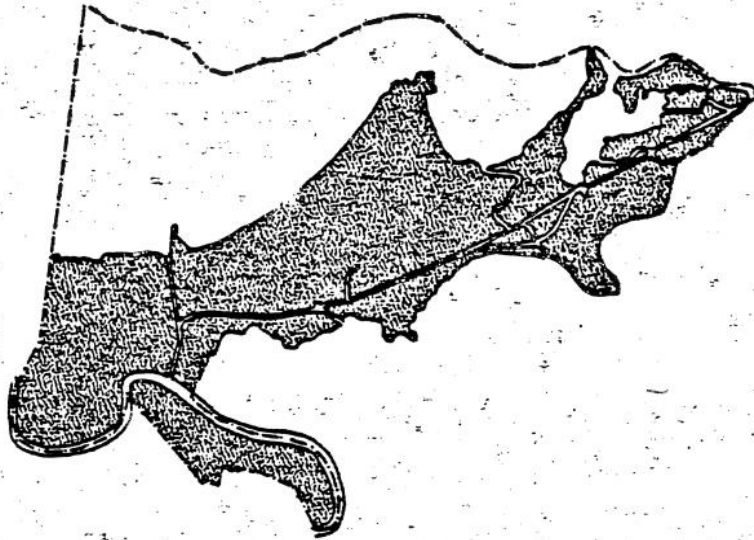


D. N. W.

**COASTAL MANAGEMENT
PROGRAM**



ORLEANS PARISH

MAY 1985



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SUMMARY

The Federal Program

In 1972 Congress enacted the Coastal Zone Management Act (CZMA) to stimulate land use planning and controls in coastal areas. This act was passed in response to studies that documented the destruction of estuarine and shoreline areas. A major purpose of the legislation was to provide greater protection for marine resources and related ecological values. The Program was set up in the Department of Commerce, National Oceanic and Atmospheric Administration, Office of Coastal Zone Management.

To qualify for federal grants (up to 80% of the cost of developing and administering the CZM program) a state program had to be approved as meeting the following specified federal criteria:

- 1) An identification of the boundaries of the coastal zone
- 2) A definition of what shall constitute permissible land and water uses
- 3) An inventory of areas of particular concern
- 4) An identification of the means by which the state proposes to exert control over the land and water uses.
- 5) Broad guidelines on priority of uses in particular areas
- 6) A description of the organizational structure proposed to implement the management program

The State Program

In 1978, the Louisiana Legislature passed Act 361 - The Louisiana State and Local Coastal Resources Management Act. This act contains the following basic elements:

- 1) A comprehensive set of coastal zone management policies - These policies guide land and water use decision-making within the coastal zone. This policy base includes a set of enforceable policies referred to as "coastal use guidelines" as well as other state regulatory policies which have been incorporated into the program.
- 2) An organized state and local government structure for implementation of the above policies - This structure includes the implementation of a new state coastal use permit program to be administered by the Coastal Management Section of the Department of Natural Resources and coordination procedures to ensure that the activities of other state agencies and deepwater ports are consistent with the coastal use guidelines. A specific role is provided for local governments, who may

voluntarily develop local coastal management programs. The Louisiana Coastal Commission which represents state, local and various private interest groups plays a key role in the development of the guidelines and implementation.

- (3) The delineation of the coastal zone boundary - The coastal zone is bounded on the east and west by the respective Mississippi and Texas borders, on the south by Louisiana's three-mile seaward boundary, and on the north, generally, by the Intracoastal Waterway running from the Texas-Louisiana state line then following highways through Vermilion, Iberia, and St. Mary Parishes, then dipping southward following the natural ridges below Houma, then turning northward to take in their entirety the parishes of St. Charles, Plaquemines, St. Bernard, Orleans, Jefferson, St. John the Baptist and St. James, a portion of the parishes on the northern shore of Lake Pontchartrain and ending at the Mississippi-Louisiana border.

In September of 1980, the Louisiana Coastal Resources Program was officially approved by the Office of Coastal Zone Management.

The Local Program

Parish participation in the Louisiana Coastal Resources Program is voluntary; however, activities occurring in coastal areas of parishes not participating in the program will be managed by the state. Orleans Parish has, however, long been interested in managing and maintaining the coastal environment. In 1974 an initial management plan for coastal areas was developed, and a three-volume report was published in 1975. This plan was not adopted, however, since the final form and content of the state plan was not yet determined and consistency with the state plan was an important requirement.

During the period 1975-1980, Orleans Parish was very supportive of efforts at the state level to enact legislation establishing a management program for the state's coastal area. This effort culminated in 1978 with the passage of Act 361. As the state program has evolved, Orleans Parish has remained involved through representation on the Louisiana Coastal Commission.

In 1977, in conformance with the emerging state plan, a Citizen's Advisory Committee was formed to help identify Orleans Parish's coastal problems, to recommend management solutions and to coordinate parish planning with state coastal planning. The Advisory Committee, composed of representatives of various interest groups that live, work or play in the coastal zone, met once a month (and sometimes more frequently) for a period of over two years, designing a local program that would ensure sound management of coastal resources without placing undue hardship on any user.

In December of 1979 the Orleans Parish Coastal Management Program was presented at a public hearing. The City Planning Commission received comments on the proposed plan at that time. Due to the large number of comments received, and also to the fact that the state program had not yet been approved, the Planning Commission directed its staff to monitor the progress of the state program and to revise the local plan as needed to be consistent with the final approved state program.

This document is the revised Orleans Parish Coastal Management Program.

Goals of the Local Program

The Orleans Parish Coastal Management Program seeks to strike a balance between man's use of coastal resources and the maintenance of a healthy environment. The formulation of this plan was guided by the following general goals:

1. The maintenance of a high level of quality within estuary areas in particular and within the City of New Orleans in general.
2. The formulation of land use policies, guidelines and techniques appropriate to marsh-estuary areas.
3. The formulation of a means by which energy resources may be exploited while mitigating or minimizing the negative environmental impacts.
4. The provision of adequate open space and recreational areas for the benefit of the citizens of the New Orleans Metropolitan Area and the State of Louisiana.
5. To protect and promote the wise use of economic and ecologic resources, both renewable and non-renewable, represented by the natural environment.
6. The efficient utilization of existing governmental agencies, in a coordinated fashion, in the management of sensitive environmental areas.

Fastlands/Transitional Areas/Coastal Wetlands and Waters

In order to begin to target specific areas for management under the state and local coastal zone programs, it is necessary to identify and define the Parish's "coastal zone." Figure 1, "Approximate Boundaries of the Louisiana Coastal Zone," depicts the location of the Louisiana coastal zone for state planning purposes. The LCRP further defines "coastal zone" as the "coastal waters and adjacent shorelands within the coastal zone...which are strongly influenced by each other, and uses of which have a direct and significant impact on coastal waters."

A glance at the Louisiana Coastal Boundary reveals that all of Orleans Parish exists within the Louisiana Coastal Zone. However, Act 361 and the LCRP make further distinctions as to what areas shall be considered to be "coastal areas", in order to determine those areas which will require coastal use permits. These distinctions require the Parish to be divided into Fastlands, Uplands, Transitional Areas, and Coastal Waters and Wetlands. The intent of these different classifications is to identify areas that do not "strongly influence" each other and the uses of which do not have direct and significant impacts on coastal waters, in order to focus management efforts on those areas most in need of coastal management. In Orleans parish, activities occurring in wetlands and water bodies outside the protective levee system require a coastal use permit. Activities in sites within identified transition areas require a coastal use permit if they are expected to have a direct and significant impact upon coastal waters. Activities (other than existing pumpage of water for drainage purposes) which occur within fastlands but are expected to have direct and significant impacts on coastal waters require a coastal use permit.

Fastlands

"Fastlands" are defined by Act 361 as "lands surrounded by publicly owned, maintained, or otherwise validly existing levees, or natural formations, as of the effective date of this Act or as may be lawfully constructed in the future, which levees or natural formations would normally prevent activities, not to include the pumping of water for drainage purposes, within the surrounded area from having direct and significant impacts on coastal waters."

Uplands

While not being specifically defined by the LCRP, "uplands" refers to lands five feet or more above mean sea level (MSL). This classification generally applies to parishes that have portions of the Pleistocene Terrace within their boundaries. The Pleistocene Terrace does not have a surface expression in Orleans Parish. The Parish does have some areas of elevation +5 Mean Sea Level (MSL), but these are mostly associated with natural levee ridges and occur almost wholly within the levee system and thus would be considered "fastlands."

Transitional Areas

"Transitional areas" also have not been specifically defined by the LCRP; however, the local program has the discretion of using or not using this classification. The term "transitional area" implies a land type that is somewhere between a wetland and an upland (or fastland). This classification is uniquely suited to two types of areas in Orleans Parish. One is the natural levees associated with abandoned distributaries which exist outside the levee system, but are not +5 feet MSL. An example of this type of transition area

is the natural levee associated with the abandoned Bayou Sauvage - Bayou de Lassaie distributary. U.S. Highway 90 was constructed on this ridge system at elevations ranging from +3 to +5 MSL, using borrow material from Bayou de Lassaie and the marshes near the highway. What remains is a strip of land on either side of the highway, between the road and canal, that is of slightly higher elevation than the surrounding marsh. This land has been traditionally used for residential and recreational purposes.

The second type of area that is considered "transitional" is spoil disposal sites. These areas may have been elevated considerably higher than +5 MSL by spoil deposition, yet they hardly qualify as uplands. An example of this type of transitional area in Orleans Parish occurs in Management Unit V, Viavant. (A complete listing of the management units is provided in the section "Introduction"). With the dredging of the MR-GO, spoil was deposited on approved disposal sites in Viavant. This has resulted in elevations of +8 to +10 MSL in significant portions of this management unit. Such lands eventually undergo a transition from wetland conditions to those that support an upland flora and fauna, yet the area is technically neither wetland nor upland. Not all disposal sites, however, should be considered as transitional areas.

In both of the above examples, the transitional area may exist wholly in the coastal zone, but because of natural or man-made modifications it no longer serves its traditional ecologic role. In fact, such areas may offer unique development or recreational opportunities.

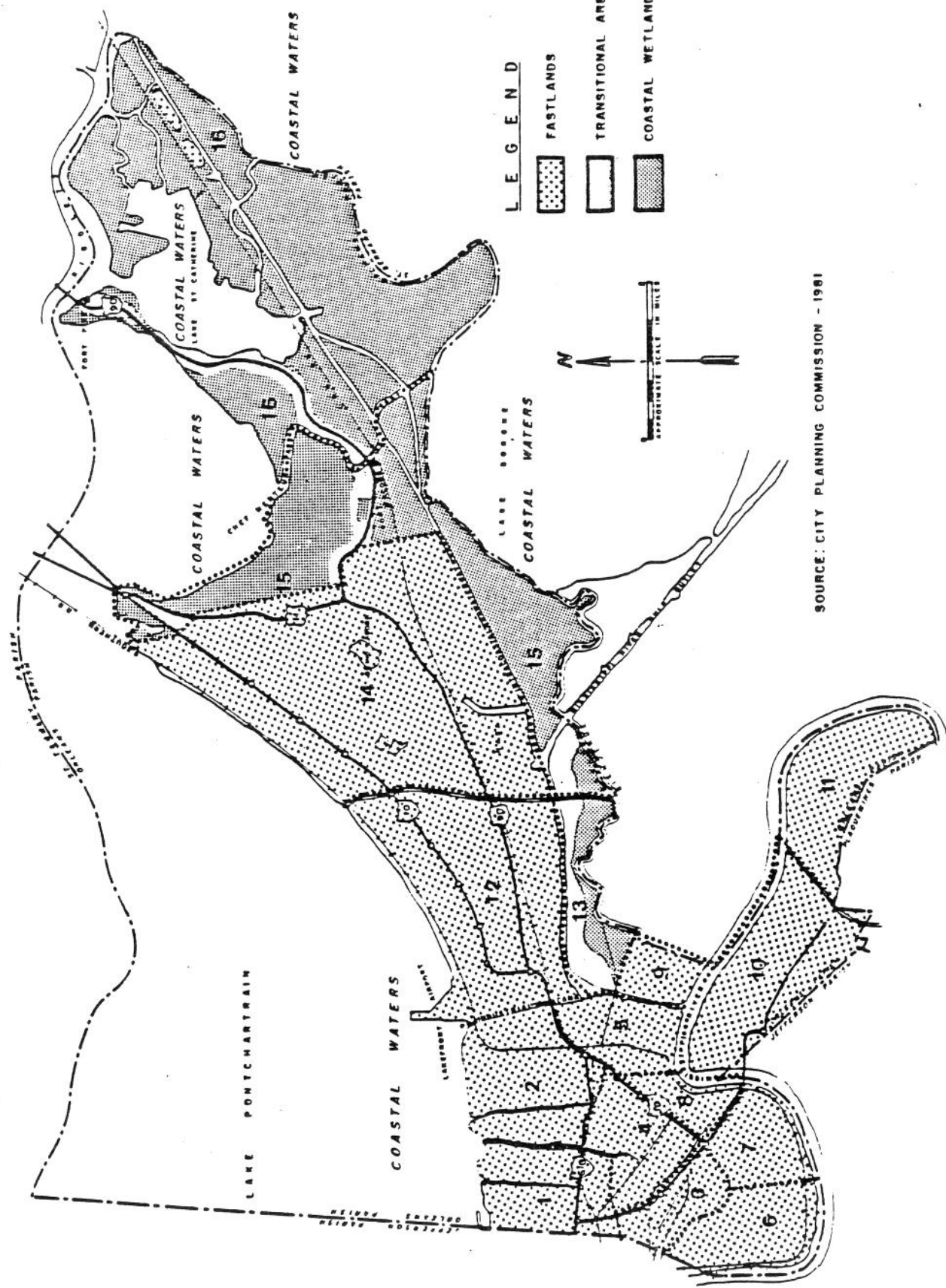
Uses in transitional areas in the Coastal Zone lying above 5 feet MSL will generally not require a permit unless it is determined that there will be a direct and significant impact on Coastal Waters. Uses below 5 feet MSL will require a permit.

