? _____
(Example: Subdivision Regulations)

_____

35. Send copy of preparedness plan.

ces 208

that it would require agreements which address continuous planning and financing.

Brunett argued that management planning in the 208 program "has not received the emphasis that it deserves."

"The 208 program has to recognize that technical solutions to water quality problems are not going to be solved without a management delivery system," he told the conference attendees.

Brunett noted that states should use their permit programs, tax structures, and grant programs to provide incentives to local governments to embrace the water quality plans.

"Just as there needs to be a partnership in plan implementation, there should be a sharing in the program cost by local, state and federal governments," Brunett added.

A copy of *Self Financing Water Quality Planning*, an address by Patrick Brunett at the EPA National Conference on Water Quality is available by writing to NARC, attn: Donna Weems. More information about SEMCOG's Water Quality Management Plan is available by contacting Patrick Brunett, SEMCOG, 800 Book Building, Detroit, Michigan, 48226, (313) 961-4266.

Councils Prepare For Disaster

At least two ~~regional councils in~~ coastal states are involved in developing comprehensive disaster preparedness plans for their regions.

The Coastal Area Planning and Development Commission (APDC) in Brunswick, Georgia, recently held a coastal area hurricane planning workshop to kickoff a program that will involve the cooperation of a wide range of organizations in an 8-county area.

Meanwhile, the Tampa Bay Regional Planning Council (TBRPC) is currently collecting data on evacuation routes, shelter locations, population centers, vehicle availability and other facts to develop an evacuation procedure brochure for the public.

Although the Tampa Bay plan won't be completed until February 1981, a computer model which ~~simulates~~ the effects of hurricane storm surge will be useful to civil defense and emergency personnel during the 1980 season, and to the regional council in obtaining data, according to David Griffith of TBRPC.

The Georgia long-range plan is four fold: assisting the civil defense in developing evacuation plans, designing storm evacuation maps for local officials and the public showing major population concentrations, developing educational programs, and working with local governments to strengthen land use ordinances to limit personal property losses.

The Georgia plan is based on one developed in 1978. Bonnie Young, storm preparedness coordinator, hopes the updated version will serve as a national model for other coastal states. Some $18,000 in planning funds for the program were made available through the Federal Emergency Management Agency.

The Coastal APDC is soliciting information about programs undertaken by states, cities, counties, regional agencies or others. If you are involved in disaster preparedness planning, contact Bonnie J. Young, Coastal Area Planning and Development Commission, Post Office Box 1316, Brunswick, Georgia 31512; or call (912) 264-7363.

iset?

Areawides made mistakes in not being sensitive to the inherent conflicts with well established state agencies and the need for integrating political, financial and management analysis with technical analysis — and, I might add, asking for consistency from EPA, while pleading for flexibity because we're all different.

But could we have really expected much different? This was a fantastically complicated challenge that Congress set before us requiring new political, institutional arrangements, sophisticated technical analysis, and the finding of adequate staffing simulataneously throughout the country. I think it's a wonder we did as well as we did, and I'm willing to say that to my congressman, my senator, OMB, and the president himself. So let's stop faulting each other and get back to the basic

gressmen and senators individually and through our various organizations. We all know the funding bind that every level of government is in, but I insist we should't give up because of that. We have something worthwhile to sell, and if we don't sell it, who will? We need more planning time, and money. Let's make our best case and give it our best try.

Third . . . is areawide planning logical? I'm absolutely convinced that the social-economic-political complexes that characterize our urban and rural areas represent the logical level for planning. That does not mean that, in some cases, the state might not do that planning as has been done so far, and unfortunately there appears to be evidence that some areawides have not done the job for a variety of reasons. But where areawides have

That's a defeatist philosophy and I'm not ready to be defeated.

Another reason I do not want to risk a "temporary sunset" is that we will lose the momentum we have — jeopardize the insitutional links we hammered out — and above all, lose a lot of credibility we established

NOTE: Appeared in NARC FOCUS, July, 1980.

The House Subcommittee on Interior Appropriations has approved $42 million for the existing energy impact assistance program administered by the Farmers Home Administration.

Approval of the fiscal '81 funding is significant since the subcommittee had never before approved any funding for the program.

Although the figure is still $8 million below what was finally appropriated last year, the Senate Appropriations Committee has not yet acted and many members of that committee support the program. Final fiscal '81 appropriations for energy impact assistance are expected to equal, or slightly exceed, last year's figures.

The Senate Committees on Energy and Natural Resources and Governmental Affairs have approved S. 1699, which is a major restructuring of the way in which the energy impact assistance program is operated.

The report on the bill was to be filed last week which would clear the bill for Senate floor action. A companion House bill has been introduced by Rep. Harley Staggers (D-W. Va.), but no hearings have been held or scheduled on the bill.

For Coastal Areas

The Coastal Area Planning and Development Commission (APDC), located in Glynn County, Ga., is soliciting information about programs undertaken by counties, cities, states, and regional agencies on disaster preparedness planning.

The Coastal APDC, serving eight coastal Georgia counties, is conducting the research to prepare a comprehensive disaster preparedness program for its region and other coastal areas in the United States.

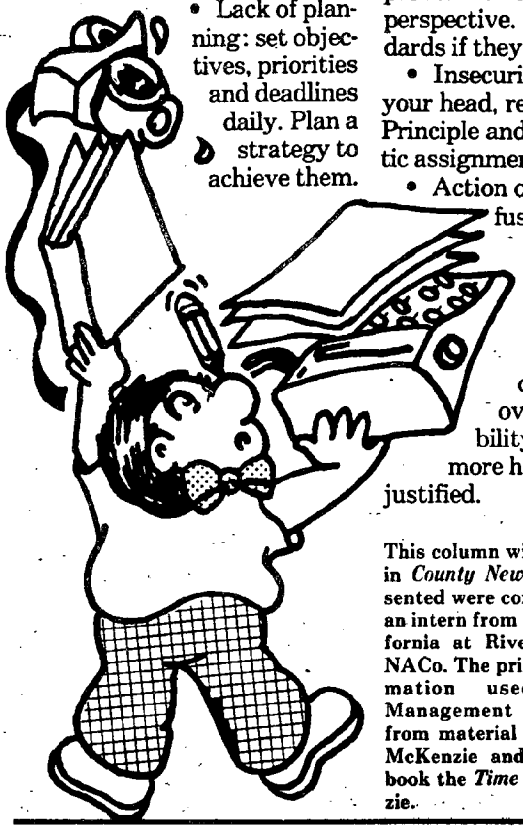
Please send all information to Bonnie J. Young, Storm Preparedness Coordinator, Coastal Area Planning and Development Commission, Post Office Box 1316, Brunswick, Ga. 31521.

ment or just a lack of planning.

Overburdening yourself prevents you from completing your most important tasks and it results in unnecessary pressure and stress. It is important to clear away the unimportant tasks, not only to improve the use of your time, but to safeguard your health.

Examine these causes and solutions and use them to analyze the problem of attempting too much at once

- Lack of planning: set objectives, priorities and deadlines daily. Plan a strategy to achieve them.



- Crisis management: distinguish "urgent" tasks. Be more discriminating in establishing priorities. Maintain your perspective by balancing short-term demands against long-term objectives.
- Overresponse: limit your response to the urgent and important demands. Learn to say "no" when necessary. Delegate responsibility.
- Sense of achievement: ask yourself what you are trying to prove. Be realistic. Keep your perspective. Lower your standards if they're too high.
- Insecurity: if you're over your head, remember the Peter Principle and establish a realistic assignment.
- Action oriented: don't confuse motion with progress or activity with results. Work smarter, not harder.
- Understaffed: a common excuse for overwork. Do a feasibility study. Show how more help is economically justified.

This column will be a weekly feature in *County News*. The materials presented were compiled by Ron Spicer an intern from the University of California at Riverside on detail with NACo. The primary source for information used in the Time Management series was derived from material produced by R. Alec McKenzie and Associates and the book the *Time Trap* by Alec McKenzie.

NOTE: Appeared in NACo County News, June 23, 1980.

REQUEST FOR DISASTER PREPAREDNESS INFORMATION

The Coastal Area Planning and Development Commission (APDC), located in Brunswick, Ga., will soon be undertaking a regional natural disaster preparedness program in cooperation with Georgia State Civil Defense and the Federal Emergency Management Agency. The program will be a "Coordination, Education and Mitigation Model for Coastal Georgia Storm Preparedness."

During a period from June through September, the Coastal APDC will develop a methodology for implementation of the model program suitable for transfer to other coastal areas throughout the country. A part of the process to be developed includes a study of all disaster preparedness, response, recovery and awareness programs (not confined to those on the coast), undertaken at the state, regional, county and/or city levels. A study of such work planned or in progress, is vital to the success of this program in order to ensure maximum utility of available information as well as to avoid duplication of efforts. If you are involved in disaster preparedness or if you know of any agency or group involved in such activity, please fill out the following response form by July 15, 1980 and mail to:

Bonnie Young,
Coastal Area Planning and
Development Commission,
Post Office Box 1316,
Brunswick, Ga. 31521

Name of Agency/Group Performing
Disaster Preparedness Activity:_____

Address:_____

_____

Telephone:_____

Name of Contact Person:_____

Summary of Preparedness Activity/Program:_____

_____

_____

_____

_____

_____

NOTE: Appeared in NADO News, July, 1980.

APPENDIX IV

NEWS MEDIA SURVEY

The Coastal Area Planning and Development Commission (APDC) is developing a regional disaster preparedness program. We are asking for input from all groups involved in Storm Preparedness. Since the news media are the primary providers of information to the public, we need your help to determine how we can best serve the public in this regard. Please fill out the attached survey and return it to:

Bonnie Young, Storm Preparedness Coordinator
Coastal Area Planning and Development Commission
P.O. Box 1316
Brunswick, Georgia 31521
(912) 264-7363

Please comment freely on any point and add any concerns of your own. Please call if you have any questions.

COMPANY NAME:

NAME OF PERSON FILLING OUT THIS SURVEY:

PHONE:

1. Where and how do you get information about approaching hurricanes or other emergency situations?

_____

_____

_____

_____

2. Can you be certain that information is timely and accurate?

_____

_____

3. Do local civil defense officals or local police or fire departments contact you with emergency information messages?

4. What are your local emergency information sources?

_____

_____

_____

5. During a natural disaster emergency (e.g. tornado, hurricane), do you receive information from amateur radio operators?

6. Does your establishment have written in-house emergency operations/response plans?

7. If so, are they coordinated with local city/county response plans?

8. Are you included in the city/county planning process?

9. Please send a copy of your in-house plan.

10. Do you have emergency back-up power sources?

11. If so, by whom are they provided?

12. Do you conduct a hurricane awareness program for the public?

13. Are you involved in hurricane awareness programs conducted by others in your area?

14. If so, to what extent and by whom are they conducted?

15. How do you receive information about shelters and evacuation routes?

16. Do you maintain a file of information about shelter locations and evacuation routes, or is it given to you by local officials at the onset of an emergency situation?

17. If you maintain such a file (e.g. camera-ready art, tapes), is the information reviewed annually by civil defense or other local agencies to ensure that it is current?

18. How do you provide the public with information about evacuation routes, shelters, pre-evacuation procedures, etc.?

19. Do you receive requests for information from the public that you cannot answer?

20. If so, how are they handled, i.e. referred to another local source of information?

21. In what other ways do you feel the media can serve the community in preparing for or responding to an emergency situation?

22. Are there specific local communication problems and/or general preparedness problems which affect the media?

23. How do you think these can be corrected?

24. Additional comments:

25. Would you be interested in attending a meeting to discuss such problems?

APPENDIX V

AMERICAN SOCIETY OF SAFETY ENGINEERS SURVEY

The Coastal Area Planning and Development Commission (APDC) is developing a regional disaster preparedness program. We are asking for input from all groups involved in storm preparedness. Since major employers, such as business, industry and institutions, are a vital part of community, we need your help. Please comment freely as you answer the following questions.

Your Name: _____

Name of Your Company: _____

_____

Type of Company (e.g. Manufacturer): _____

Address: _____

_____

Phone Number : _____

1. Does your "plant" have written in-house emergency operations/response plans? _____

2. If so, are they coordinated with your county Civil Defense plan? _____
_____.

3. Are you included in the city/county planning process? _____/

4. Do you request/receive assistance in emergency planning from your local Civil Defense? _____.

5. From whom do you receive information about community emergency situations (e.g. hurricane warnings)? _____.

6. Do you conduct a hurricane awareness program for your employees? _____
_____.

7. If you are a school, do you conduct an awareness program for students?
_____.

8. Are you involved in hurricane awareness programs conducted by others in the community? _____.

9. If so, to what extent and by whom are they conducted? _____
_____.

10. Do you have resources that could be committed to local governmental officials to assist in an emergency? _____.

11. If so, what types of resources or services could you provide? _____
_____.

12. How can local government be of better service to your establishment in emergency preparedness or response? _____
_____.

13. Are there specific local communication problems and/or general preparedness problems which affect your establishment? _____
_____.

14. How do you think these can be corrected? _____
_____.

15. Additional comments: _____

_____

_____

_____.

16. Would you be interested in attending further meetings to discuss specific problems and disaster preparedness in general? _____
_____.

17. Please send a copy of your in-house disaster response plans to:

Bonnie J. Young,
Storm Preparedness Coordinator
Coastal Area Planning and
Development Commission
P. O. Box 1316
Brunswick, GA. 31521

If I can help in any way please call (912) 264-7363.

APPENDIX VI

COASTAL REGIONAL AGENCIES' INVOLVEMENT IN DISASTER PREPAREDNESS EFFORTS

July 17, 1980

LOCATION	PLANNING	EDUCATION	MAPPING	MITIGATION
ALABAMA South Alabama Regional Planning Commission	Temporary housing studies for region	No	No	NFIP advise to local governments
CALIFORNIA Humboldt County Association of Governments	No	No	No	A-95 Review
Mendocino Council-Cities Planning Council	No	No	No	Assist in developing zoning and subdivision regulations
Santa Barbara County -- Cities Area Planning Council	No	No	No	No
San Luis Obispo Area Council of Governments	Operational plan for one county area including six municipalities. Not implemented. Nuclear plan in process.	No	No	No
Comprehensive Planning Organization of the San Diego Region	Metropolitan one county plan (coordinated with adjacent counties)	No	No	Assist in administering NFIP, flood plain zoning, grading, & hillside ordinances to mitigate landsliding.
Association of Monterey Bay Area Government	No	No	No	No

LOCATION	PLANNING	EDUCATION	MAPPING	MITIGATION
CALIFORNIA (Continued)				
Southern California Association of Governments	No	No	No	No
Association of Bay Area Governments	No	No	Computer based earthquake fault mapping for eight county region.	Study of legal liability of counties regarding earthquake hazards as basis for zoning ordinances.
DELAWARE				
Wilmington Metropolitan Area Planning Coordinating Council	No	No	No	No
FLORIDA				
East Central Florida Planning Commission	No	No	No	A-95 and Regional Impact review.
Treasure Coast Regional Planning Council	No	No	No	No
Withlacoochee Regional Planning Commission	Evacuation study for one city	No	No	Advisory in flood plain management
Tampa Bay Regional Planning Council	4 county regional evacuation plan. Each County will have evacuation plan as a result and shelter.	Distribute evacuation zone specific pamphlets and maps.	Counties will obtain maps resulting from evacuation study-elevation data, evacuation zones and routes, and shelter locations.	Not as a part of the evacuation project. T/A to local governments upon request in writing ordinances.

LOCATION	PLANNING	EDUCATION	MAPPING	MITIGATION
FLORIDA (Continued)				
West Florida Regional Planning Commission	No	No	No	No
South Florida Regional Planning Commission	No	No	No	A-95 Review
Northeast Florida Regional Planning Commission	Review county disaster response plans, when written.	No	No	Advisory capacity upon local request A-95 Review
North Central Florida Regional Planning Commission	No	No	No	Advisory capacity, management program for Suwanee & Santa Fe Rivers
Southwest Florida Regional Planning Commission	6 county regional evacuation plan, evacuation routes, zones, shelters.	print & distribute maps, brochures to public.	Only that in conjunction with evacuation study.	Regional Impact Review
Apalachee Regional Planning Council	No	No	No	Prepared beach/dune protection ordinance.
GEORGIA				
Coastal Area Planning and Development Commission	No	No	No	A-95 NFIP

LOCATION	PLANNING	EDUCATION	MAPPING	MITIGATION
LOUISIANA				
Imperial Calcasieu Regional Planning and Development Commission	No	No	No	No
Evangeline Economic Development District Council	1974-8 Parish disaster plan: list of federal/ state/municipal equipment; general guidelines for post disaster assistance. Not implemented or maintained.	No	No	No
Regional Planning Commission for Jefferson, Orleans, St. Bernard and St. Tammany Parishes	Hazardous material study for a three parish area	No	No	In the process of doing hazard mitigation plan for the area (by federal requirement).
South Central Planning and Development Commission	Temporary housing study for the region	No	No	No
MAINE				
Eastern Maine Development District	No	No	No	By local request - sub-division regulations and land use ordinances.
Southern Mid-Coastal Regional Planning Commission	No	No	No	Land use ordinances Subdivision regulations
Hancock County Regional Planning Commission	No	No	No	NFIP

LOCATION	PLANNING	EDUCATION	MAPPING	MITIGATION
MAINE (Continued)				
Washington County Regional Planning Commission	No	No	No	NFIP
Greater Portland Council of Governments	Resource listing for municipalities in one county area.	No	No	Zoning and subdivision regulations. Assist in administering NFIP.
East Mid-Coast Regional Planning Commission	No	No	N/A (No Need)	Advisory in development of local land use ordinances.
Southern Maine Regional Planning Commission	No	No	No	Assist in interpreting NFIP regulations upon request.
Delmarva Advisory Council	No	No	No	No
Tri-county council for Southern Maryland	No	No	No	No
MASSACHUSETTS				
Metropolitan Area Planning Council	Prepared report on transportation of hazardous materials	No	No	Advisory in development of land use ordinances, and subdivision regulations
Old Colony Planning Council	No	No	No	Local land use ordinances and subdivision regulations

LOCATION	PLANNING	EDUCATION	MAPPING	MITIGATION
MASSACHUSETTS (Cont'd)				
Southeastern Regional Planning and Development District	No	No	No	Compiling resource listing for hazard mitigation options.
Montachusett Regional Planning Commission	Previously served on post-disaster damage assessment team	No	No	Liaison for State/local government in administering NFIP.
Merrimack Valley Planning Commission	No	Pass through agency for information from State Dept. of Hazardous Waste.	No	Assist in administering NFIP.
Northern Middlesex Area Commission	No	No	No	Assist in local land use ordinances, advisory in NFIP
Cape Cod Planning and Economic Development Commission	Oil Spill Contingency Plan for one county area.	No	No	Assist in developing zoning and subdivision regulations, administering NFIP
Martha's Vineyard Commission	No	No	No	Zoning regulations in "critica areas" of flood plain.
Nantucket Planning and Economic Development Commission	No	No	No	Assist in developing zoning, subdivision, and health regulations with regard to flood plain management.
MISSISSIPPI				
Gulf Regional Planning Commission	Upon request, assist local civil defense director in preparing disaster response plans.	No	No	NFIP

LOCATION	PLANNING	EDUCATION	MAPPING	MITIGATION
NEW JERSEY Tri-State Regional Planning Commission	See "New York"			
NEW YORK Long Island Regional Planning Boards	No	No	No	Assistance in developing and adopting ordinances
Tri-State Regional Planning Commission	No	No	No	No
NORTH CAROLINA Albemarle Regional Planning and Development Commission	No	No	No	No
Neuse River Council of Governments	No	No	No	Development of subdivision regulations
Cape Fear Council of Governments	No	No	No	Advisory to local governments in administering NFIP
OREGON Umpqua Regional Council of Governments	No	No	No	Assist in delineation of the flood plain and developing local land use ordinances

LOCATION	PLANNING	EDUCATION	MAPPING	MITIGATION
OREGON (Continued)				
Coos-Curry Council of Governments	No	No	No	Involved in dredging projects, industrial siting assistance
Lane Council of Governments	No	No	No	No
Oregon District #4 Council of Governments	No	No	No	No
Clatsop-Tillamook Intergovernmental Council	No	No	No	Advisory in coordinating NFIP and developing zoning ordinances.
SOUTH CAROLINA				
Low Country Council of Governments	No	No	No	Assistance in floodplain management, land use ordinances, and sub-division regulations
Berkely-Charleston-Dorchester Council of Governments	No	No	No	No
Waccamaw Regional Planning and Development Council	No	No	No	No

LOCATION	PLANNING	EDUCATION	MAPPING	MITIGATION
TEXAS				
Golden Crescent Council of Governments	1974-regional pre-disaster handbook: listing of county/community resources Handbook for Regional Disaster Preparedness: list of names and phone numbers of resource personnel	No	No	No
Houston Galveston Area Council of Governments	No	Upon request, assisting local governments in conducting awareness programs.	No	Assist local governments administering NFIP
Coastal Bend Council of Governments	Regional inventory of emergency response resources	Local assistance in fire prevention program	No	Assist local health department in identifying uncontrolled solid waste sites.
Lower Rio Grande Valley Development Council	Previously, regional coordinator for disaster preparedness. Prepared resource listing for region. No longer active.	No	No	No
Southeast Texas Regional Planning Commission	Prepared three county model guidelines for disaster plan - was never implemented	No	No	Assistance on request in developing land use ordinances
VIRGINIA				
Northern Neck Planning District Commission	No	No	No	Assistance in land use ordinances

LOCATION	PLANNING	EDUCATION	MAPPING	MITIGATION
VIRGINIA (Continued)				
Peninsula Planning District Commission	No	No	No	No
Southeast Virginia Planning District Commission	No	No	No	Assistance in developing local land use ordinances.
Crater Planning District Commission	No	No	No	Advisory in developing subdivision regulations
Richmond Regional District Commission	No	Sponsored state training program for local officials in disaster response.	No	Assist local government with key facility planning and review of developments of greater than local significance.
Middle Peninsula Planning District Commission	No	No	No	Assistance to local governments in administering NFIP
WASHINGTON				
Pacific County Regional Planning Council	No	No	No	No
Jefferson-Port Townsend Regional Council	No	No	No	No

LOCATION	PLANNING	EDUCATION	MAPPING	MITIGATION
WASHINGTON (Continued)				
Clallam County Government Conference	(Employed by county government)			
Grays Harbor Regional Planning Commission	No	No	No	Assist in administering NFIP, zoning ordinances.