Coastal Waters and Wetlands

The Louisiana Coastal Resources Program defines "coastal waters" as "bays, lakes, inlets, estuaries, rivers, bayous and other bodies of water within the boundaries of the coastal zone which have a measurable seawater content under normal weather conditions over a period of years." All water bodies outside the levee system in Orleans Parish are considered to be coastal waters, most notably Lake Pontchartrain and Lake St. Catherine.

Coastal wetlands are adjacent shorelands that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. In Orleans Parish, all coastal wetlands lie outside the flood protection levees and are brackish or saline marshes.

Figure 2, "Fastlands, Transitional Areas and Coastal Wetlands," indicates the extent of land coverage of each of these classifications. Figure 2 is illustrative and not to be used for site specific determinations. Table 1 gives the approximate acreages, including the category "Coastal Waters."



LEGEND

- FASTLANDS
- TRANSITIONAL AREAS
- COASTAL WETLANDS

SOURCE: CITY PLANNING COMMISSION - 1981

**FASTLANDS, TRANSITIONAL AREAS,
COASTAL WETLANDS AND COASTAL WATERS**

TABLE 1

FASTLANDS, TRANSITIONAL AREAS AND COASTAL WETLAND ACREAGES

Category	Acres*
Fastlands	78,917
Transitional Areas	3,593
Coastal Wetlands	39,732
Coastal Waters	110,400
TOTAL	232,642

Source: City Planning Commission, New Orleans Land Use, Present and Future, 1980.

A further breakdown of acreages within these categories can be made by management units, since five of the eight Orleans Parish management units are wholly contained within the levee system. A map depicting the management units is given as Figure 3, facing page 2 of this document. Table 2, "Fastland, Transitional Areas and Coastal Waters and Wetlands By Management Unit," indicates the acreages under these headings. The five "fastland" management units are grouped under the title "All Others." All acreage totals are approximate.

TABLE 2

FASTLAND, TRANSITIONAL AREAS AND COASTAL WATERS AND WETLANDS
ACREAGE BY MANAGEMENT UNIT

Management Unit	Fastland	Transitional Area	Coastal Wetland	Coastal Water	Total
V - Viavant	0	3,273	530	370	4,123
VII- New Orleans East/Special	0	0	14,655	1,150	15,805
VIII-Chef Menteur/Rigolets	0	900	23,967	1,860	26,727
All Others	78,917	0	0	0	78,917
	78,917	4,173	39,152	3,380	125,622
		Plus Lakes Pontchartrain and St. Catherine		107,020	107,020
				110,400	232,642

Source: City Planning Commission, New Orleans Land Use, Present and Future, 1980.

The Plan

The Orleans Parish Coastal Management Program was designed to accomplish the following objectives:

- 1) To utilize the City's existing governmental structure to make decisions concerning the Parish's coastal zone;
- 2) To issue Coastal Use Permits for uses of local concern; and
- 3) To review and comment on uses of state concern.

This plan has culminated in a proposed Coastal Zone Ordinance, which establishes guidelines for issuing and reviewing coastal use permits.

While the proposed Coastal Zone Ordinance is the key element of the local program, many facets of the plan have already been absorbed into existing governmental controls and attitudes. Many of the issues raised by CZM planning have been resolved and included in the City's governing procedures. Some of these issues include:

- 1) Limitations on future levee construction in Orleans Parish have been incorporated into the adopted Land Use Plan.
- 2) The Land Use Plan designates the Orleans Parish wetlands outside the current levee system as a limited development area.
- 3) The City has created an interim permit review process through the Planning Advisory Committee, composed of all Parish agencies, departments and boards.
- 4) The Parish has taken a leading role in the establishment of an Ad Hoc Committee to study possible management techniques for a Lake Pontchartrain Special Area.
- 5) The City has cooperated in the process of creating a Special Area for the Port of New Orleans.

ACRONYMS, TERMS AND DEFINITIONS

Act 361 - The State and Local Coastal Resources Management Act of 1973, signed into law in 1978. The Act provides the mechanism by which competing and conflicting coastal uses can be coordinated and balanced by state and local governments.

Advisory Committee - Act 361 provided that each local government preparing a local program could appoint a coastal advisory committee to be composed of persons representing users of coastal resources. Representation was to be balanced between users concerned with conservation and preservation of renewable resources as well as users concerned with development of coastal resources for commercial purposes. The advisory committee was to assist the local government in the development and implementation of the local program.

Coastal Use Permit - As provided for in Act 361, no person shall commence a use of state or local concern in the coastal zone without first applying for or receiving a coastal use permit.

Coastal Waters - Bays, lakes, inlets, estuaries, rivers, bayous, and other bodies of water within the boundaries of the coastal zone which have measurable seawater content (under normal conditions over a period of years).

Coastal Zone - The coastal waters and adjacent shorelands within the boundaries of the coastal zone as established in Section 213.4 of Act 361, which are strongly influenced by each other, and in proximity to the shorelines, and uses of which have a direct and significant impact on coastal waters.

Commission - The Louisiana Coastal Commission as provided for in Act 361. The Commission was abolished and replaced by the Louisiana Coastal Advisory Committee (LCAC) by Senate Bill 598 of the 1984 Session.

CPC - The City Planning Commission of New Orleans.

CZM - Coastal Zone Management.

DNR - The Department of Natural Resources of the State of Louisiana, under whose authority the development and implementation of the CZM program is vested.

Fastlands - Lands surrounded by publicly owned, maintained, or otherwise validly existing levees, or natural formations, as of the effective date of Act 361, or as may be lawfully constructed in the future, which levees or natural formations would normally prevent activities, not to include the pumping of water for drainage purposes, within the surrounded area from having direct and significant impacts on coastal waters. Wetlands may be found within the boundaries of fastlands.

FEIS - Final Environmental Impact Statement. More specifically, the LCRP/FEIS - the final document containing the rules and regulations of the Louisiana Coastal Resources Program.

Guidelines - Developed in accordance with Section 213.8 of Act 361, the guidelines serve primarily as the substantive standards and criteria for issuance of coastal use permits for uses of state and local concern.

LCRP - The Louisiana Coastal Resources Program is the comprehensive coastal management program authorized by Act 361.

Local Government - The governmental body having general jurisdiction and operating at the parish level.

Louisiana Coastal Advisory Council - The Louisiana Coastal

Advisory Council, which replaced the Louisiana Coastal Commission as of July 6, 1984, is composed of twenty-three members. The make-up of the Council is the same as LCC - 12 parish members and 11 members appointed by the Governor.*

*On July 6, 1984, Governor Edwin Edwards signed into law amendments to Act 361. These amendments abolished the Louisiana Coastal Commission and provided for the creation, membership and functions of the Louisiana Advisory Council; provided for reconsideration of coastal zone decisions by the Secretary of the Department of Natural Resources; and provided for judicial review of the Secretary's final decision.

The functions of the Council are as follows:

- A. Advising the Secretary of his approval of coastal management guidelines pursuant to Section 213.8 of the Act, as amended.
- B. Advising the Secretary of his approval of the identification, designation and utilization of special areas and the guidelines or priorities of use for special areas pursuant to Section 213.10, as amended.
- C. Recommending procedures or measures for the reduction of overlapping efforts, activities or actions by various state and local agencies, when requested to do so by the Secretary.
- D. Recommending future coastal management activities, guidelines, and/or special areas when requested to do so by the Secretary.
- E. Providing advice and/or recommendations upon or support for any aspect of the coastal management program as requested by the Secretary.

The Council does not have authority to adopt rules or regulations or issue permits or orders. It has no authority to enforce the aforementioned provisions, nor can it bring lawsuits on behalf of the state to enforce statutes or regulations.

Mitigation Measures - Mitigation measures are all steps necessary to minimize the impacts of the proposed action on a floodplain or wetland, including those steps necessary to preserve, and wherever practicable, restore natural values and functions. Examples of mitigation measures include, but are not limited to, (a) requiring an adequate soil erosion/sedimentation plan to control runoff during land disturbing activities associated with an action, (b) the collection and treatment of runoff resulting from an action prior to its discharge into the floodplain or a wetland, (c) the establishment of vegetative buffer zones between the site of a proposed action and adjacent floodplains or wetlands, (d) the dedication of sites as permanent natural areas, or (e) floodplain or wetland habitat restoration.

OCZM - Office of Coastal Zone Management, Washington, D. C., National Oceanic and Atmospheric Administration, Department of Commerce. Oversees the development and implementation of state CZM programs.

Special Area - Special Areas are areas within the coastal zone which have unique and valuable characteristics requiring special management procedures, such as important geological formations, historical or archaeological sites, corridors for transportation, industrialization or urbanization, areas subject to flooding, highly productive or essential habitat areas, ports and recreational areas among others.

Use - Any use or activity within the coastal zone which has a direct and significant impact on coastal waters.

Wetlands - Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

PART ONE

The Geography of
Orleans Parish

INTRODUCTION

The City of New Orleans has been existing on the banks of the Mississippi River for over two and a half centuries, exploiting her location to the point that the Port of New Orleans is one of the largest in the world. She has also learned how to overcome most of the constraints posed by her site. In fact, the taming of the environment has proceeded so smoothly that serious questions have arisen about the continued viability of the Pontchartrain estuary in the face of rapid urban development. As large areas of marsh and swamp are converted to urban uses, less and less wetland is available to function in its traditional and important ecological role.

To avoid waiting for the collapse of the estuarine environment before taking action, the City of New Orleans in 1973 embarked on a project to investigate the possibilities of designing a plan that would balance the competing goals of exploitation of the environment and preservation of it.

This document is the result of that investigation. The first part, The Geography of Orleans Parish, describes the environmental, social and economic conditions of Orleans Parish and their significance in regard to managing the coastal zone. The goals, objectives and policies to be included in the management plan are enumerated at the end of this part. The second half of the document, The Local Program, explains the management techniques to be used in implementing the program. Enabling legislation, the Coastal Zone Ordinance, is included at the end of the report.

The City of New Orleans is contiguous with Orleans Parish. In Louisiana, a parish is the administrative equivalent of a county in other states. In order to facilitate the collection and the graphic display of information, Orleans Parish has been divided into geographical segments called management units. These units will function as the focus for planning and policy formulation. The following section briefly describes these management units by name, size and location.

Management Units

For planning purposes, the City of New Orleans has long been segmented into planning districts. These units have historically been used for the collection and compilation of land use and population data. The creation of these districts was based to a large extent on areas having similar geographical, environmental, land use or population characteristics. The planning districts are, furthermore, generally divided by major natural or man-made features, such as waterbodies, roadways or levees. These features often conveniently delineate developed areas from undeveloped or developing areas.

For the purposes of Coastal Zone Management, groupings of these planning districts will serve as Management Units. By maintaining the integrity of the districts, valuable information that has previously been collected will not be lost or diluted.

There are sixteen planning districts in Orleans Parish. Figure 3 shows a map of the Parish with the Planning districts outlined and numbered, and grouped into management units. The Arabic numbers represent planning districts, while the Roman numerals indicate management units. Some management units are coterminous with planning districts, particularly those that are partially developed or completely undeveloped. Planning Districts 1 through 9, consisting of the older, highly urbanized sections of New Orleans, have been grouped into Management Unit I, the Urban Core. Planning Districts 10 through 16 each constitute a distinct management unit. More detailed maps of the Environmental Management Units are available at the office of the City Planning Commission, City Hall/Civic Center and at the D.N.R. Coastal Management Section in Baton Rouge.

Management Unit I: The Urban Core

The Urban Core Management Unit consists of the highly urbanized section of the City of New Orleans on the East Bank of the Mississippi River. This unit includes Planning Districts 1 through 9 and consists of approximately 30,000 acres. The following paragraphs describe the location and size of the individual planning districts which comprise Management Unit I.

Planning District 1: Lakeview

The Lakeview Planning District encompasses a total of about 4,335 acres, and has as its boundaries Lake Pontchartrain to the north, Bayou St. John to the east, City Park Avenue and Metairie Road to the south, and the Orleans/Jefferson Parish line to the west.

Planning District 2: Gentilly

The Gentilly Planning District consists of the area bounded by lake Pontchartrain to the north; the Industrial Canal to the east; Interstate 10, Florida Avenue, and Interstate 610 to the south; and Bayou St. John to the west. The District encompasses a total of approximately 5,673 acres, making it one of the largest of the urbanized planning districts.