APPENDIX VII

AGENCY SUPPORT TO LOCAL GOVERNMENTS

DEPARTMENT OF ADMINISTRATIVE SERVICES

Training and Education

*(S) public information
(S) training

Communication/Warning

(S) communication, surveillance and warning

Inventory of Resources/Coordination/Emergency Services

(S) police services
(S) fire services
(S) search, rescue and recovery
(S) engineering services
(S) hazardous material events- peacetime radiological
(S) fuel
(S) utilities
** (P) procurement
(S) coordination of private organizations and volunteers

Evacuation/Transportation/Reentry

(S) transportation

Shelters

(S) shelter facilities and location

Clean-up

(S) timber removal and salvage

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting
(S) health and social services
(S) temporary housing
(S) mortuary and identification services
(S) public property assistance
(S) insurance administration
(S) investigation

* "S" denotes secondary responsibility
** "P" denotes primary responsibility

DEPARTMENT OF AGRICULTURE

Training and Education

(S) training
(S) education

Inventory of Resources/Coordination/Emergency Services

(S) fire services
(S) engineering services
(S) hazardous material events - non-radiological and peacetime radiological
(P) fuel
(S) utilities

Evacuation/Transportation/Reentry

(S) transportation

Clean-up

(S) timber removal and salvage

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting
(S) health and social services

DEPARTMENT OF AUDITS AND ACCOUNTS

Training and Education

(S) training

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) public property assistance
(S) investigation

STATE BUILDING AUTHORITY

Training and Education

(S) training

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting
(S) health and social services
(S) insurance administration

BUREAU OF INVESTIGATION

Training and Education

(S) training

Communication/Warning

(S) communication, surveillance and warning

Inventory of Resources/Coordination/Emergency Services

(S) police services
(S) fire service
(S) search, rescue and recovery

Evacuation/Transportation/Reentry

(S) evacuation

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) mortuary and identification services
(P) investigation

DEPARTMENT OF COMMUNITY AFFAIRS

Training and Education

(S) training
(S) education

Inventory of Resources/Coordination/Emergency Services

(S) engineering services
(S) procurement
(S) coordination of private organizations and volunteers

Evacuation/Transportation/Reentry

(S) evacuation

Shelters

(P) Shelter identification

Clean-up

(S) timber removal and salvage

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting
(S) health and social services
(P) temporary housing
(S) public property assistance
(S) unemployment and reemployment

OFFICE OF THE COMPTROLLER GENERAL

Training and Education

(S) training

Inventory of Resources/Coordination/Emergency Services

(S) fire service
(S) search, rescue and recovery

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting
(P) insurance administration
(S) investigation

DEPARTMENT OF DEFENSE

Training and Education

(P) public information
(P) training
(S) education

Communication/Warning

(P) communication, surveillance and warning

Inventory of Resources/Coordination/Emergency Services

(S) police services
(S) fire services
(P) search, rescue and recovery
(S) engineering services
(S) hazardous material events - non-radiological and peacetime radiological
(P) state military support
(S) fuel
(S) utilities
(S) procurement
(P) coordination of private organizations and volunteers

Evacuation/Transportation/Reentry

(P) evacuation
(S) transportation

Shelters

(S) location and operation

Clean-up

(S) timber removal and salvage

Recovery of Services and Public Assistance

(P) disaster assistance center operations
(P) damage assessment and reporting
(S) health and social services
(S) temporary housing
(S) mortuary and identification services
(P) public property assistance
(S) insurance administration
(S) investigation
(S) unemployment and reemployment

DEPARTMENT OF EDUCATION

Training and Education

(S) public information
(S) training
(P) education
(S) communication, surveillance and warning

Inventory of Resources/Coordination/Emergency Services

(S) procurement
(S) coordination of private organizations and volunteers

Evacuation/Transportation/Reentry

(S) evacuation
(S) transportation

Shelters

(S) Shelter facilities and operation

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting
(S) health and social services
(S) temporary housing
(S) mortuary and identification services
(S) public property assistance

FORESTRY COMMISSION

Training and Education

(S) training

Communication/Warning

(S) communication, surveillance and warning

Inventory of Resources/Coordination/Emergency Services

(S) police services
(P) fire services
(S) search, rescue and recovery
(S) engineering services
(S) hazardous material events - non-radiological and peacetime radiological

Evacuation/Transportation/Reentry

(S) evacuation
(S) transportation

Clean-up

(P) timber removal and salvage

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting
(S) investigation

DEPARTMENT OF HUMAN RESOURCES

Training and Education

(S) public information
(S) training
(S) education

Inventory of Resources/Coordination/Emergency Services

(S) search, rescue and recovery
(S) hazardous material events - peacetime radiological
(S) procurement
(S) coordination of private organizations and volunteers

Evacuation/Transportation/Reentry

(S) evacuation
(S) transportation

Shelters

(S) Shelter operations

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting
(P) health and social services
(S) temporary housing
(P) mortuary and identification services
(S) public property assistance
(S) unemployment and reemployment

DEPARTMENT OF INDUSTRY AND TRADE

Training and Education

(S) training

Inventory of Resources/Coordination/Emergency Services

(S) procurement

Recovery of Services and Public Assistance

(S) disaster assistance center operations

DEPARTMENT OF LABOR

Training and Education

(S) training

Inventory of Resources/Coordination/Emergency Services

(S) coordination of private organizations and volunteers

Clean-up

(S) timber removal and salvage

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) health and social services
(P) unemployment and reemployment

DEPARTMENT OF NATURAL RESOURCES

Training and Education

(S) public information
(S) training

Communication/Warning

(S) communication, surveillance and warning

Inventory of Resources/Coordination/Emergency Services

(S) police services
(S) fire services
(S) search, rescue and recovery
(S) engineering services
(P) hazardous material events - non-radiological and peacetime radiological
(S) fuel
(S) utilities

Evacuation/Transportation/Reentry

(S) evacuation
(S) transportation

Shelters

(S) shelter location and operation

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting
(S) health and social services
(S) temporary housing
(S) public property assistance
(S) insurance administration
(S) investigation

DEPARTMENT OF OFFENDER REHABILITATION

Training and Education

(S) training

Inventory of Resources/Coordination/Emergency Services

(S) police services
(S) fire services
(S) search, rescue and recovery

Clean-up

(S) timber removal and salvage

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) unemployment and reemployment

OFFICE OF PLANNING & BUDGET

Training and Education

(S) training

Inventory of Resources/Coordination/Emergency Services

(S) fuel
(S) utilities

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting

DEPARTMENT OF PUBLIC SAFETY

Training and Education

(S) public information
(S) training

Communication/Warning

(S) communication, surveillance and warning

Inventory of Resources/Coordination/Emergency Services

(P) police services
(S) fire services
(S) search, rescue and recovery
(S) hazardous material events - non-radiological and peacetime radiological
military support
(S) fuel
(S) utilities

Evacuation/Transportation/Reentry

(S) evacuation
(S) transportation

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting
(S) health and social services
(S) mortuary and identification services
(S) investigation

PUBLIC SERVICE COMMISSION

Training and Education

(S) training

Inventory of Resources/Coordination/Emergency Services

(S) fire services
(S) engineering services
(S) fuel
(P) utilities
(S) coordination of private organizations and volunteers

Evacuation/Transportation/Reentry

(S) evacuation
(P) transportation

Clean-up

(S) timber removal and salvage

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting
(S) health and social services
(S) mortuary and identification services

BOARD OF REGENTS

Training and Education

(S) public information
(S) training
(S) education

Communication/Warning

(S) communication, surveillance and warning

Inventory of Resources/Coordination/Emergency Services

(S) police services
(S) fire services
(S) engineering services
(S) fuel
(S) utilities
(S) procurement
(S) coordination of private organizations and volunteers

Evacuation/Transportation/Reentry

(S) evacuation
(S) transportation

Shelters

(S) shelter facilities and operation

Clean-up

(S) timber removal and salvage

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting
(S) health and social services
(S) temporary housing
(S) mortuary and identification services
(S) public property assistance
(S) unemployment and reemployment

DEPARTMENT OF REVENUE

Training and Education

(S) training

Communication/Warning

(S) communication, surveillance and warning

Inventory of Resources/Coordination/Emergency Services

(S) police services

Recovery of Services and Public Assistance

(S) disaster assistance center operations

DEPARTMENT OF TRANSPORTATION

Training and Education

(S) public information
(S) training

Communication/Warning

(S) communication, surveillance and warning

Inventory of Resources/Coordination/Emergency Services

(S) police services
(S) fire services
(S) search, rescue and recovery
(S) engineering services
(S) hazardous material events - non-radiological and peacetime radiological
(S) fuel
(S) utilities
(S) coordination of private organizations and volunteers

Evacuation/Transportation/Reentry

(S) evacuation
(S) transportation

Shelters

(S) shelter location and operation

Clean-up

(S) timber removal and salvage

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) damage assessment and reporting
(S) health and social services
(S) temporary housing
(S) public property assistance

DEPARTMENT OF VETERANS SERVICE

Training and Education

(S) training

Shelters

(S) shelter location and operation

Recovery of Services and Public Assistance

(S) disaster assistance center operations
(S) temporary housing
(S) mortuary and identification services
(S) insurance administration
(S) unemployment and reemployment

VOLUNTEERS - to include private relief organizations (i.e, Red Cross, Salvation Army), private industry; professional associations and participants in mutual aid agreements.

Education/Training

(S) public information
(S) training
(S) education

Communication/Warning

(S) communication, surveillance and warning

Inventory of Resources/Coordination/Emergency Services

(S) fire services
(S) search, rescue and recovery
(S) engineering services
(S) fuel
(S) utilities
(S) coordination of private organizations and volunteers

Evacuation/Transportation/Reentry

(S) evacuation
(S) transportation

Shelters

(S) shelter facilities and operation

Recovery of Services and Public Assistance

(S) disaster assistance
(S) damage assessment and reporting
(S) health and social services
(S) temporary housing

Volunteers/Private Organizations

- Red Cross - shelters, food, clothing, household supplies
- Salvation Army - life sustaining supplies
- Defense National Transportation Association - Transportation service and equipment
- Baptist Convention - food, clothing
- Churches - food, clothing
- Civic groups - awareness programs, clean-up
- Industries - spec. resources; training personnel, equipment
- News media - awareness, public information
- Insurance vendors - handle claims, adjustments
- Power companies - restore electric utilities
- Hospitals - medical services
- American Bar Association - legal advice
- HAM Radio Network - communication aide
- EBS - warning, public information
- Coast Guard - search, rescue, recovery

The following federal agencies assist local governments in preparedness, response or recovery:

Department of Agriculture
Department of Commerce
Department of Defense
Department of Energy
Department of Health and Human Services
Department of Housing and Urban Development
Department of the Interior
Department of Justice
Department of Labor
Department of Treasury
Department of Transportation
Environmental Protection Agency
Federal Emergency Management Agency
Small Business Administration
Veterans Administration

APPENDIX VIII

EXAMPLES OF QUESTIONS DEVELOPED TO ASSIST IN DETERMINATION OF SUBCOMMITTEE MEMBERSHIP

Training Subcommittee

Q. Who conducts training programs?
Q. Who develops training programs?
Q. Who are the participants?
Q. What areas of training are employed?
(response: search, rescue, evacuation, works in EOC
recovery: damage assessment teams, disaster assistance operation center)
Q. Would local civil defense assist industries in similar training programs?

Communications/Warning Subcommittee

Q. Who is responsible for issuing the initial warning to local government in an emergency?
Q. Whose responsibility is it locally to convey the warning to the public?
Q. Who assists in communicating the warning in addition to the primary authority?
Q. Who is a part of the communication link for storm (or hazard) surveillance as it develops and/or worsens?
Q. Who maintains mobile communication posts?
Q. What agencies are represented in the EOC?

Resources and Coordination Subcommittee

Q. Who coodinates government-owned equipment use in an emergency?
Q. Who in the community supports local government with equipment, services, or supplies in emergency?
Q. Who in community has equipment, services, and supplies that would be needed in an emergency?
Q. Who provides search, rescue operations?
Q. Who provides food and clothing in post disaster?
Q. Who is responsible for insurance claims?
Q. Who is responsible for temporary housing and staffing sites?

Evacuation/Transportation Subcommittee

Q. Who orders evacuation, who enforces it?
Q. Who controls traffic?
Q. Who posts directional signs and road blocks?
Q. Who transports dependent population?
Q. Who maintains clear evacuation routes?

Shelters Subcommittee

Q. Who orders shelters open?
Q. Who opens them?
Q. Who mans them?
Q. Who staffs them?
Q. What services are provided there?
Q. Who do shelters belong to?
Q. How is communication link maintained?
Q. Who provides medical service?
Q. Are shelters designated for elderly -- special needs due to that -- who answers those needs?
Q. Who provides food?
Q. Who is in charge of registration, recordkeeping, group activity if extended period?

Clean-up and Recovery Subcommittee

Q. Who is on damage assessment team?
Q. To whom do they report?
Q. Who is control center for organizing clean-up?
Q. Who cleans up?
Q. Where do you get vehicles, (i.e. heavy equipment)?
Q. Who will feed workers?
Q. Who provides law enforcement -- looting?
Q. Where do you get chain saws, shovels, etc.?
Q. Who removes timber?
Q. Who provides for operation of disaster assistance center?
Q. Who is represented?
Q. Who locally does recovery of services, water, sewer, power?
Q. Who tests water?
Q. Who monitors health standards?
Q. Who takes care of mortuary and identification?
Q. Who provides food, clothing, temporary housing, medical supplies?
Q. Who finds jobs for unemployed?
Q. Who counsels refugee financially?

APPENDIX IX

DISASTER RESPONSE CHECKLIST FOR LOCAL GOVERNMENT OFFICIALS

A. Local Emergency Response
   1. Warning Received
      a. Disseminate to local emergency services chiefs.
      b. Warn public.
      c. Implement emergency protective measures (to include evacuation from danger areas, if appropriate).
   2. Disaster Occurs
      a. Obtain situation report
      b. Declare local emergency
      c. Implement local emergency operations plan; conduct emergency operations to protect life and property, care for disaster victims.
      d. Initiate documentation of disaster-related expenditures.
      e. Submit initial disaster report (Annex 1-Z to Volume II, State Emergency Operations Plan) to the State Office of Emergency Services.
   3. If outside help is needed, notify the State Office of Emergency Services of specific needs.

      *When possible, this notification should be through your State Office of Emergency Services Regional Coordinator; otherwise, call the State Office direct.

B. If damage recovery exceeds your local resources and you need State and Federal assistance:
   1. Continue emergency work.
   2. Expedite the preparation and submission of:
      a. An initial damage assessment report (see Annex I-H to Volume II, State Emergency Operations Plan).
      b. A report of disaster-related expenditures (see Annex I-Z to Volume II, State Emergency Operations Plan).
   3. Prepare a map showing the location of public damage sites.
   4. Call you Regional Coordinator or the State Office of Emergency Servives for assistance.

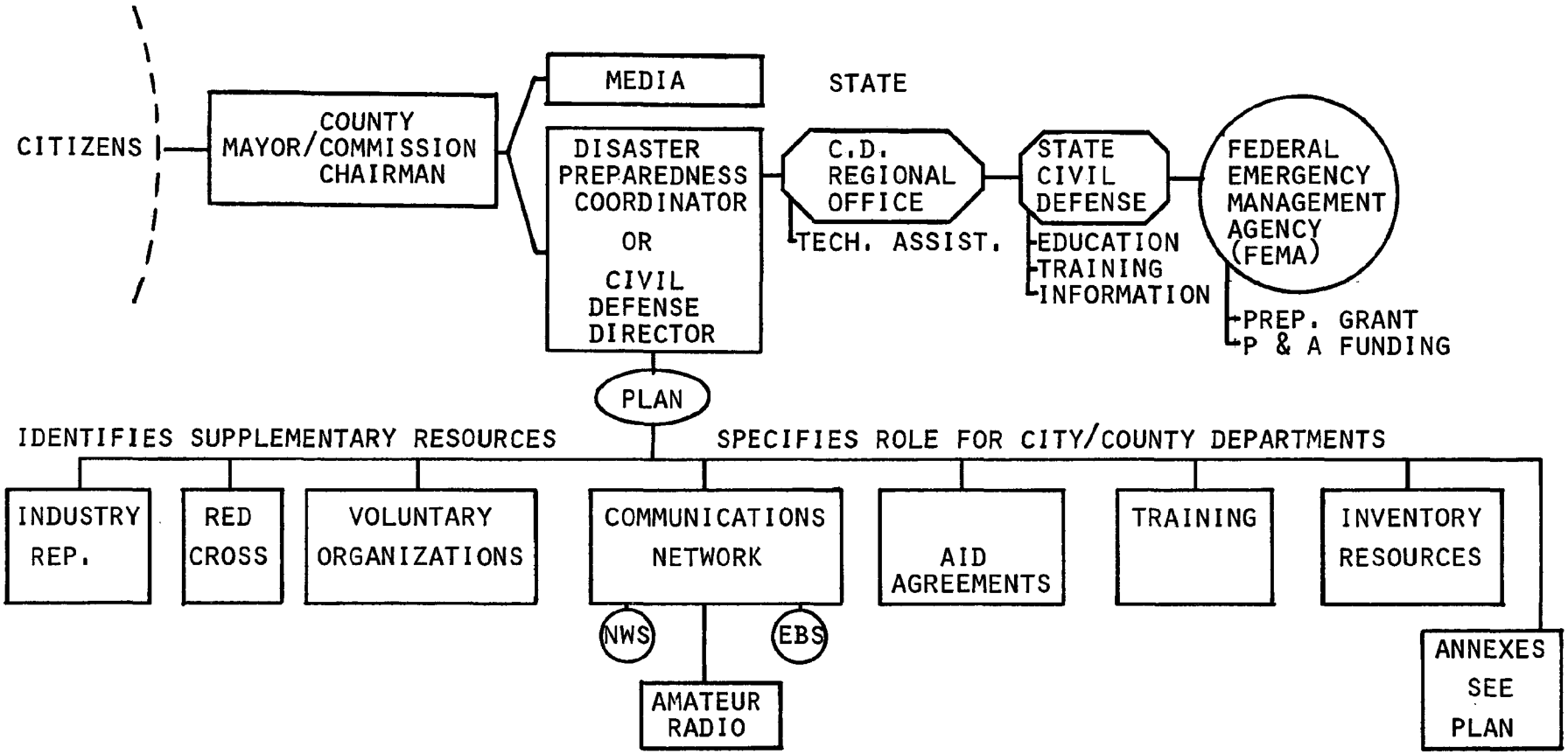
C. Sequence checklist following a major disaster declaration by the President:
   1. Receive notification of the declaration.
   2. Continue emergency work; keep daily records of work accomplished and costs.
   3. Provide space for disaster assistance center, if requested.
   4. Provide local government services representation at the disaster assistance center.
   5. Follow procedures outlined in more detail in the Disaster Assistance Handbook for Local Government Officials (A Guide to Public Assistance under Public Law 93-288) to obtain public assistance:
      a. Attend public officials briefing.
      b. Decide options of funding and methods of doing work.
      c. Show your damage to survey engineers.

d. Pass resolution appointing single agent.
e. Complete application for disaster recovery projects.
f. Request advance of funds of partial payments, if needed.
g. Complete authorized work.
h. Document completed work.
i. Request final inspection.
j. Audit.
k. Receive final payment.

SOURCE: Disaster Handbook for Local Government Officials, Commonwealth of Virginia, Office of Emergency Services, Pages 8 - 9.

APPENDIX IX (CONTINUED)

PREPAREDNESS PHASE



SOURCE: HOUSTON-GALVESTON AREA COUNCIL, HOUSTON, TEXAS.