Planning District 3: Broadmoor/Hollygrove

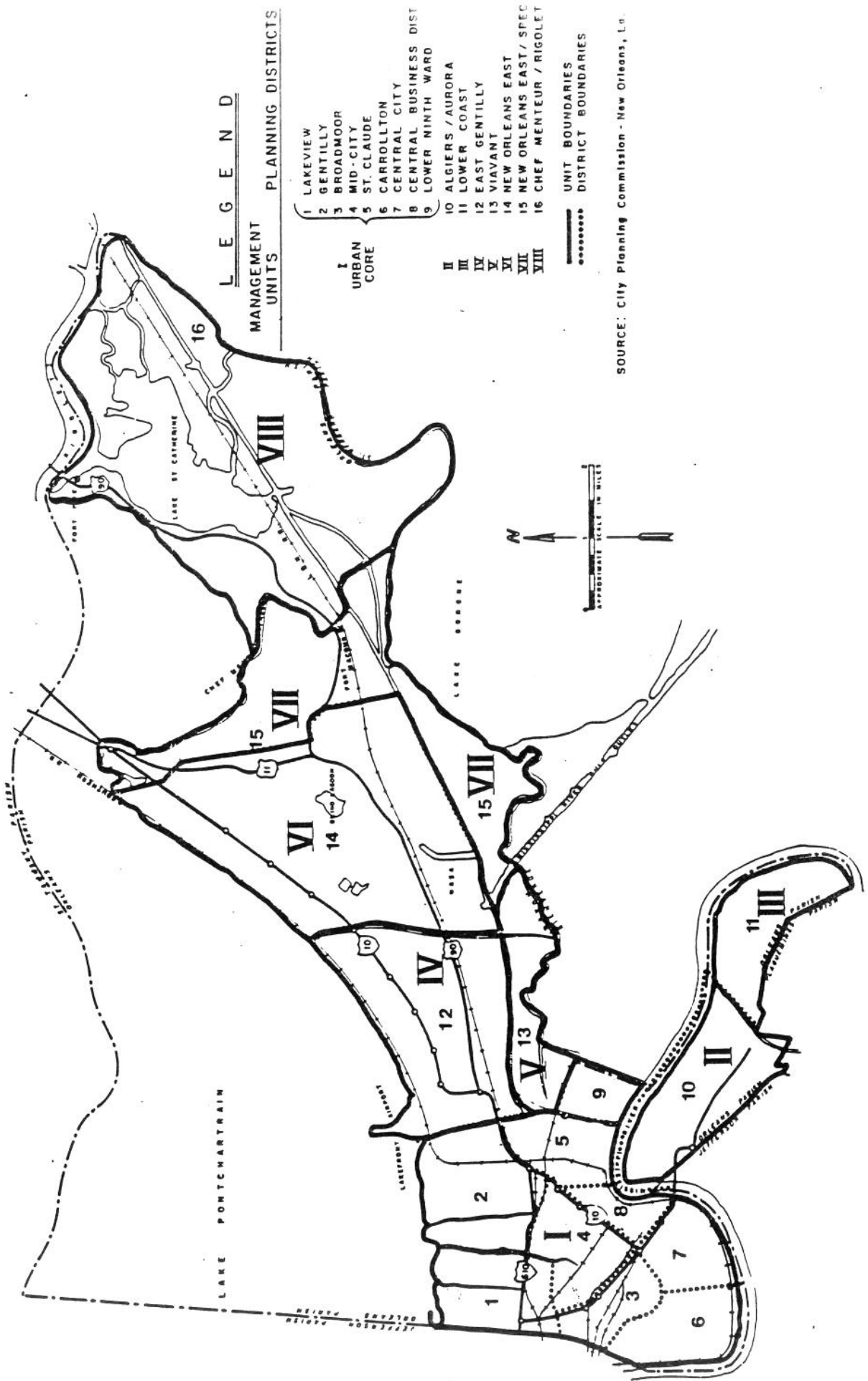
The Broadmoor/Hollygrove Planning District bounded by Metairie Road to the north, Pontchartrain Boulevard/Interstate 10, South Claiborne Avenue, and the Orleans-Jefferson Parish boundary line, contains a gross land area of approximately 2,314 acres, all but 220 of which were developed as of 1975.

Planning District 4: Mid-City

The Planning District referred to as Mid-City is bounded generally by Interstate 10 East and West, Florida Avenue, and City Park Avenue, and contains approximately 3,482 total acres.

Planning District 5: St. Claude/Desire

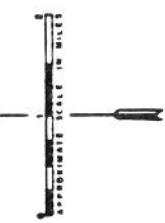
The St. Claude/Desire Planning District is bounded by Elysian Fields Avenue, Interstate 10, the Inner Harbor Navigation Canal (Industrial Canal), and the Mississippi River. The total area of this District is



MANAGEMENT UNITS

PLANNING DISTRICTS

- I URBAN CORE
 - II ALGIERS / AURORA
 - III LOWER COAST
 - IV EAST GENTILLY
 - V VIANT
 - VI NEW ORLEANS EAST / SPEC
 - VII CHEF MENTEUR / RIGOLET
 - VIII
- 1 LAKEVIEW
 - 2 GENTILLY
 - 3 BROADMOOR
 - 4 MID-CITY
 - 5 ST. CLAUDE
 - 6 CARROLLTON
 - 7 CENTRAL CITY
 - 8 CENTRAL BUSINESS DIST
 - 9 LOWER NINTH WARD
 - 10 ALGIERS / AURORA
 - 11 LOWER COAST
 - 12 EAST GENTILLY
 - 13 VIANT
 - 14 NEW ORLEANS EAST / SPEC
 - 15 NEW ORLEANS EAST / SPEC
 - 16 CHEF MENTEUR / RIGOLET



SOURCE: City Planning Commission - New Orleans, La.

ENVIRONMENTAL MANAGEMENT UNITS & PLANNING DISTRICTS

estimated at 3,532 acres.

Planning District 6: Carrollton/University

The Carrollton/University Planning District is bounded by the Orleans/Jefferson Parish Line, South Claiborne Avenue, the Mississippi River, and Napoleon Avenue. Carrollton/University has a gross land area of 4,019 acres, 382 acres of which are in the form of water and vacant land.

Planning District 7: Central City/Garden District

The Central City/Garden District Planning District of New Orleans comprises the area bounded by the Pontchartrain Expressway, South Claiborne Avenue, Napoleon Avenue, and the Mississippi River. The gross land area of this district is approximately 2900 acres.

Planning District 8: Central Business District

The Central Business District Planning District encompasses a total of 1,816 acres and is bounded by the Pontchartrain Expressway, Claiborne Avenue/I-10, Elysian Fields and the Mississippi River.

Planning District 9: Lower Ninth Ward/Holy Cross

The Planning District referred to as Lower Ninth Ward/Holy Cross is bounded by Florida Avenue on the north, the Orleans/St. Bernard Parish line on the east, the Mississippi River on the south, and the Industrial Canal on the west. This District comprises approximately 1,714 acres, 508 of which are in the form of water and vacant land.

Management Unit II: Algiers/Aurora

The Algiers/Aurora Unit encompasses that portion of Orleans Parish on the West Bank of the Mississippi River bounded by the River, the Intracoastal Waterway and the Orleans/Jefferson Parish line. The unit contains a gross land area of almost 7,460 acres.

Management Unit III: Lower Coast

This Planning District encompasses some 5,500 generally rural acres bounded by the Mississippi River and Orleans/Jefferson/Plaquemines Parish lines.

Management Unit IV: East Gentilly

The East Gentilly unit includes over 13,000 acres and is one of the largest management units in the City. The district is bounded by the Industrial Canal, Lake Pontchartrain, Paris Road and the Mississippi River-Gulf Outlet (MR-GO).

Management Unit V: Viavant

The Viavant unit encompasses over 4,000 acres and is bounded by the

MR-GO, the Industrial Canal and the Orleans/St. Bernard Parish line.

Management Unit VI: New Orleans East

This management unit encompasses 22,958 acres, generally bounded by Lake Pontchartrain to the north, the Gulf Intracoastal Waterway (GIWW) to the south, Paris Road on the west and the South Point to GIWW levee on the east.

Management Unit VII: New Orleans East/Special

Management Unit VII encompasses approximately 16,795 acres and is irregular in shape. The southern segment of the District is bounded by the MR-GO on the west, Bayou Bienvenue on the south, the Gulf Intracoastal Waterway (GIWW) on the north and Chef Menteur Pass on the east. The norther portion of the district is bounded by the South Point to GIWW levee on the west, Lake Pontchartrain on the north, Lake Pontchartrain and Chef Menteur Pass on the east and the Gulf Intracoastal Waterway on the south.

Management Unit VIII: Chef Menteur/Rigolets

The Chef Menteur/Rigolets Management Unit is bounded by Lake Pontchartrain, the Rigolets, Lake Borgne, and the Chef Menteur Pass. Lake St. Catherine, a large brackish lake, is contained within this Planning District. Chef Menteur/Rigolets comprises some 26,728 acres, most of which are vacant wetlands.

Throughout the remainder of this document, information will be compiled within the framework of these units. The Orleans Parish Base Map used throughout this text indicates the location of management units or planning districts.

Note: Special Areas and Particular Areas may be developed in the future. The boundaries of these areas will be delineated at that time and may include acres currently grouped within the eight management units.

THE ENVIRONMENTAL SETTING

The Impossible but Inevitable City⁽¹⁾

When one glances at a small scale map of the United States, it is obvious that there had to be a city at the mouth of the Mississippi River. Common sense demanded one, and so did experience. Common sense also tells us that the location determined the kind of place New Orleans was to become.

Although the location of New Orleans is obvious on a small scale map, it is far from obvious when one examines a detailed map of the swamp where the Mississippi debouches into the Gulf of Mexico (see Figure 4) and even less obvious when one visits the area. The Mississippi Delta is a fearsome place, difficult enough for building houses, lunacy for wharves and skyscrapers. Nor have environmental problems disappeared under the onslaught of modern technology. Yellow fever was eradicated around 1900, but flooding remains a constant threat. Foundation materials are the consistency of glue in many parts of the city and there are few old buildings or sidewalks that have not settled or broken since they were built. Most dreaded are the hurricanes that boil out of the gulf with random ferocity, pushing flood waters ahead of them.

Yet the city is still there. The apparent paradox between excellent location and miserable location merely illuminates the distinction between two terms - "site" and "situation" - which urban geographers use to describe the location of cities. Site is the actual real estate which the city occupies, and New Orleans' site is wretched. Situation is what we commonly mean when we speak of a place with respect to neighboring places. New Orleans' situation is her location near the mouth of the Mississippi, and the fact that a million people work and make a living on this evil site only emphasizes the excellence of the situation. There is no contradiction. If a city's situation is good enough, its site will be altered to make do.

That is precisely what happened in New Orleans. The situation guaranteed New Orleans prosperity, but the site guaranteed that the city would be plagued by incessant trouble - yellow fever, floods, and unbearable summer heat. And because it was so difficult, the site also guaranteed that the form of the city's physical growth would be shaped by the local environment to a far greater degree than in most other American cities.

In a word, New Orleans was shoehorned into a very constricted site. It is scarcely surprising that the shoe has pinched from time to time. Nor is it surprising that the city has taken some very strange shapes as a result.

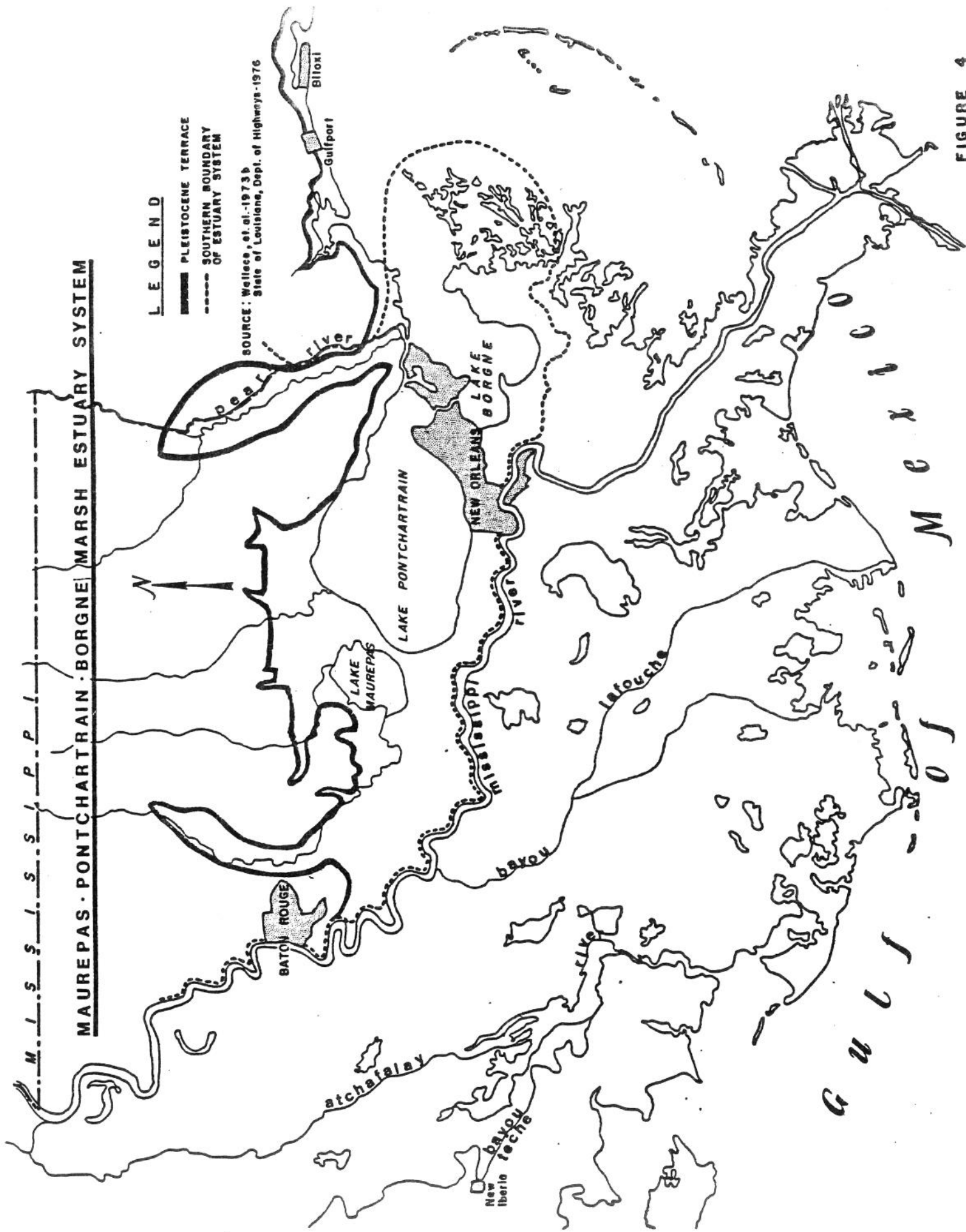


FIGURE 4

River, Delta, and City(2)

To understand how these shapes have evolved, to understand the extraordinary difficulties of building and maintaining a city here, one must understand what the immediate physical site of New Orleans is like. That site, like the personality of the city itself, is an offspring of the Mississippi River, a direct result of the river's behavior in its lower courses over the last several thousand years. Like the city it nourishes, however, the Mississippi is unusual - quite different, indeed, from any other large North American river. And the difference is not just a matter of size.