PREPAREDNESS PHASE

OBJECTIVE	TO SAVE LIVES AND MINIMIZE THE DAMAGE CAUSED BY A DISASTER
RESPONSIBILITY	MAYOR/COUNTY COMMISSION CHAIRMAN HAS RESPONSIBILITY. MAY DELEGATE AUTHORITY TO ACT BUT RESPONSIBILITY REMAINS.
ACTIVITIES	•PLAN DEVELOPMENT •INVENTORY OF PUBLIC AND PRIVATE RESOURCES •PUBLIC EDUCATION •DEVELOPMENT OF COMMUNICATIONS NETWORKS; TELEPHONE, RADIO AND •AMATEUR BACK-UP SYSTEMS •CREATION OF MUTUAL AID AGREEMENTS •EVACUATION PLAN DEVELOPMENT •PROVIDE FOR COORDINATION OF SHELTER SERVICES WITH RED CROSS THROUGH •STATEMENT OF UNDERSTANDING
THE DISASTER PLAN	•DEFINES THE METHOD OF RESPONSE TO AN EMERGENCY •ESTABLISHES THE EOC, EMERGENCY OPERATIONS EXECUTIVE GROUP •DETAILS ROLE OF EACH GOVERNMENT DEPARTMENT AND PRIVATE ORGANIZATION (ANNEXES) •PROVIDES THE ORGANIZATION OF RESOURCES WHICH MAY BE NEEDED IN THE RESPONSE PHASE

APPENDIX X
LOCAL RESOURCE LISTING

A. Earth Moving and Debris Removal

Alice

Contact: Mr. Frank Reed, City Manager
512/664-5468

	Location
3 - 2-1/2 Ton Cargo Trucks	City Service Center
5 - 2-1/2 Ton Dump Trucks	Commerce Road
1 - 1-1/2 Ton Dump Truck	"
1 - 1 Ton Flat Bed Truck	"
1 - 1/4 Ton Tractor w/18' Dump Trailor	"
1 - 1-1/2 Ton Cargo Truck w/'A' Frame Winch	"
1 - (Cat 977k) Bulldozer	"
1 - (A.C.D-2) Maintainer	"
1 - (Galion) Maintainer	"
1 - (J.D.) Tractor w/Rotoboom	"
1 - (Hough) Payloader	"
1 - (Case W7) Front End Loader	"
1 - (Case W7E) Backhoe	"
1 - (Case 530) Backhoe	"

Aransas Pass

Contact: Mr. Al Holguin, City Manager
512/758-5301

	Public Works Department
2 - (GMC) 6x6 trucks	235 East Wilson
1 - (Reo.) 6x6 Flatbed w/side boards	"
1 - (Chev.) 5cy Dump Truck	"
1 - (Ford) 6cy Dump Truck	"
1 - (Chev.) 7cy Trash Truck	"
1 - (H-30B) Backhoe	"
1 - (Pettibone) High Lift	"

Beeville

Contact: Mrs. Imogene Stevenson, Acting City Manager - 512/358-4641
or Mr. G. T. Hicks, CD Director 512/358-3399

4 - 5cy Dump Trucks	City Yard
1 - Flat Bed truck	City Landfill
1 - (Ac 11G) Loader	City Yard
1 - (HD 6) Loader	500 West Milam
1 - (Ac 545) Loader	"
1 - (CAT 977) Loader	"
1 - (CAT M-12) Grader	"

Source: Regional Disaster Assistance Information Handbook, Coastal Bend Council of Governments, June, 1974.

APPENDIX XI

SHELTER PERSONNEL AND PROCEDURES

To activate Red Cross assistance in the operation of one or more officially designated County Schools as temporary shelters, the County Judge/Executive, or his designee, will call:

During Duty Hours: 8:15 a.m. - 4:45 p.m.

1. David L. Vargo, 589-4450, ext. 208, Director, Disaster Services
2. Mark F. Vogedes, 589-4450, ext. 207, Assistant Director Disaster Services
3. Solomon Morgan, 589-4450, ext. 224, Administrative Assistant, Disaster Services

After Duty Hours: 8:15 a.m. - 4:45 p.m.

Call Red Cross answering service at 589-4450, ask Red Cross Duty Worker to contact Disaster Representative.

Upon receipt of request to open a temporary shelter, David L. Vargo, Mark F. Vogedes, or Solomon Morgan will:

1. Assemble Red Cross Disaster Action Team (D.A.T.) by contacting:

a.	Loretta Denny	Chairperson, Action Team	7015 Ethan Allen Way (937-3093)
b.	Doc Dixon	Vice-Chairman, Action Team	3156 Greendale Drive (448-3096)
c.	Ray Hudson	Chairman, Shelter Committee	660 Cecil Avenue (288-6899)

2. Disaster Action Team will assemble at Louisville Area Chapter House of the American Red Cross and proceed to designated temporary shelter with the following equipment and supplies:

a. cots

b. blankets

c. feeding supplies

d. shelter administrative forms

3. Upon arrival, D.A.T. will report to representative and arrange for the following:

   a. Placement of Red Cross insignia to designate school facility as official Red Cross temporary shelter.

   b. Access to entering school facility.

   c. Briefing on school facilities (telephones, utilities, cooking and/or feeding, security, parking, safety measures, etc.).

4. Red Cross temporary sehlter

   a. Shelter Manager designated as indicated by Item III.

   b. Registered Nurse (R.N.) on-duty shelter operation

   c. Emergency Services Worker(s) as needed to provide assistance to victims and relief workers on mass basis.

5. Red Cross will provide emergency assistance to disaster victims on an individual or family unit basis for:

   a. Food, clothing and maintenance

   b. Emergency minor home repairs

   c. Household accessories

   d. Emergency health services

   e. Occupational supplies or equipment.

6. If Red Cross operates a temporary shelter or a temporary feeding station in a Spencer County Board of Education Facility, and school-owned food is used by Red Cross for disaster victims or relief workers, then:

a. When there has been no Federal Disaster Declaration in Spencer County, Red Cross will reimburse the school for the cost of food provided to Red Cross for disaster victims or relief workers.

b. When there has been a Federal Disaster Declaration in Spencer County, the Spencer County Board of Education is authorized by USDA for food provided through the Red Cross to disaster victims or relief workers, or,

c. When non USDA food is provided to Red Cross for use in feeding disaster victims or relief workers, then reimbursement will be made by Red Cross to the Spencer County Board of Education.

d. Further, if utilities (heat, light, water) are consumed during the operation of one or more public schools in a disaster or emergency, Red Cross will reimburse the owner for such costs on a pro-rata (actual use) basis.

SOURCE: Disaster and Emergency Operation Plan, Spencer, Kentucky.

APPENDIX XII

FAMILY ACTION GUIDELINES

SOURCE: U. S. Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Florida Marine Advisory Program - Sea Grant

EMERGENCY PHONE NUMBERS THAT CAN HELP YOU

Civil Defense
American Red Cross
Local Police
Highway Patrol
County Sheriff
Emergency Rescue
Family Doctor
Gas or Fuel Company
Electric Company
Water Company
Hospital
Blood Bank

A PORTABLE DISASTER KIT SHOULD CONTAIN:

Food (Non-perishable)
Water (1 Qt./Person/Day for drinking)
Eating & Cooking Utensils
Toilet Articles
Sanitary Needs (Diapers, etc.)
Medication (Prescriptions)
Portable Radio & Batteries
Flashlight & Batteries
Bedding (Sleeping Bag, etc.)
Clothing
Portable Ice Chest (if Available)

LISTEN TO NOAA WEATHER RADIO FOR THE LATEST WEATHER INFORMATION

HURRICANE SURVIVAL

Family Action Guidelines

Hurricanes and Tropical Storms originate in the Atlantic Ocean, Gulf of Mexico and Caribbean Sea. On an average, hurricanes are large, powerful storms that have a counterclockwise wind and cloud circulation of 74 MPH or greater. The more intense hurricanes may have gusts up to 200 MPH or more.

Florida, with a coastline of 1,350 miles, is more susceptible to hurricanes than any other state. A large percent of Florida residents live on or near the coast and many of them have never experienced the forces of a hurricane or tropical storm. It is imperative that you and your family establish an emergency plan and review it periodically, considering that you may have to alter it due to changing conditions.

The following information can act as a checklist in making your plans. Know the meaning of terms used by the National Weather Service. Then consider what to do when a "Hurricane Watch" or "Hurricane Warning" is given, what to do before and during the hurricane and what action to take after the all clear is given. Special instructions are included if it is necessary for you to evacuate to an emergency shelter and for those who live in and are responsible for mobile homes and high rise apartment buildings.

KNOW THESE TERMS AND DEFINITIONS USED BY THE NATIONAL WEATHER SERVICE:

Tropical Disturbance -- A moving area of thunderstorms in the tropics.

Tropical Depression -- An area of low pressure, rotary circulation of clouds and winds to 38 MPH.

Tropical Storm -- Counterclockwise circulation of clouds and winds 39 MPH - 73 MPH. The storm is assigned a name.

Hurricane -- When a tropical storm reaches winds of 74 MPH or more it is classified as a Hurricane.

Advisory -- A method for disseminating hurricane and storm data to the public every six hours. Small craft warnings are released as necessary.

Special Advisory -- Warning given anytime there is a significant change in weather conditions or change in warnings.

Intermediate Advisory -- A method of updating regular advisory information every 2 to 3 hours as necessary.

Gale Warning -- Wind speed of 39 - 54 MPH expected.

Storm Warning -- Wind speed of 55 - 73 MPH expected.

Hurricane Watch -- A hurricane may threaten your area.

Tornado Watch -- Tornadoes and severe thunderstorms are possible in your area.

Tornado Warning -- Tornado detected in your area, TAKE SHELTER.

Storm Surge -- The strong winds associated with Hurricanes and Tropical Storms cause the sea level to rise above normal tidal heights, with giant wind-driven waves and strong unpredictable currents, sometimes covering 50 miles.

BEFORE A HURRICANE

"Hurricane Watch"

(What to do when a Hurricane may threaten your area)

- Monitor NOAA Weather Radio, television, or commercial radio for latest weather advisories.
- Put together a disaster survival kit.
- Check your storm shutters or other protection materials for windows and doors, such as plywood, pressboard and masking tape.
- Remove any tree limbs near electrical wires and your home. "BE CAREFUL".
- Collect and place indoors all loose articles.
- Keep a full tank of fuel in your car or boat and check your battery.
- If you intend to leave your home, make plans to secure it ahead of time.
- Make preparations to moor, anchor and store your boat. Florida Marine Advisory Fact Sheet (MAFS-24), "Hurricane and Severe Weather Checklist for Boaters" is available from the Marine Advisory Program, G022 McCarty Hall, University of Florida, Gainesville, Florida, 32611.
- Check your transister radio and obtain extra batteries. Your auto radio can also be used to keep you informed.
- Do not use the telephone unnecessarily.
- Obtain adequate supply of special or prescription medicines, baby food, diapers, and sanitary needs.
- Stock up on non-perishable foodstuffs.
- Check flashlights, batteries, and supply of candles or lantern fuel.

- Locate the main turnoffs for electricity, water, and gas.

- Package your valuables such as jewelry, titles, deeds, insurance papers, licenses, stocks, bonds, inventory, etc., for safe keeping in waterproof containers. Consider a safety deposit box.

- Check with the Humane Society to arrange for safeguarding your pets and animals.

- Make a complete inventory of ALL your possessions.