To begin with, the Mississippi is unusual because it has a delta. Not only do most North American rivers lack deltas of any kind, their mouths are embayed-that is, the sea has entered the river mouth and flooded it. Nearly every river in the world is that way, and the reason is the same. During glacial times-most recently about 25,000 years ago-sea level dropped because considerable ocean water was locked up in huge sheets of continental ice. At the glacial maxima, when sea level was lowest, rivers cut down to meet the new low sea level, and then, when the ice melted and sea level rose again, their valley mouths were flooded to form the estuaries that line the coast of North America today.

Finding a site for a city at the mouth of an embayed river poses no special difficulty. A host of big port cities-like London, Hamburg, and Old Quebec-grew up quite naturally at the narrow inland neck of the estuary-the first place where ships were forced to use the same channel and the first place where land traffic could conveniently cross the river. But there is no embayment on the Mississippi, which is uniformly wide for hundreds of miles upstream. Correspondingly, south of Cairo, Illinois, where the Mississippi valley opens out into its great deltaic plain, no place on the river is much easier or harder to cross than any other, and bridges were out of the question until fairly recently. Nor is there any well-defined head of navigation until one reaches Minneapolis; indeed, the shallowest and most treacherous water in the lower Mississippi is across bars at the mouth of the river in the Gulf of Mexico. (To locate a city there, where the highest point is a tussock of salty grass, would be insanity.) In fact, there is no high ground on the lower Mississippi below Baton Rouge, more than 200 miles upstream from the Gulf. In sum, the Mississippi River demands a city at its mouth, but fails to provide any place for one.

A summary of what is wrong with New Orleans' site makes an awesome list:

1. The main and oldest part of New Orleans is built on natural levees of the Mississippi, rarely over fifteen feet above sea level. The solidest material on the levee is silt.
2. Most of the contemporary city lies at or below sea level.

7

The Mississippi River normally flows at ten to fifteen feet above sea level and floods at twenty.

3. Behind the city, at sea level and below, was a half-flooded swamp, with no foundation material worth mentioning and, until about 1900, a breeding ground for malaria. After heavy rains or river floods, there is no way for the water to get out except by evaporation or by pumping it out.

4. Bedrock for foundation materials consists at best of compacted clays, but one must dig a minimum of seventy feet below the surface muck to find them. [Sand lenses often serve as a foundation, however. Ed. note.]

5. The only avenues into the city until recently were by way of the natural levees. In flood time, the levee could be cut almost anywhere by the sudden and unpredictable formation of a crevasse. At best, the city had poor highway access to the outside. During floods it might have none at all.

6. Until recently, there was serious risk of the Mississippi changing course upstream, thus leaving New Orleans isolated on a dead-end bayou.

7. Most of the adjacent areas of southern Louisiana are unpopulated, thus depriving the city of a nearby hinterland. Nearly all the scanty population lives on natural levees of old river courses, which are separated by belts of backswamp which slice the delta into north-south strips. The backswamps are barriers to east-west land transportation, and the natural levees are barriers to east-west water transportation.

8. The entrances to the Mississippi are 120 miles downstream from the city. Until artificially removed, mud and sandbars made navigation hazardous at best and sometimes threatened to block it completely.

9. Hurricanes periodically strike the Gulf coast from the south and drive very high tides ahead of them. Areas high above sea level are safe, but most of contemporary New Orleans is substantially below the safety level. [A system of levees protects the City from a 100-year storm. Ed. note.]

10. The entire city is built on land which is gradually sinking, and some of the city is built on land which is rapidly sinking. [Construction techniques have been developed to mitigate this phenomenon. Ed. note.]

The geologists Kolb and Van Lopik epitomized the area by calling it "a land between earth and sea - belonging to neither and alternately claimed by both."

To better understand the intricate relationship between the City and her environment, it is important to examine the processes that forged southeast Louisiana, particularly, time, the river and the sea.

GEOLOGIC HISTORY(3)

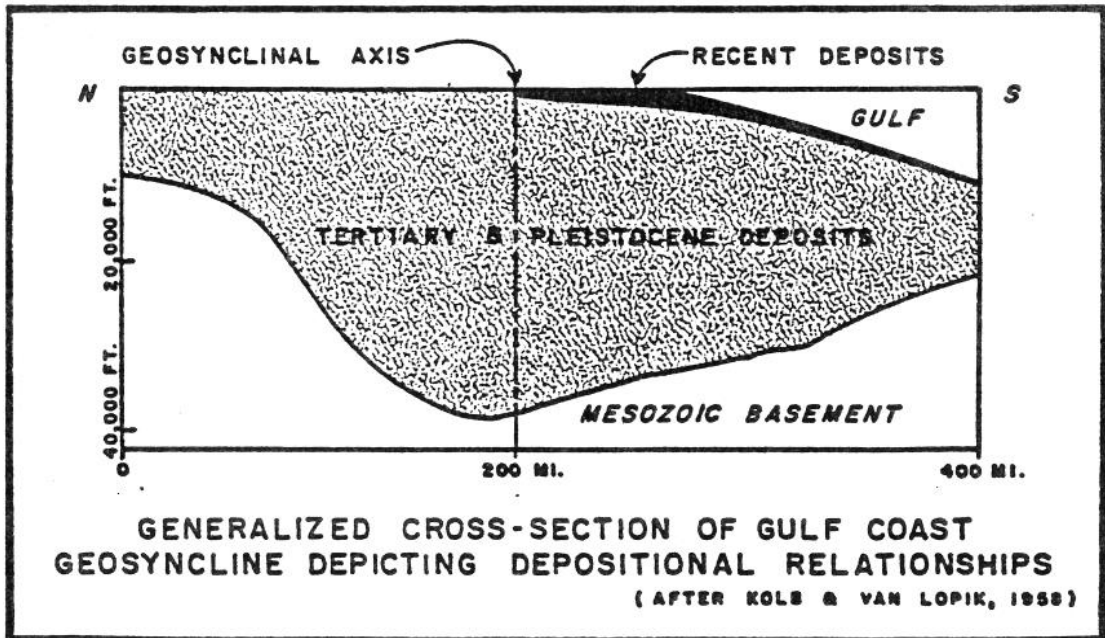
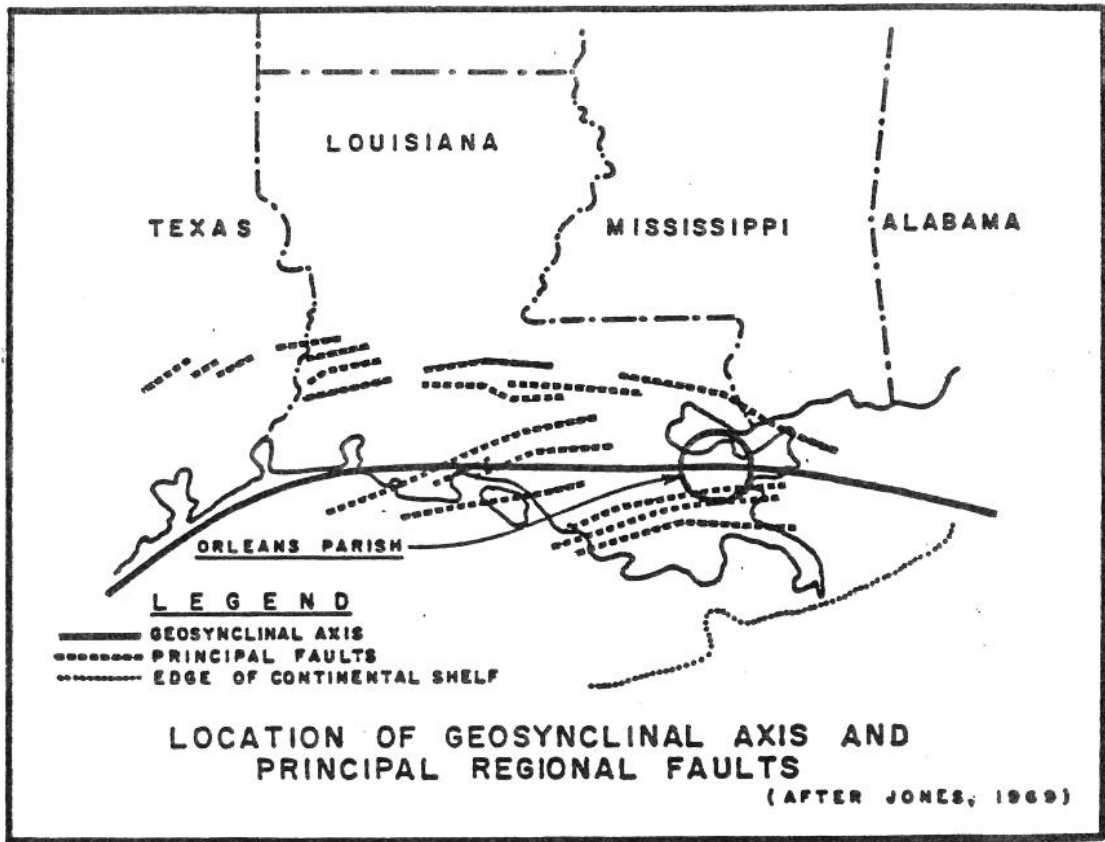
Orleans Parish is located on the southern and eastern shore of Lake Pontchartrain, a relatively flat-bottomed, fresh to brackish water body indirectly connected to the Gulf of Mexico. The natural landscape of the parish is of relatively recent origin, reflecting its location in the Gulf of Mexico Coastal Plain. The Gulf Coast is physiographically part of the continental coastal plain which extends generally from Massachusetts to Tampico, Mexico. The average width of the coastal plain is 250 miles, with the Mississippi embayment extending from the present Mississippi Delta to Cairo, Illinois, a length of 575 miles. The states of Louisiana and Mississippi lie entirely within this physiographic unit, which extends to the margin of the continental shelf.

The development history of this plain and the Gulf Coastal region is one of dynamic interaction among forms, processes and materials; of changing sea levels; riverine and marine deposition; and location on the continental margin. On a large scale and over many years, the Gulf Coast has been downwarped as a result of movement of the crustal plates of the earth and sediment deposition for at least 200 million years. Sediments were deposited in seas that invaded the edge of the continent. Rivers draining the continent deposited vast amounts of sand, silt and clay in the sea. As a result, a great wedge of sediment, thickening seaward, was built up. It is upon this wedge of sediment that Orleans Parish rests.

The great dip in the earth's crust in relationship to this sedimentary wedge is termed the Gulf Coast geosyncline (see Figure 4). The axis of the geosyncline passes through the Louisiana Coastal Zone directly beneath Orleans Parish. Associated with this axis are active zones of faulting, an adjustment of the earth to the pressure of sediments. Since the beginning of the Tertiary Period, about 60 million years ago, over 40,000 feet of sedimentary deposits have accumulated over the more ancient Mesozoic basement rock. For practical purposes, this Mesozoic level may be considered the "bottom" of the coastal formations.

From the standpoint of land use, the most important of the ancient sedimentary deposits are the Pleistocene formations. They have the best foundation characteristics in the region and were deposited more than 50,000 years ago when sea levels were approximately the same level as today. These deposits, consisting of consolidated sands, and silty and organic clays, are found at the surface on the north shore of Lake Pontchartrain but slope down and become deeply buried by more recent alluvial deposits in the Orleans Parish area.

The vertical structure of the parish consists then of thick deposits of ancient marine and riverine sediments overlain by thinner sequences of more recent deposits forming the actual land surface of the Parish. At depths of up to 40,000 feet is a basement layer perhaps 200 million years old. Over this layer are 40,000 feet of sediment 50,000 to 7,000 years old, with only the last 50 to 100 feet less than 4,000 years old. The landscape of Orleans Parish was formed during this latter period.



SOURCE: COASTAL ENVIRONMENTS, INC. ENVIRONMENTAL BASELINE STUDY
ST. BERNARD PARISH, LOUISIANA - 1972

As a result of its formative processes and location, the region is very active tectonically. Both faulting and subsidence occur as adjustments to depositional processes. As material is deposited, the earth's surface constantly adjusts to and becomes deformed by differential loading pressures. These movements occur along zones of weakness which persist even as sediment continues to accumulate above them and produces growth faults. The faults strike parallel to the axis of the geosyncline and are almost invariably downthrown on the Gulf side. Their location is important in relationship to the building of structures, affect upon marsh subsidence, and location of canals and associated construction. Fault activity, although not as dramatic as that in places like California, nevertheless indicates that the region is extremely active and that change is constant.

The Delta System(4)

Deltas are zones of interaction between processes of river and sea; they represent one of the most dynamic situations in nature. Delta building can be viewed as a contest between forces. If the river deposits sediment faster than the sea is able to remove it, new land is added to the shore and the delta builds seaward (progradation). As the delta extends itself, older areas of deposit build upward; this accretion (building upward) is associated with processes of lateral shifting of channels, sediment deposition during overbank flooding and accumulation of plant and animal remains into peat deposits.

The St. Bernard delta complex is one of the five major sub-delta complexes of eastern Louisiana. Within this complex, the formation of Orleans parish took place over a period of 4,000 years as the result of deposition by six major distributaries. See Figure G.

The development of the lands of the parish may be viewed as a result of deposition of sediments further and further out into the gulf over a period of time. The present sites of Orleans and St. Bernard Parishes were open Gulf about 5,000 years ago.

The initial St. Bernard Lobe was probably similar in form to the present bird's-foot delta. This lobe began development about 4,000 years ago. Concurrently, a major depositional area evolved in the Bayou Teche area. At that time, most of the area currently occupied by southeastern Louisiana was still open Gulf. The second phase of building took place through the Bayou Terre aux Boeufs channel for about 500 years. The third delta lobe, at Bayou des Familles, deposited sediment for over 1,500 years starting about 3,500 years ago. Concurrent with this deposition, the Mississippi -La Loutre system continued to distribute river flow and built land until about 1,800 years ago. A portion of the Lafourche delta lobe was also being constructed. The final active distributary of the St. Bernard complex was Bayou Sauvage that formed the Rigolets and Lake Pontchartrain as we know them today. Bayou Sauvage was in a state of progradation until about 700 years ago. During this interval, major deposition was also occurring in the Lafourche Delta area. See Figure 7.

HISTORIC DELTAIC LOBES of the MISSISSIPPI DELTAIC PLAIN

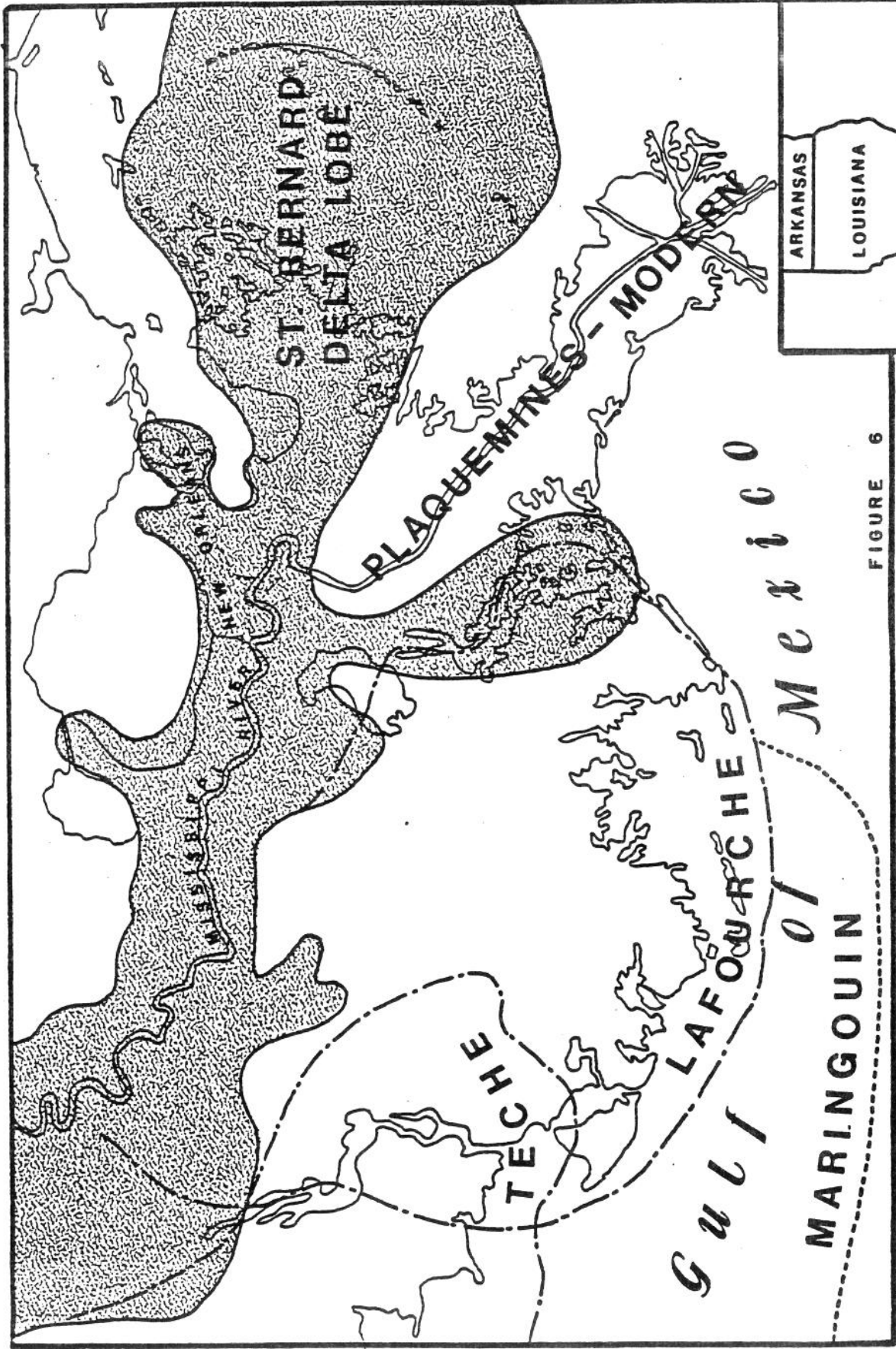


FIGURE 6

DEVELOPMENT OF THE ST. BERNARD DELTA LOBE

LEGEND

	SANDS		ORGANIC CLAY WITH SHELLS
	CLAYEY SILTS & SANDS, COQUINAS		ORGANIC CLAY WITH PEATS

SOURCE: Coleman & Gagliano, 1964

LAKE PONTCHARTRAIN

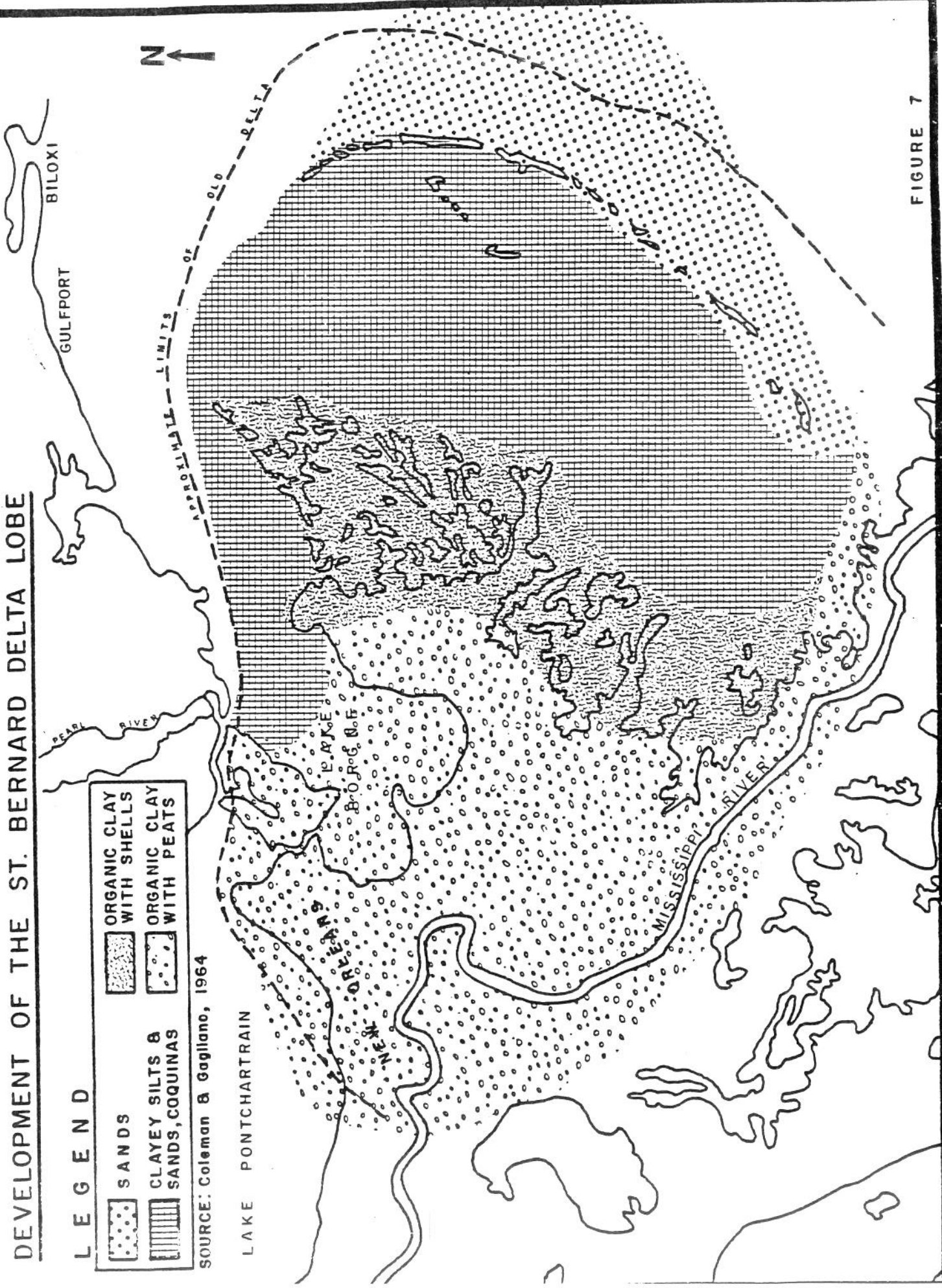


FIGURE 7

Throughout this period, sand deposits winnowed from eroding Pleistocene deposits and introduced to the coast by the Pearl River were being reworked and redistributed to form a series of sand spits and islands along what is now the south shore of Lake Pontchartrain. These were similar to the barrier islands that now lie off the Mississippi Coast.

Recent stages of delta building were through the Plaquemines-Modern delta complex. Abandonment of the St. Bernard complex took place gradually as Mississippi River flow was divided between several major distributaries and progradation occurred in more than one area. Until the time that man-made levees completely restricted the flow of the Mississippi, river sediment continued to be introduced into the area through overbank flooding, through crevasses and down existing channels. During the long period of diminishing flow and complete elimination of riverine sediments, erosion, subsidence and compaction have resulted in increased and accelerated coastal retreat, inundation and land loss.

The present relationship of Orleans Parish to other areas of the delta is shown in Figure 8. The delta may be viewed as a series of systems that have gone through a cyclic process of activity and gradual development to a state of abandonment. The major components of the delta plain are the active and abandoned channels, natural levee systems, interdistributary basins and marginal basins. As indicated in Figure 8, most of Orleans Parish lies in what would be considered a marginal basin.

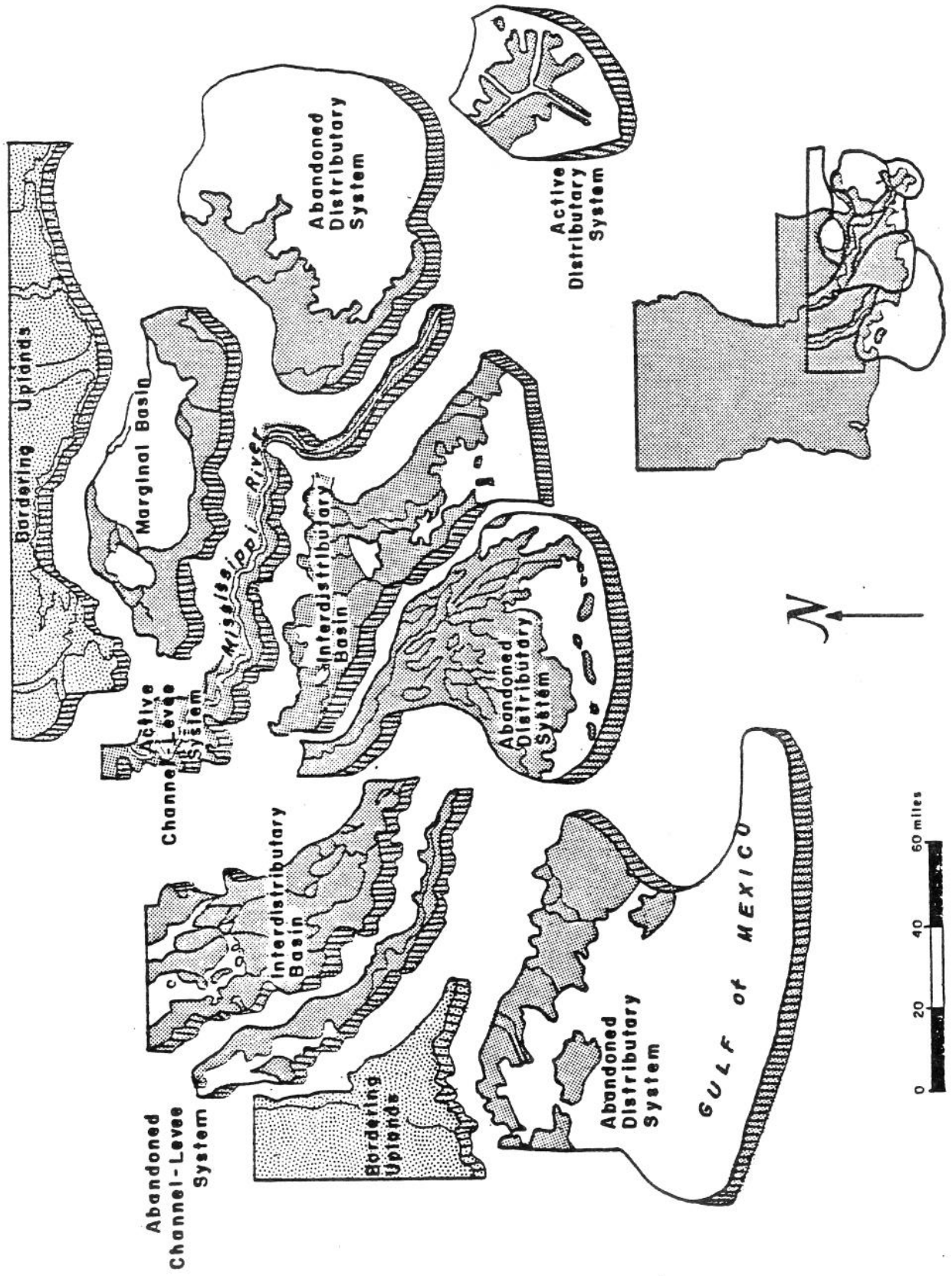
Physiography⁽⁵⁾

The materials and processes of landscape formation produce a predictable set of surface and subsurface features and relationships. The land is formed by distributaries; between the distributaries land eventually builds up by either progradation (building seaward) or aggradation (building upward). In simplest form, the pieces of the coastal zone may be seen either as a part of the distributary or the interdistributary system (Figure 9).