"Hurricane Warning"

(What to do when a hurricane is expected to strike your area within 24 hours or less)

- Listen only to official announcements on the radio, television, and NOAA Weather Radio or the Civil Defense and Red Cross. Do not pay attention to rumors.

- Turn refrigerator and freezer to their coldest setting (store plastic bottles of water and newspapers in the vacant areas of your freezer, cover your freezer with blankets). Open only when necessary.

- Sterilize and fill containers, bathtub, and washing machine with water. You should have one quart of water per person, per day, for drinking.

- Double check your "Hurricane Survival Kit", it can be used in a shelter.

- Remove pictures and bric-a-brac from walls, tape windows and doors that are not boarded or have shutters, and wedge sliding glass doors with a bar. Draw all drapes and blinds to stop flying glass.

- Lower television antenna and store it in a safe place.

- Turn off all electricity to your pool and add chlorine to the water. You can put your aluminum furniture in the pool.

- Stay at home, if it is sturdy and on high ground and you feel secure, unless advised to evacuate by government officials. Double check your area for loose objects before the storm strikes.

- If you do not have a car, arrange ahead of time for transportation should you have to evacuate. This is especially important for the elderly and handicapped.

- Do not use the telephone unnecessarily.

DURING THE HURRICANE

- Remain indoors during the hurricane. (If the calm center passes directly overhead, there will be a lull in the wind lasting from a few minutes to an hour or more.) Do not go outside unless emergency repairs are absolutely necessary. Remember, at the other side of the eye the winds rise very rapidly to hurricane force winds, and come from the other direction.
- Prepare for storm surge and flooding. (Storm surges, flooding and tornadoes are the worst killers associated with hurricanes.)
- The electricity, water, gas and telephone service may be interrupted — stay calm and listen to your radio for the all clear. DO NOT leave your house and do not sight-see.
- Bring your pets inside and protect livestock.

AFTER THE "ALL CLEAR" IS GIVEN

- Leave your shelter only after being officially released.
- Stay away from the disaster area unless you live or work there. Don't sight-see. DRIVE CAREFULLY.
- Advise interested friends and relatives that you are safe. It may be impossible for them to contact you.
- If you arrived at a public shelter on a public bus, return transportation will be provided.
- If your home was damaged, enter with extreme care.
- Avoid downed wires, escaping gas, downed trees, structurally damaged buildings, etc.
- Check all utility systems to be sure they are safe before turning them back on.
- Check to insure that your water is safe.
- Check for the possibility of food spoilage. Bury spoiled items.
- Highwater can drive snakes, animals and insects to high ground. Expect them and be prepared to protect yourself.

IF YOU ARE OFFICIALLY ADVISED TO EVACUATE

- Local authorities will officially advise by television and radio when specific areas should be evacuated and which American Red Cross Shelters will be opened and staffed.

- Act immediately — in daylight, if possible. Do not get marooned.
- Store perishables -- take reasonable amounts of nonperishable foodstuffs.
- Turn off main switch for utilities (consider that you may want some utilities left on as long as possible for refrigeration, etc.).
- Lock your home securely.
- Travel with care, leave early, and follow recommended routes. Stay away from low lying areas. Avoid obstructions, wires and trees. Keep listening to the radio.
- Carry your transistor radio, flashlight and valuables with you.
- Pack medicines, baby foods, diapers and personal hygiene requirements and bring them with you.
- Bring bedding you feel is necessary. None will be immediately available.
- Prepare a lunch and a snack for your family because it may be some time before food or beverages can be provided.
- If you expect to be gone for some time you may want to bring a change of clothing.
- Do not attempt to bring intoxicating beverages, pets or firearms. You will not be admitted if you do.
- Recognize that an American Red Cross Shelter will not have all the comforts of home.
- If you suffer from more than minor medical problems or are pregnant, perhaps you should check with the hospital.
- If you do not have your own transportation, plan to travel with friends or neighbors. This is especially important for elderly and the handicapped.
- A minimum number of buses will be made available for those without transportation. Mass transportation pickup points and schedules will be broadcast on television and radio.
- Only seeing-eye dogs will be allowed in shelters, so arrange for the safekeeping of your pet or animal. Contact the Humane Society for guidance.

WHAT TO DO AT THE SHELTER

- Register at the registration desk as soon as you enter the building, listing your entire group.
- If you are able, volunteer to assist the shelter workers in any way possible.

- While using the shelter keep the building clean and sanitary.
- Only emergency rations are provided in the shelter. Be sure to eat something before you leave home.
- Do not forget medication, diapers and sanitary needs. (Diabetics -- Do not forget your insulin!)
- Bring your own portable disaster kit if you have one. It will make your stay in the shelter much more comfortable.

SPECIAL INSTRUCTIONS

In addition to following the instructions listed, residents of mobile homes, residents of high-rise apartments and those responsible for high-rise apartment buildings should follow the instructions below.

RESIDENTS IN MOBILE HOMES

- Mobile homes are particularly vulnerable to winds of hurricane force.
- Secure all outdoor objects. Tie them down or bring them inside.
- Secure all awnings over doors and windows. Tape or board windows and doors.
- Be sure that your home's tiedown system meets local and/or state laws.
- When the "Hurricane Warning" is given, go to a more secure shelter. Do not stay in your mobile home during a hurricane. Your local Civil Defense and Red Cross will advise you which shelters are to be opened.

RESIDENTS IN HIGH-RISE APARTMENTS

- If you have a floor captain, know him or her, and listen to their suggestions.
- Be familiar with the location of all exit stairways. County how many steps you are from your door to the exit door in case the lights are out in the hall.
- Do not use the elevator, it will be used for disabled residents.
- Predetermine a location outside the building for members of your family to meet if asked to evacuate.
- Rehearse your evacuation plan. It may save your lives during threat of a hurricane.
- Take all loose items from your terrace or patio. They can cause damage.

- Close and lock all windows, sliding glass doors and shutters. If you do not have shutters, tape the glass in an "X" fashion with cloth-backed tape. Glass that is coated with a plastic sunscreen is already somewhat protected.

BOARDS OF DIRECTORS AND MANAGERS OF HIGH-RISE BUILDINGS

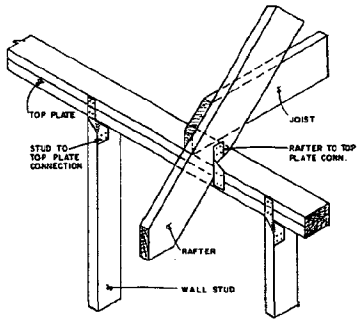
Retain a reputable engineering firm to inspect the building and foundation to determine if the building can withstand the erosion and battering of water, wind and waves that a hurricane brings. If the foundation is safe and the building is sound, then the residents can consider staying unless the local officials recommend evacuation. If the safety of the building is in doubt, then all occupants must plan on going to a shelter. If your building is structurally sound it may be used for vertical evacuation.

Organize a group of responsible residents to develop a plan that will:

- provide for monitoring the hurricane's course by use of the information from NOAA Weather Radio and local officials.
- secure grounds by setting up guidelines for the safety of cars and boats.
- provide for emergency power that will function in case the storm surge floods the building.
- make certain that elevators are not operated during the storm.
- locate a safe area for the occupants to congregate; encouraging them to stay away from windows and to wedge patio doors to prevent the vibration from ripping them loose.
- consider a provision for sheltering other people who are in the area and might be trapped when the evacuation routes are closed by the effects of the approaching hurricane.
- provide each floor with a floor captain or captains who have been educated in hurricaen preparedness and evacuation procedures and are able to instruct the occupants of their floor on what to do in the event of a hurricane.

APPENDIX XIII

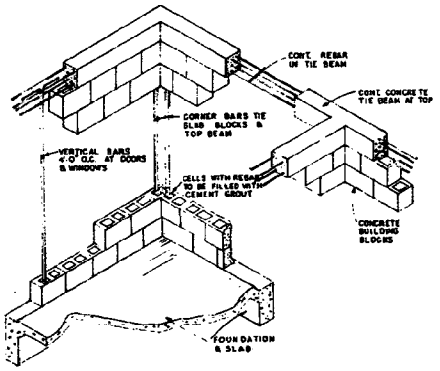
BUILDING CONSTRUCTION CHECKLIST



☐☐ G. **CONNECTION DESIGN.** Are member connections and fasteners adequate to carry loads from high design wind velocities established for the area?

☐☐ H. **WALL BRACING.** Is diagonal wall bracing or properly attached plywood wall sheathing provided to resist high lateral loads on the structure?

☐☐ I. **CORROSION.** Are bolts, straps, plates, nails, and all other metal fasteners hot dip galvanized or otherwise protected from corrosion?



VI. CONCRETE BLOCK BUILDING CONSTRUCTION

YES NO

☐☐ A. **DESIGN.** Has the structure been designed by a registered professional engineer to resist pressures and suction forces due to design wind velocities established by the city or county, or possible higher storm velocities?

☐☐ B. **VERTICAL WALL REINFORCEMENT.** Has vertical reinforcing steel and concrete been provided at corners, openings, and at regular intervals along walls without openings?

☐☐ C. **BOND BEAM.** Has a properly designed reinforced concrete bond beam, which will resist uplift forces, been provided at the top of the wall, continuously around the structure?

☐☐ D. **ROOF ANCHORS.** Has the roof system been securely anchored to the bond beam to resist uplift forces due to design wind velocities?

☐☐ E. **TIE TO FOUNDATION.** Has vertical wall reinforcement been adequately tied to the foundation and to the bond beam to form a continuous tie from the foundation to the roof?

VII. ROOFING, SIDING & TRIM

YES NO

☐☐ A. **ROOFING SYSTEM.** Can you determine if the roofing system which is being used has been adequate in previous high wind situations?

☐☐ B. **BUILT-UP ROOF.** Are all layers properly adhered to previous layers and to the structural roof itself? Has loose gravel been eliminated from the roofing system to avoid damage to windows and other structures during high wind?

☐☐ C. **SHINGLES.** Has shingle exposure been decreased and fasteners added to reduce high uplift pressure on roofs?

☐☐ D. **SECURELY ATTACH CORNERS & EDGES.** Have the corners and edges of shingles, roofing material, siding, and any other building elements been securely attached to prevent loosening during high winds?

☐☐ E. **ROOF PANELS.** If roof panels are used, have they been securely attached to the structural frame to resist design uplift pressures?

☐☐ F. **WALL SIDING.** Has a type of wall siding been used which can be affixed to provide enough strength to withstand design wind velocities?

☐☐ G. **SHUTTERS.** Have shutters been provided for all glass openings and any other opening which may need protection from high winds? Are shutters such a type that can be installed quickly and easily?

VIII. UTILITIES

YES NO

☐☐ A. **TELEPHONE & ELECTRICAL.** Has all wiring been encased in a non-corrosive, watertight conduit? Are all conduits placed in such a manner as to avoid damage due to flooding, erosion, and floating debris? Have junction boxes and breaker boxes been located above flood level and in a place not subjected to driving rain?