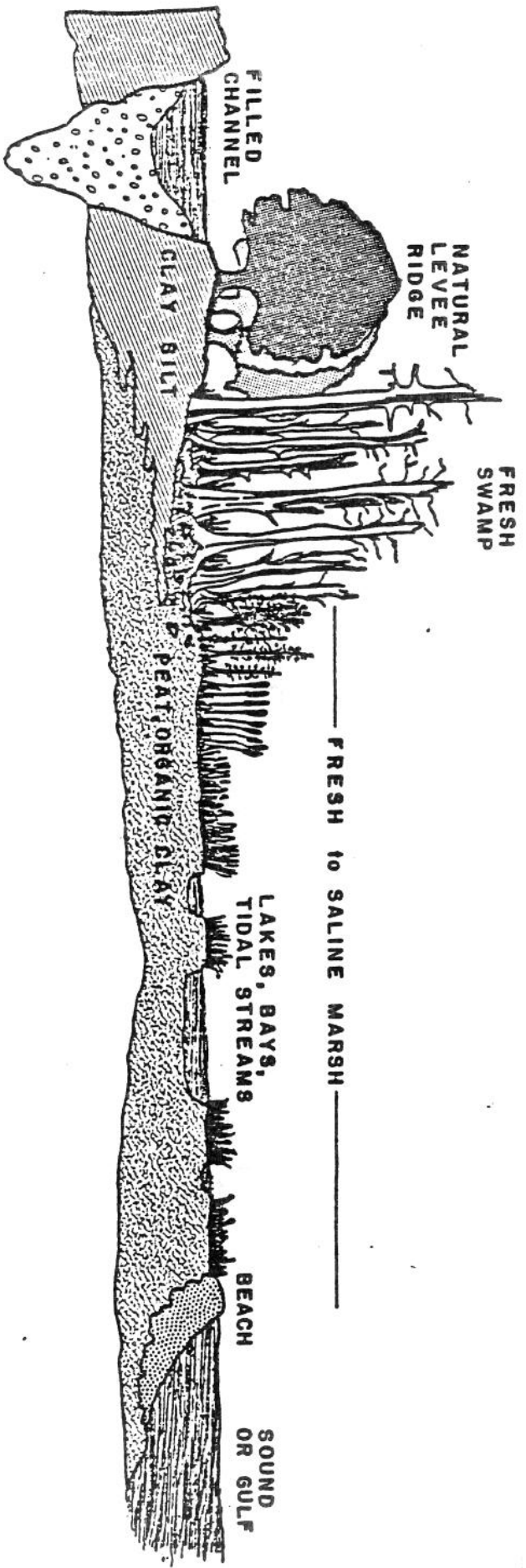
Though much of the natural landscape of Orleans Parish has been modified by the works of man, the natural levees of the Mississippi River and its abandoned distributaries form the most conspicuous topographic features. Along the present river course, levee crests reach a maximum elevation of about 23 feet above mean Gulf level (MGL) and average from 12 to 15 feet. Distributary natural levee crests usually do not exceed 10 feet in elevation. Most of the remainder of the parish consists of relatively flat swamps and marshes. These closely approximate mean Gulf level and even in inland positions, rarely stand more than three feet above MGL.

A considerable area in the parish lies well below mean Gulf level, but this is not a natural condition. These are former swamp and marsh areas that were ringed with levees and artificially drained to produce habitable land. Dehydration of the sediments has resulted in considerable compaction, in some cases as much as nine feet.⁽⁶⁾

Present Day Components of the Mississippi Delta Complex



Components of the Distributary and Interdistributary Systems



ABANDONED DISTRIBUTARY SYSTEM

INTERDISTRIBUTARY SYSTEM

SOURCE: COASTAL ENVIRONMENTS, INC., ENVIRONMENTAL BASELINE STUDY, ST. BERNARD PARISH, LOUISIANA - 1972

FIGURE 9

Figure 10 indicates the physiography of Orleans Parish as it existed before extensive modification by man (up to about 1750 A.D.) In the intervening years levees and other linear systems such as highways, railways, navigation canals and pipelines have significantly altered the natural systems and conditions. The largest areas remaining significantly unchanged occur in the eastern part of the parish, particularly between Chef Menteur Pass and the Rigolets. These consist primarily of brackish to brackish-saline marshes. The brackish marsh stands only several inches to several feet above mean Gulf level and is interrupted only by the open water of lakes or tidal streams. It is covered predominantly by wiregrass that forms the major vegetative base of the food chain and supports the entire marsh faunal community. Soils of the marsh are highly organic, being built up year after year from dead grasses and other detrital material. That the marshland has been able to sustain itself over thousands of years in the face of regional subsidence and hurricanes is evidence of the natural vitality and maintenance ability of this system.(7)

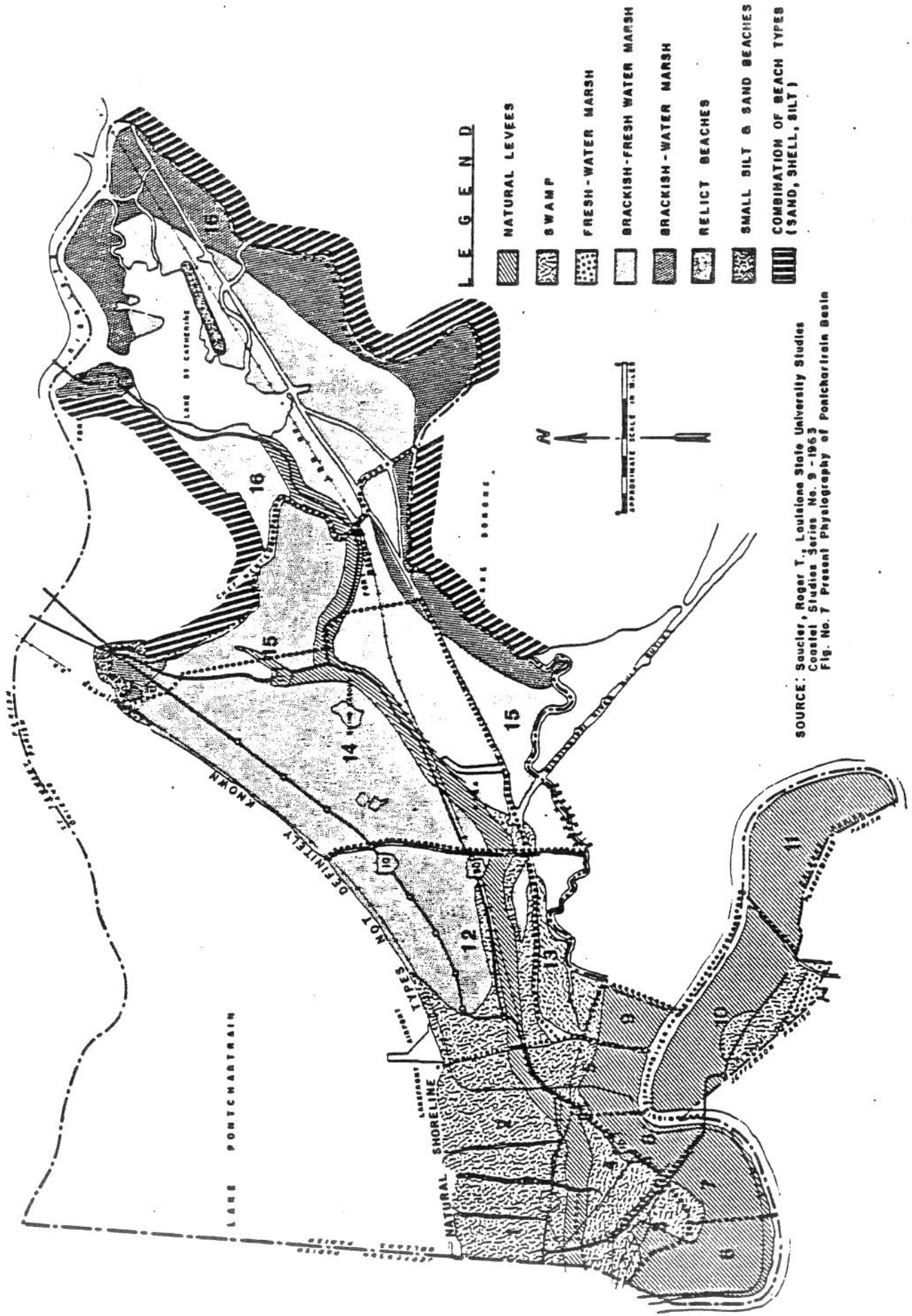
Implications for Planning

The significance of the fault lines running underneath Orleans Parish and all of coastal Louisiana, whether or not they represent a potential danger, has not been determined. The State of Louisiana should undertake steps to determine the significance of these fault lines, their effect on coastal Louisiana, and what actions can be taken, if necessary, to prevent or reduce potential hazards.

The abandonment of the St. Bernard Delta and the leveeing of the Mississippi River have initiated a cycle of deterioration in the abandoned distributary system and the marginal basin. This has had the following effects:

- . New land is not being built
- . Existing land is subjected to subsidence and erosion
- . Regular fresh water input to Lake Pontchartrain from overbank flooding is denied.
- . Average salinity levels in Lake Pontchartrain have varied significantly in the last twenty years.

The parishes surrounding the Lake should agree on a salinity regimen for the Lake, and devise a management program to accomplish that goal. For example, if fresh water and sediment input into the Lake Pontchartrain basin is desired, a program of diverting Mississippi River water, perhaps through the Bonnet Carre Spillway, should be investigated.



SOURCE: Saucier, Roger T., Louisiana State University Studies Coastal Studies Series No. 9 - 1963 Fig. No. 7 Present Physiography of Pontchartrain Basin

PHYSIOGRAPHY OF ORLEANS PARISH

HYDROLOGY

Lake Pontchartrain is a shallow (14 feet average depth) 640 square mile tidal basin bordered on its south side by the New Orleans Metropolitan locale. It is important to note that the lake is only a part of the total interrelated estuarine environmental complex of this southeastern Louisiana coastal area.

The water level in Lake Pontchartrain is subject to variations from direct rainfall, tributary inflow from its 4,446 square mile drainage basin, wind driven water movements, translated movements through many channels and tidal variations originating in the Gulf of Mexico. Likewise, Lake Borgne is subject to water level fluctuations due to wind driven water movements and tidal variations originating in the Gulf of Mexico. Marsh floods result from heavy rainfall which ponds in numerous lakes and inland bays. These floods tend to freshen the brackish and salt-marsh for short periods. Marshes are reverted to a completely saline environment by occasional tidal overflow. The area is protected from major fresh water flooding by mainline levees along the Mississippi River.

The natural channels and tidal passes which allow water exchange in and out of Lake Pontchartrain are the Chef Menteur and Rigolets natural passes. The Mississippi River-Gulf Outlet, and the Gulf Intra-coastal Waterway-Inner Harbor Navigation Canal are man-made channels which convey tidal waters into Lake Pontchartrain. The combination of flows through these channels determine the salinity regimen in the lake. The largest pass, the Rigolets, has an average width of about 2500 feet and a maximum depth of 88 feet. Chef Menteur Pass, although narrower and more sinuous, is deeper.

Drainage from most of Louisiana east of the Mississippi River is accomplished by relatively small streams which flow generally southward into the basin from the uplands on the north. At present the only water from the Mississippi River received by the basin is that discharged occasionally in Lake Pontchartrain through the Bonnet Carre spillway and the Industrial Canal. The alluvial ridges drain downslope into the adjacent marsh or swamplands, which under natural conditions, are under-drained. In the reclaimed areas of the marsh and swamplands, protection levees have been constructed and drainage is accomplished by large pumps that generally discharge into canals that connect with the lakes.

Tides

Under normal conditions, the tide in both Lakes Pontchartrain and Borgne is diurnal. Lakes Pontchartrain and Borgne have a tidal range of approximately six inches and one foot, respectively. The Rigolets and Chef Menteur Pass have developed natural deep and wide channels having adequate capacity of tributary flow; however, the frequent and often appreciable changes in the water level of Lake Pontchartrain are not primarily caused by periodic tidal variations. Nearly all changes are the result of variations in the direction, force and duration of the wind.

During the winter, when the wind is frequently from the north or northwest, lake levels may average one to two feet lower than during the summer. This is the result of a net movement of water from the lakes into the Gulf. Abrupt changes in wind direction, such as those which often accompany the passage of a cold front, may cause a rapid change in Lake level. This effect is evident in winds as low as 5 miles per hour. Easterly winds cause a rise in Mississippi Sound and Lake Borgne, producing an increase in flow of Gulf water entering the passes and a subsequent rise in the lake level. Westerly winds have the reverse effect. A rise or fall of six inches in an hour has been observed on the shore of Lake Pontchartrain on several occasions. Strong winds and heavy rainfall which occasionally accompany conventional thunderstorms normally create localized turbulence but have little effect on overall lake levels.

As a result of frequently changing lake levels, strong and irregular currents often characterize the major passes, particularly the Rigolets. The ordinary maximum velocity in this pass is 0.6 knots but extreme velocities of 3.75 knots have been observed. Observations suggest that a slight counterclockwise circulation may be present in Lake Pontchartrain. However, the currents are affected by the volume of fresh water inflow (estimated to average 5 million acre-feet annually), and tides and storm surges which cause enormous volumes of water to pass in both directions through the Rigolets, Chef Menteur Pass, Lake Borgne, Mississippi Sound, the Inner Harbor Navigational Canal, and the Mississippi River-Gulf Outlet. With so many variables operating on the several elements of the system, the current patterns are continually changing.

Salinity

Ordinary sea water measures 33 to 34 parts per thousand (ppt.) salinity. As an estuarine system, the salinity of Lake Pontchartrain averages less than six ppt., but varies widely with location and season. Lowest salinity occurs in the northwestern portion of the lake during the winter and spring months. Values as low as 1.2 ppt. (following a heavy January rainfall) and as high as 18.6 ppt. (following a September tropical storm) have been observed in the lake.

Salinity data collected at Little Woods indicate that long term fluctuations occur superimposed on short term changes caused by changes in rainfall. The salinity regime at Little Woods was relatively constant during the years 1952-1956 (the mean = 3 ppt. chloride) but changed during 1957 (mean = 2 ppt. chloride) to lower salinities for the period 1958-1961 (mean = 2 ppt. chloride). Another transition occurred in 1962 to higher salinities for the period 1963-1968 (mean = 4 ppt. chloride).

Within the time span of these long term changes, shorter term fluctuations are observed for wet and dry years. During the wet year of 1961 the computed average annual salinity was 1.4 ppt, while the dry year yielded salinities at Little Woods which averaged 6.4 ppt. It

has been suggested that the creation of the Mississippi River-Gulf Outlet has influenced the salinity regime of Lake Pontchartrain by introducing more saline waters into the lake via this channel. However, a 1980 report by the U. S. Corps of Engineers states that a relatively minor percentage of flow enters the lake through the MR-GO in contrast with the natural channels of Chef Menteur and the Rigollets. Lake salinity is also influenced by prevailing wind patterns and levels of rainfall which impact inflow from rivers, streams and bayous.

The salinities in Lake Borgne are generally higher than that of Lake Pontchartrain due to less fresh water flows and closer proximity to the Gulf of Mexico. Average yearly salinity in the wet year (1961) was 2.4 ppt, while in the dry year (1963) salinities averaged 11.1 ppt. These years represent the probable extremes of salinity.

Water Temperature

Water temperature in Lake Pontchartrain and Lake Borgne are moderate and ice is rare. In Lake Pontchartrain average temperatures range from a high of 30 degrees C. in August to a low of 10.5 degrees C. in January. In Lake Borgne, average highs of 32 degrees C. in July and lows of 9 degrees C. in February are recorded.

Rainfall

Precipitation data indicates that average precipitation for the entire state of Louisiana is greater than for any other state. The water balance analysis for the years 1945 through 1968 suggests a quite regularly recurring pattern of deficit and surplus gradients within the state; through time, however, there is somewhat of a "feast" or "famine" schedule of deficits and surpluses. Despite the high rainfall, deficits occur frequently with magnitudes large enough to produce serious ecological and economic consequences. Regularly recurring surpluses are restricted to winter and spring months, but within these seasons there is a very large variation among years. Surplus precipitation is defined as that which is not used for evapotranspiration or soil moisture recharge (e.g: runoff).

The average winter-spring (December through May) surplus for the period 1945-1968 was 18.4 inches, while the average summer-autumn (June through November) surplus was 5.0 inches. In spite of these surpluses, however, an average seasonal precipitation deficit of 3.1 inches is recorded throughout the growing season. Seasonal deficit is the summation of each monthly deficit throughout the growing season from February through November. Excess precipitation (surplus) can be expressed as runoff.

Aquifers(8)

Aquifers, or water-bearing strata, in the New Orleans area occur at subsurface depths of 100, 400, 700, and 1200 feet. The principal aquifer in the area is the 700 foot sand. In 1963 the average daily withdrawal from this sand was 51.2 million gallons and it is estimated that by 1980 withdrawals will reach 90 mgd (million gallons per

day). Water levels in the center of the core of depression resulting from the current withdrawal are about 140 feet below the pre-1900 level and the projected increase in withdrawal rate should cause an additional water level decline of about 100 feet into the 1980's. Salt water intrusion is not deemed serious, provided the current distribution of pumping is maintained. Wells yielding 1000 gpm (gallons per minute) or more can be constructed anywhere within the New Orleans area. In the northern part of the area the "700-foot" sand yields fresh, soft water that is low in iron but has a distinct yellow color. This color, due to organic matter, is not harmful but makes the water undesirable for several uses, including public supply, unless the color is removed by treatment.

Drinking Water

At present nearly all of the drinking water for Orleans Parish is treated Mississippi River water. The New Orleans Sewerage and Water Board operates a 232 MGD (million gallons per day) water purification plant on the East Bank and a 15 MGD plant on the West Bank in Algiers. These plants provide softening, coagulation, filtration and disinfection of the river water.

An EPA study in 1974 reported the presence of small quantities of 66 organic chemicals in the New Orleans drinking water supply. The recently completed report, Comprehensive Environmental Strategy for New Orleans, listed the following information concerning the City's drinking water:

- There are six pollutant parameters of concern in the lower Mississippi (according to the 1980 Corps of Engineers New Orleans-Baton Rouge Metropolitan Area Water Resources Study): fecal coliform, phenols, taste and odor, pesticides, mercury, and carcinogens.
- There are high concentrations of the following industrial pollutants (according to a 1972 U. S. EPA report Industrial Pollution of the Lower Mississippi River in Louisiana): cyanide, phenol, arsenic, lead, cadmium, copper, chromium, mercury, and zinc. The report stated that "industrial waste discharges are contributing significant quantities of hazardous and/or undesirable pollutants to the Mississippi River in Louisiana."
- The drinking water treatment methods presently used to treat surface water cannot remove all impurities, nor can chlorinated organics be totally removed when the disinfectant used is chlorine.
- The City now meets EPA standards of 100 parts per billion for trihalomethanes (THM's).

Due to the existence of a saltwater wedge moving upriver and the possibility of accidental spills or collisions, the Sewerage and Water Board has constructed an additional water intake 1700 feet up-river from the Oak Street intake. This will safeguard the integrity of the

City's water supply by assuring a continuous supply of treatable water to the Carrollton Plant.

Implications for Planning

The abundance of water in Orleans Parish is probably the greatest blessing and potentially greatest hazard to the welfare of the City of New Orleans. Water rushes past in the Mississippi River, moves in and out of the lakes, tidal passes and man-made channels, and falls from the sky at an enormous rate. The management of this resource has important implications for planning.

Salinity in Lake Pontchartrain has fluctuated historically. The respective influence by various factors is not fully understood. The significance of salinity level and salinity changes has been recognized by the Lake Pontchartrain Basin Management Area Committee and the issue is considered a priority item by the Committee in its deliberations over a possible management program.

- . Water from the Mississippi River must not be allowed to overflow its banks and flood developed portions of the metropolitan area.
- . The location of the salt water wedge in the river must be frequently monitored by the State of Louisiana.
- . Spills or accidents in the river must be prevented or minimized, and the capacity to deal with occurrences must be increased.
- . Rainfall which collects inside the levees must be quickly pumped into sea level water bodies.
- . A desirable salinity regime for Lake Pontchartrain should be determined and actions to maintain that regime should be taken.
- . Current flows through the passes and man-made channels should not be altered except in conformance with an overall water quality plan for the lake.
- . Encourage improving the quality of water in the Mississippi River by interagency coordination and cooperation.
- . Reduce the level of halogenated organics in drinking water. This is presently being accomplished by the Sewerage and Water Board through changes in their disinfection procedures (chloramines have been substituted for free chlorine to reduce the level of trihalomethanes in finished drinking water).
- . Support the concept that the cost of additional water treatment should not be met by the consumer, but rather by the industries that discharge pollutants into a major drinking water source.

CLIMATE

New Orleans is subject to the same environmental factors affecting all of Coastal Louisiana. The area is in a subtropical latitude experiencing mild winters and hot humid summers. Prevailing summer winds are southerly and produce conditions favorable to the formation of afternoon thundershowers and sudden squalls. The area is subject to frequent frontal movements during the colder seasons. These frontal movements bring heavy precipitation and sudden temperature changes.

The range of temperature fluctuations can be considered to be moderate. Average summer temperature is 83.1° F; winter average temperature is 56.1° F. Mean annual temperature is 70° F.

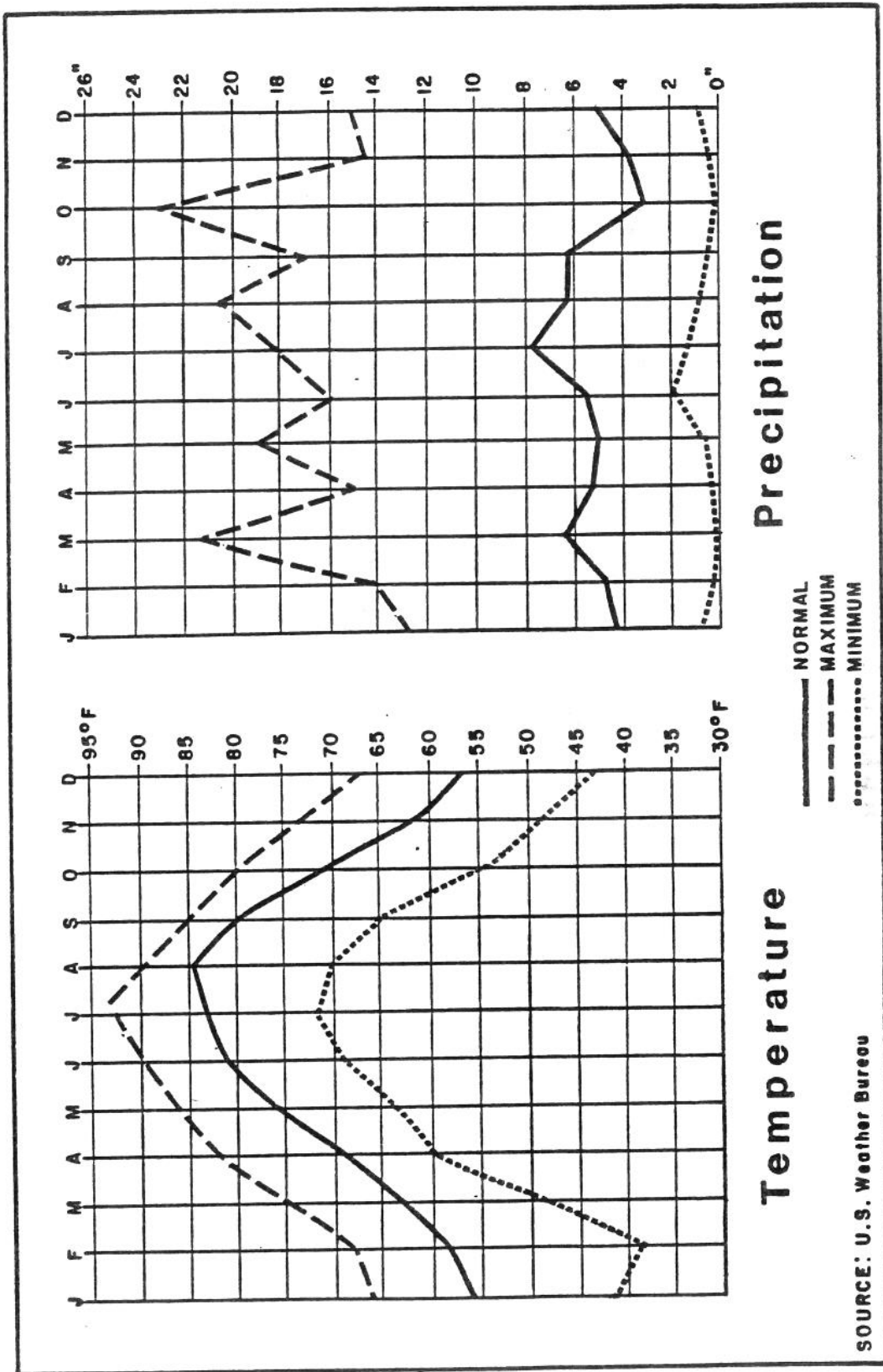
Annual rainfall at New Orleans averages 58 inches (S&WB). Heavy winter rains generally occur from mid-December to mid-March. Sleet and snow are uncommon.

From January through July, prevailing winds are south to southeast, and northeast to east-northeast from September through November. Average wind velocity is 8.6 miles per hour.

Hurricanes

Aside from the usual storms which occur throughout the year, the hurricanes of late summer and early fall are of particular interest because of their severity. Hurricanes are well developed cyclonic storms, usually of tropical origin. Hurricane characteristics are violent winds (greater than 74 miles per hour), tremendous waves and surges, and torrential rainfall. Size and duration vary with each hurricane but generally they extend over thousands of square miles, reach heights of 30,000 feet or more, and last from 9 to 12 days. The winds associated with hurricanes are light to moderate at the outer limits of the storm; at about 30 miles from the center they reach velocities of about 100 miles per hour with gusts as high as 150 miles per hour; and at the center they are relatively calm. This calm area, called the "eye" of the storm, ranges between 7 and 25 miles in diameter. Hurricanes strike the Louisiana coast an average of once every two years.