☐☐ B. **WATER & SEWERAGE.** Are all water and sewerage lines constructed of a non-corrosive material and located to avoid damage and contamination due to flooding, erosion, and floating debris?

IX. QUALITY ASSURANCE

YES NO

☐☐ A. **PLANS & SPECIFICATIONS.** Does the contractor have a complete set of detailed construction drawings and specifications which cover all aspects of construction?

☐☐ B. **CONTRACTOR.** Is the contractor qualified and experienced in coastal construction?

☐☐ C. **INSPECTION.** Have arrangements been made to have a qualified registered professional engineer inspect the construction of the building? Have local building code regulations been checked for the necessity of required building inspections?

REFERENCES FOR ADDITIONAL SHORELINE CONSTRUCTION INFORMATION

Bureau of Economic Geology
University of Texas at Austin
University Station, Box X
Austin, Texas 78712

Federal Disaster Assistance Admin.
Department of Housing and Urban Development (HUD)
1100 Commerce Street
Dallas, Texas 75242

Federal Insurance Administration and Hazard Mitigation
1100 Commerce Street
Dallas, Texas 75242

Insurance Information Institute
1011 Congress Avenue, Suite #301
Austin, Texas 78701

National Flood Insurance Program
P.O. Box 34294
Bethesda, Maryland 20034

Texas Attorney General's Office
Supreme Court Building
P.O. Box 12548
Austin, Texas 78711

Texas Catastrophe Property Insurance Assn.
P.O. Box 2930
Austin, Texas 78769

Texas Coastal and Marine Council
P.O. Box 13407
Austin, Texas 78711

Texas General Land Office
1700 Congress Avenue
Austin, Texas 78701

Texas State Department of Highways and Public Transportation
11th and Brazos Streets
Austin, Texas 78701

U.S. Army Corps of Engineers
P.O. Box 1229
Galveston, Texas 77550

Texas Coastal and Marine Council
Governor's Division of Disaster Emergency Services
Texas Catastrophe Property Insurance Association

Sponsors

This brochure was developed by the Texas Coastal and Marine Council in cooperation with Goldston Engineering, Inc., Corpus Christi, Texas, and represents a continuing effort by the sponsors of the Hurricane Awareness Program to educate the public on how best to protect their lives and property in hurricane-prone areas.

A special set of Model Minimum Hurricane Resistant Building Standards have been developed for the Texas Coast. For further information on these standards or additional copies of this brochure, contact your local building officials or the Texas Coastal and Marine Council, P.O. Box 13407, Austin, Texas 78711, phone 512/475-5849.

BUILDING CONSTRUCTION CHECKLIST

FOR THE TEXAS COAST AND SHORELINE

Building construction on the Gulf Coast presents many special problems unique to shoreline construction. Problems which can arise from the great degree of exposure to high winds, flood waters, erosion, subsidence and highly corrosive environments must be considered by owners and prospective owners of shoreline properties.

This checklist is intended as a guide for persons investing in shoreline properties. Although it brings to light the most frequently encountered problems, it is recommended that a registered professional engineer be retained who is experienced and qualified in the field of shoreline building design.

I. LOCATION

YES NO

☐ ☐ A. **BEACH ACCESS.** Does the structure block access to public beaches? Does the structure violate open beach provisions of Texas State Law? (Contact the Texas Attorney General's office or the General Land Office of Texas (GLO).)

☐ ☐ B. **DUNE PROTECTION.** Has care been taken to protect any dunes and their vegetation? Have the requirements of State Sand Dune Protection legislation been met? If the structure is a multiple unit dwelling, motel, or subdivision, has a single joint access route or walkway to the beaches been planned? (Contact the GLO for further information.)

☐ ☐ C. **ZONING REGULATIONS.** Does the building and building site plan conform to city and county zoning regulations regarding type of structure, location with respect to dunes and water, and other provisions of applicable zoning laws? (Check with your contractor or local building officer to be certain.)

☐ ☐ D. **BUILDING PERMITS.** Have the necessary city or county building permits been obtained? Have requirements of local utility districts, if any, been met? Does the structure involve construction in wetland or in navigable waters and require a permit from the U.S. Army Corps of Engineers or the GLO?

☐ ☐ E. **EVACUATION ROUTE.** Does the building site have an adequate means of evacuation in the event of a hurricane? Is the elevation of the evacuation route higher than the expected storm tide elevations? Road elevation information is available from city, county and State Department of Highways and Public Transportation.

☐ ☐ F. **INSURABILITY.** Have the requirements and recommendations of insurance companies been checked pertaining to minimum floor elevation and structural requirements to assure insurability?

☐ ☐ G. **OWNERSHIP.** Has particular attention been paid to boundaries between State owned and privately owned lands, especially on waterfront structures? If in doubt, check with local government or the GLO.

II. ELEVATION, EROSION & SUBSIDENCE

YES NO

☐ ☐ A. **CONSTRUCTION WITHIN FLOOD PLAIN.** Is the building within a designated flood plain area? Have city, county, and other applicable flood levels been checked? Have requirements and recommendations of applicable flood plain code requirements been met? (Consult your local city or county engineer.)

☐ ☐ B. **FLOOR ELEVATION.** Is the minimum floor elevation of the structure above flood levels established by applicable codes and requirements?

☐ ☐ C. **BREAK-AWAY CONSTRUCTION.** Do city or county building codes require construction below flood level to be "break-away" construction?

☐ ☐ D. **LOCAL EROSION RATES.** If the structure is located near bay or Gulf waters, have local erosion rates been determined? (Contact the Bureau of Economic Geology, the Texas Coastal and Marine Council (TCMC) and the GLO.)

☐ ☐ E. **EROSION PREVENTION.** Have measures been taken to prevent erosion due to wind and flood water runoff, including provision for adequate natural or planted vegetation?

☐ ☐ F. **WHEN EROSION OCCURS.** Should storm scour or erosion occur, is the foundation still adequate to support gravity and wind loads on the structure? (See Section IV, Foundation Design.)

☐ ☐ G. **SUBSIDENCE.** Does the location have a history of ground subsidence or sinking? If so, has this been taken into account in design, access, and hurricane evacuation routes? Have measures been taken to prevent subsidence in likely areas? (Contact the TCMC or the Bureau of Economic Geology.)

III. WIND LOAD DESIGN

YES NO

☐ ☐ A. **DESIGN WIND VELOCITIES.** Has the design wind velocity been determined on the basis of governing building code requirements or higher possible wind velocities? Has the effect of negative (suction) pressure been considered in all wind load design? (Check with city or county building department officials to determine minimum design wind velocities and pressures for which the structure must be designed.)

☐ ☐ B. **BUILDING FRAME DESIGN.** Has the structural frame been designed to withstand pressures and suction forces due to required design or possible higher wind velocities? Have shape factors and the effect of roof slope been taken into account in calculating design wind pressure?

☐ ☐ C. **GENERAL BUILDING DESIGN.** Have all building elements (doors, siding, railing, etc.) been designed to withstand forces due to required design or possible stronger occurring wind or velocities?

☐ ☐ E. **ADEQUACY OF DESIGN.** Has the structure been designed by a registered professional engineer, qualified to do work in this field? Do building drawings have the seal and signature of a registered professional engineer?

IV. FOUNDATION DESIGN

YES NO

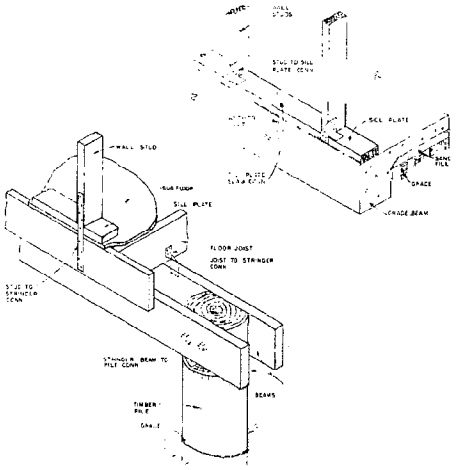
☐ ☐ A. **WAVE FORCES.** If the building is located within a flood plain, has the foundation been designed to withstand wave forces and battering action from floating debris?

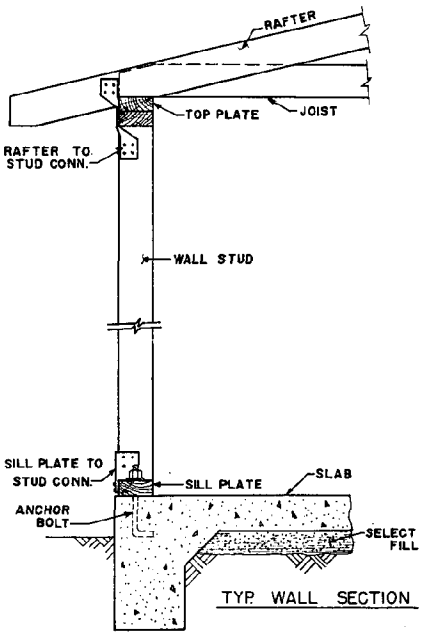
☐ ☐ B. **EROSION.** Has the foundation been designed to adequately withstand the effect of erosion or scour due to wind and water runoff? A structure built on pilings and properly anchored is generally much less susceptible to severe storm damage than a structure built on a slab foundation.

☐ ☐ C. **PILE FOUNDATION.** If a pile foundation is used, are pilings driven deep enough below the scour zone to resist forces due to design or possible higher occurring wind pressures and wave forces after scouring has taken place? Knowledge of the nature and character of the soil under the structure is necessary to make this determination.

☐ ☐ D. **PILE SPACING.** Are the piles or other foundations spaced widely enough apart to allow free flow of flood water runoff and withstand the effects of storm scour and erosion?

☐ ☐ E. **CORROSION RESISTANCE.** Have pilings been properly treated to prevent damage due to constant moisture, salt water, marine borers and rot?





V. WOOD FRAME BUILDING CONSTRUCTION

YES NO

☐ ☐ A. **SILL PLATE.** Are sill plates securely attached to foundation by means of anchor bolts (or metal straps in the case of pile foundations) to resist uplift and lateral forces caused by design wind pressures?

☐ ☐ B. **WALL CONNECTIONS.** Are wall studs securely attached to sill plates and top plates?

☐ ☐ C. **ROOF.** Are rafters and joists securely attached to top plates?

☐ ☐ D. **HURRICANE STRAPS.** Are metal hurricane straps required by governing building codes? These straps are highly recommended on all coastal construction.

☐ ☐ E. **CONTINUOUS CONNECTION.** Have metal straps been provided to insure a positive, continuous connection from the foundation to the structural members of the roof?

☐ ☐ F. **MEMBER DESIGN.** Have floor, roof and wall members been designed to carry additional loads due to higher design wind pressures?

APPENDIX XIV

MUTUAL AID AGREEMENT

_____ COUNTY AND/OR _____ COUNTY

Whereas, standing operating procedures at present require the Civil Defense (Disaster Preparedness) Director of _____ County and/or _____ County to require aid; and

Whereas, the Counties concerned come within the scope of the Civil Defense mutual aid concept since they are adjacent; and

Whereas, if the Counties listed are requesting aid of an adjacent County, the Local Civil Defense Director (Disaster Preparedness) will make his request direct to the Local Civil Defense Director (Disaster Preparedness) providing such aid, and the Local Directors involved in such a request will notify, as a matter of information, the Director, South Carolina Disaster Preparedness Agency of their intent to request/ provide "Mutual Aid" from/to an adjacent County.

Now therefore, we the undersigned officials of _____ County and _____ County, respectively, hereby grant to the local Civil Defense (Disaster Preparedness) Directors of _____ County and _____ County, the authority to use their resources to assist one another in local natural or man-made disaster situations where the need arises; however, with the express understanding that the local community extending such aid may withhold resources to the extent necessary to provide reasonable protection for the community, and that the Civil Defense (Disaster Preparedness) forces will continue under the command and control of their regular leaders, but that the organizational units come under the operational control of the Civil Defense (Disaster Preparedness) authorities of the communities receiving assistance, unless otherwise specified, and with the further express understanding that the county extending such aid, will be provided the physical needs of their volunteers and operational costs to the extent necessary as mutually agreed upon.

This ____ day of _____, 1976

_____
Chairman _____ County Commission

_____
_____ County, Civil Defense Coordinator

This ___ day of _____, 1976

_____
Chairman _____ County Commission

_____
_____ County, Civil Defense Coordinator

SOURCE: State of South Carolina, Disaster Preparedness Agency, Columbia, South Carolina, 1976.

APPENDIX XV

GREAT LAKES INFORMATION -- THE REGIONAL INFORMATION REFERRAL CENTER

Millions of Questions

Which Great Lake is the cleanest?
What should you know about wetlands if you issue building permits?
Where can you get up-to-date navigation charts?

Each year, people in the Great Lakes region ask *millions of questions that concern the Great Lakes.*

Asking questions—and finding answers—are important to ensure wise personal decisions (Should you build a cottage on a sandy shoreline?) and also to ensure wise governmental and planning decisions (Should your city install tertiary water treatment?).

Because the Great Lakes are the largest supply of fresh water in the world and support one-fourth of U.S. industry and about 75 million people, good decisions about the Great Lakes are crucial to our economic welfare, our quality of life, and our leisure and recreational activities.

Good decisions depend on good information. And Great Lakes Information can help you get the information you need.

Great Lakes Information serves:

- ☐ the general public
- ☐ coastal planners
- ☐ scientists
- ☐ legislators
- ☐ researchers
- ☐ students
- ☐ commercial concerns
- ☐ citizen groups

Millions of Answers

Finding answers is often difficult, frustrating, and time-consuming. Whom should you call? How can you find out if the information is published? If it is, can you obtain a copy locally? Is there ongoing research on the subject? Is there an expert to whom you can talk? *Or, are you just getting the* runaround?

Pinpointing the Answers

Great Lakes Information saves you time and frustration. Great Lakes Information can:

- ☐ answer simple questions right away
- ☐ give you the names and telephone numbers of people who know the answers
- ☐ give you access to raw data
- ☐ tie you into a national information network
- ☐ send you a state-of-the-art compilation
- ☐ give you the location of specialized libraries
- ☐ give you addresses for obtaining relevant publications
- ☐ mail you a bibliography or a pamphlet

Great Lakes Information

For this service, please contact:

Great Lakes Information
3475 Plymouth Road
P.O. Box 999
Ann Arbor, MI 48106
Telephone: (313) 668-2330/2331
FTS: 378-2330/2331

Great Lakes Information is part of the national Regional Coastal Information Center (RCIC) Network co-sponsored by three arms of the National Oceanic and Atmospheric Administration: Office of Coastal Zone Management, Office of Sea Grant, and Environmental Data and Information Service.

Regionally, Great Lakes Information represents a cooperative effort of the Great Lakes Basin Commission and the Great Lakes Sea Grant Network. The area served includes the eight Great Lakes states and adjoining parts of Canada.

Goals of the RCIC Network

- ☐ To make environmental, social, and economic information more accessible and available
- ☐ To make local planners, managers, legislators, decisions makers, and researchers aware of valuable information sources
- ☐ To help solve practical problems by supplying technical information to communities

The dissemination of timely and critical information by the network of Regional Coastal Information Centers will help ensure proper management of our *priceless coastline and its resources.*

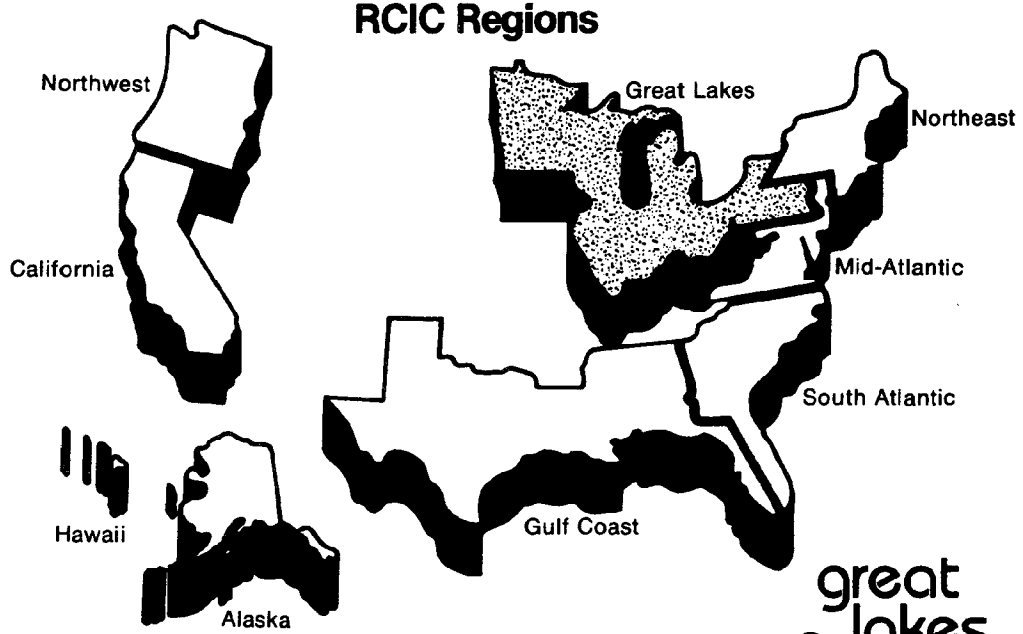
Components of the RCIC Network

The RCIC Network will consist of nine centers that interface with the Office of Coastal Zone Management's Coastal Zone Information Center in Washington, D.C. These centers will cover the entire coastal region of the United States, including Alaska and Hawaii.

Though each center serves the particular needs of its region, it also shares resources and services with all other network members, thus minimizing duplication of effort and providing wide-spread expertise not easily provided by one source.

Most important, a national perspective will be provided for making decisions, solving problems, and keeping abreast of developments in the many fields involved in coastal and marine resource planning.

RCIC Regions



great lakes information

APPENDIX XVI

AGREEMENT FOR ASSISTANCE

great lakes information the Regional Information Referral Center
a cooperative effort of Great Lakes Sea Grant Network and Great Lakes Basin Commssion
3475 Plymouth Road • P.O. Box 999 • Ann Arbor, Michigan 48106 • 313-668-2330/2331 • FTS: 378-2330/2331

July 28, 1980

Ms. Bonnie J. Young
Storm Preparedness Coordinator
Coastal Area Planning and Development
Commission
P. O. Box 1316
Brunswick, Georgia 31520

Dear Ms. Young:

Thank you for sending the clarifying information on your program. We would be glad to receive your resource list of agencies for future referral of disaster preparedness related questions. I understand that we would not be listed as a central source of information, but only refer requestors to those groups/agencies which are.

I have enclosed copies of our brochures for your use. They should answer any remaining questions on the Center's activities and services.

Sincerely yours,

Diane Baldwin

Diane Baldwin
Information Specialist

Enclosures: as stated above

APPENDIX XVII

POSITION SPECIFICATIONS

Disaster Preparedness/Response Coordinator

DESCRIPTION OF DUTIES: This is a professional position involving the application of a thorough knowledge of research and planning in matters of government, public administration, urban and regional planning, transportation, civil defense and related matters. The work is performed under the general supervision of the Planning Director or Executive Director. Employees in this class will have the primary responsibility for administering the disaster preparedness response program for the region. A high degree of independent judgment, initiative, and integrity is required in performing the duties. Employees will provide leadership for and can be assisted by lower level planners and technical personnel as required. This position in disaster preparedness and response planning will require close coordination with federal, state and local officials in all phases of the program.

Applicants must demonstrate strong oral and written communicative capabilities as well as leadership capabilities. Duties will include research and the collection of data which will be used in preparing disaster preparedness and response plans, revising storm evacuation maps and implementing an educational program involving audio visual presentations and printed information will also be required. Specific examples of duties include reviewing, commenting on and analyzing data pertaining to disaster preparedness and preparation of reports on major projects. Other sample duties include establishing and maintaining communication with local officials affected by the technical work generated, including providing necessary liaison between local officials and other agencies or organizations participating in related programs. Assignments of increasing responsibility and complexity are given to those employees as their experience and knowledge increases.

Employees in this class must have the ability to establish and maintain harmonious and effective working relationships with other employees, governmental officials and the general public. The position requires a thorough knowledge of the political and socio-economic implications of disaster prepardness and response planning and the ability to gain the cooperation of civic and political groups.

Disaster Preparedness/Response Planner

DESCRIPTION OF DUTIES: This is professional planning work involving the application of a thorough knowledge of research and planning matters of government, public administration, urban and regional hazard mitigation, planning, transportation, housing, economics, and environmentally related matters. The work is performed under the general supervision of the Executive Director, Planning Director or a Senior Planner, but these employees may have responsibility for administering a phase of the

hazard mitigation planning program for an area. A high degree of independent judgement and initiative is required in performing the duties. Employee may provide leadership for, or be assisted by technical personnel.

These employees develop major portions of hazard mitigation and technical assistance planning programs; design and outline the format and probably content of related reports and studies; direct and participate in the conduct of research efforts necessary to support the development of the hazard mitigation program and other related studies; supervise and participate in the collection of data on land use, building conditions, community facilities, etc.; provide technical assistance to local governments and other organizations in the form of consultation and short term studies in the fields of community planning and hazard mitigation; they may conduct seminars and fill speaking engagements for public awareness and perform other related work as required.

This position requires a thorough knowledge of the political and socio-economic implications of area planning and ability to gain the cooperation of civic and political groups.

NOAA COASTAL SERVICES CENTER LIBRARY
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