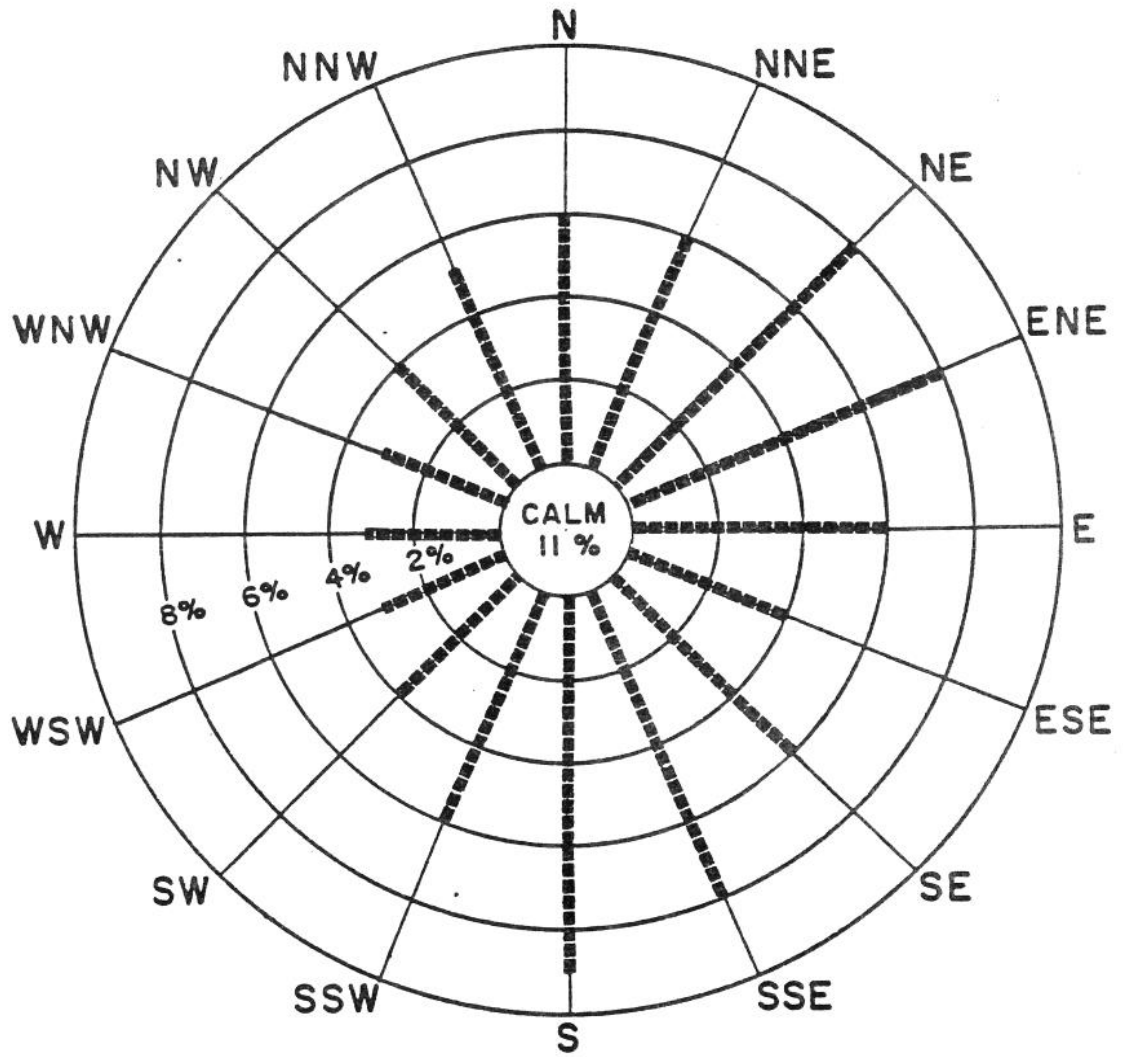
The hurricane storm surge which inundates low coastal lands is the most destructive of the hurricane characteristics. It alone accounts for three-fourths of the lives lost from hurricanes. It is the product of meteorological, beach, and shore conditions. In the initial stage of development, it reaches a height of 3 feet in the open sea from the combined effects of high velocity wind and a lowered barometric pressure (lowest recorded was 26.33 inches). Simultaneously, at shore, the water levels slowly begin to rise. As the hurricane approaches and the surge develops under the influence of a gently rising ocean floor and a favorable or indented shore contour, the shoreline water level rises more rapidly. A higher surge will be produced if the hurricane passes perpendicular to shore, the velocity



SOURCE: U.S. Weather Bureau

FIGURE II

CLIMATE ANALYSIS



MEAN WIND VELOCITY 8.5 m.p.h.
 SOURCE: U.S. Weather Bureau

of forward movement is slow, or the storm's diameter is very large. Maximum storm heights experienced along the Gulf coast range between 10 and 22 feet.

Figure 13 shows the paths of historical hurricanes that have hit the Gulf Coast and Louisiana. Recent hurricanes of interest were "Betsy" in 1965 and "Carla" in 1971. On September 9, "Betsy" crossed the Louisiana coastline near Grand Isle and proceeded inland west of the Mississippi River. It is estimated that the hurricane caused inundation of 4,800 square miles of land in Louisiana, the death of 81 persons, about one-quarter million persons to be evacuated and damages in excess of 350 million dollars.

Implications for Planning

The subtropical climate itself imposes few constraints on human habitation, though houses and buildings should be constructed to take advantage of climatic factors such as sun, wind and rain. The main focus for planning should be concerned with the dramatic conditions which prevail during severe storms and hurricanes.

- . All structures should be constructed to withstand the stresses of hurricane-force winds.
- . Adequate planning for the disposition of torrential rains and localized flooding should be performed.
- . All structures built outside the levee system should be designed to withstand hurricane-force winds and wind-driven water at 100-year flood levels.
- . The levee system which protects the City of New Orleans from hurricane storm surges should be accorded highest priority in all planning decisions.

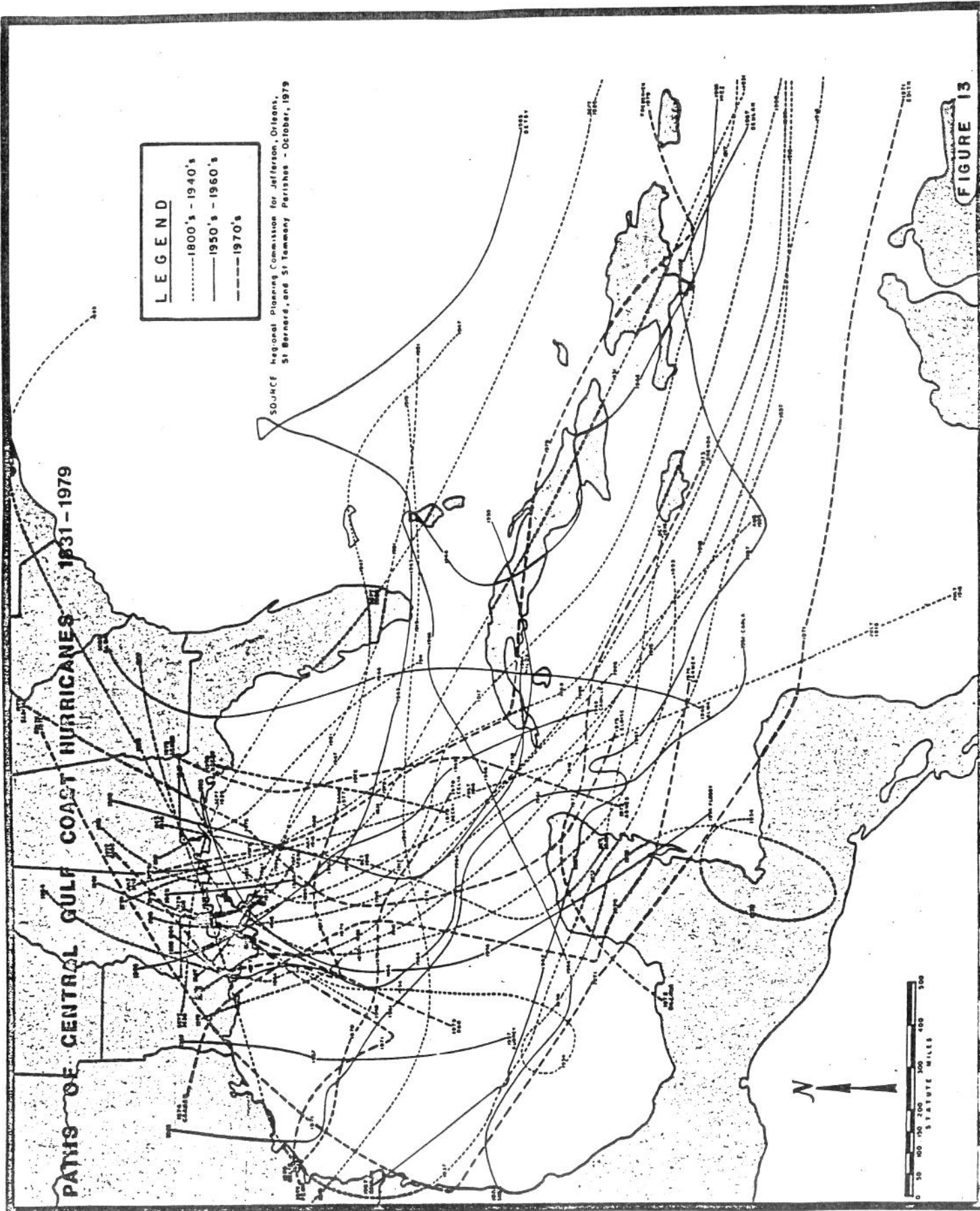


FIGURE 13

BIOLOGY (9)

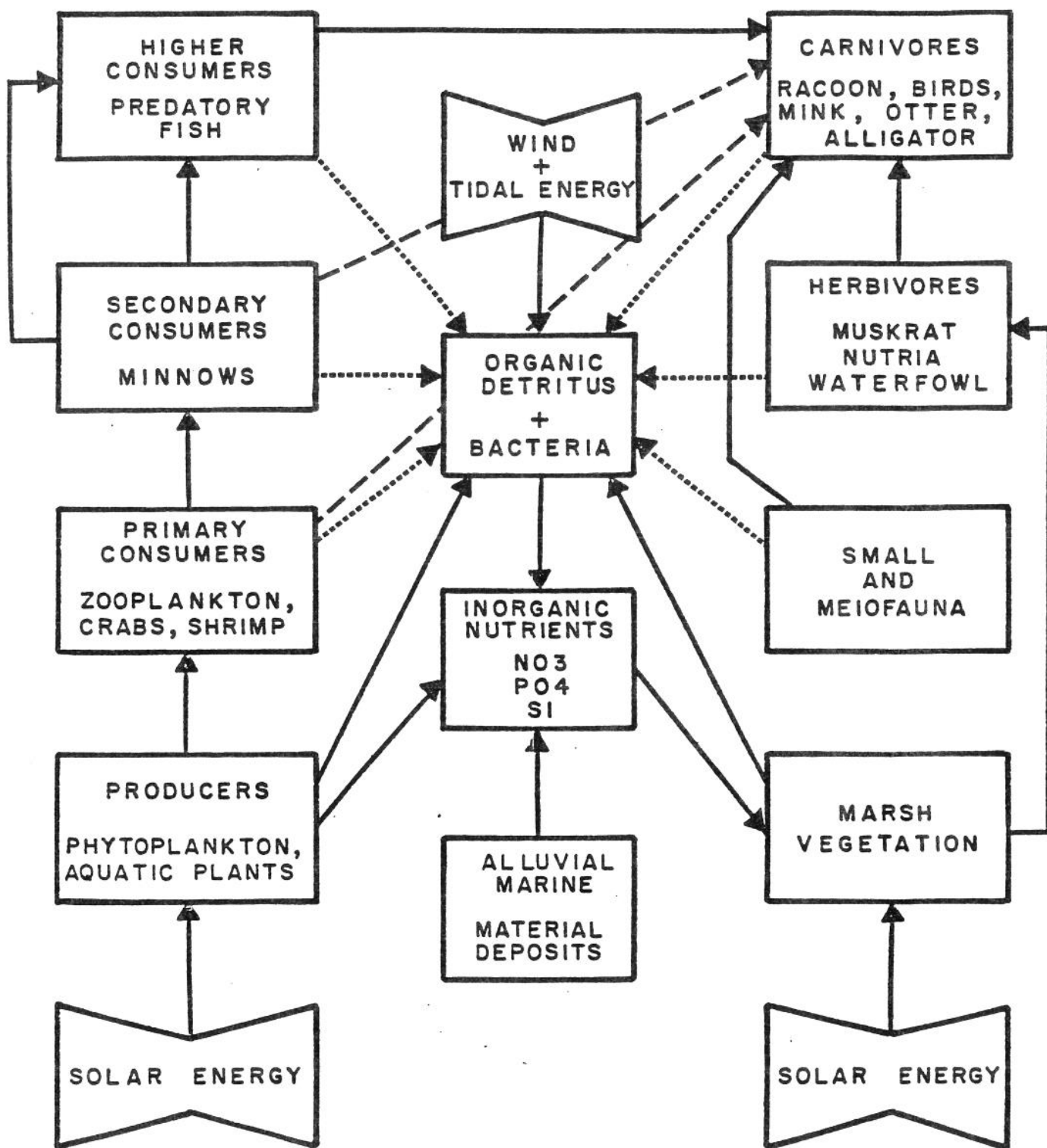
The functioning of the coastal marsh ecosystem is complex and diverse. The ecosystem is maintained by the inter-relationship of a full range of terrestrial and aquatic flora and fauna, and extremely important water exchange processes. The few species considered "valuable" to man for commercial or sports activity represent merely a small minority of life forms in the marsh. They are, for the most part, a select group near the top of the food chain supported by an enormous lower level biomass. The strength of the system lies in its diversity. However, there are key processes, biotic types, food chains, and habitats that ultimately control its health. When these are impaired or destroyed the entire system faces gross reduction of productivity or death.

Of basic importance to the ecosystem are the input of fresh water and sediment through periodic flooding and marine tidal action. Silt laden river water is a prime source of the inorganic nutrients required by plants. Marine tidal action flushes detritus from the marsh into the estuary and provides access to the marsh nursery for crabs, shrimp and fish. The mixture of riverine and marine water establishes the salinity balance necessary for the maintenance of marsh vegetation, the prime source of organic detritus. Detritus is all the particulate organic matter involved in the decomposition of dead plants or animals. Detritus particles themselves, as well as associated bacterial components provide the basis for the estuarine food web.

The organic detritus cycle is the biotic base of the entire marsh. It starts with the photosynthetic conversion of inorganic nutrients into forms of life. One portion of the cycle is essentially aquatic. Dissolved nutrients are photosynthesized into phytoplankton and algae, which are in turn fed upon by copepods, shrimp larvae, and oysters.

The most important portion of detritus cycle, however, is the production of marsh vegetation. Marsh plants contribute far more vegetative material than is normally consumed by the herbivores and are the single most important source of organic detritus. Both portions of this cycle are kept viable by riverine input and tidal action.

Marsh vegetation is eaten and returned to the system as respiratory loss and feces; at death it is decomposed and converted to other life forms. Bacteria convert cellulose and carbohydrates to concentrated protein. Some detritus is consumed in the marsh, but much is flushed into adjacent water by tidal action. There detritus feeding organisms, including shrimp and oysters, crabs, and zooplankton, are able to make use of the partially decayed matter. The secondary consumers, such as sea trout, drum, redfish, and killifish are dependent upon the detritus-feeding organisms. The carnivores, alligators, mink, otter and raccoons, rely upon aquatic life and herbivores for their survival.



SOURCE: PONTCHARTRAIN - NEW TOWN-IN-TOWN, 1972
 MODIFIED FROM A.W. PALMISANO

MARSH - ESTUARY FUNCTIONAL RELATIONSHIPS

All trophic or food-chain levels contribute to organic detritus and nutrient cycling through production of feces and excreta and eventual death. Thus a combination of physical factors such as tidal exchange, riverine input of nutrients, climate, and the recycling of materials by the biotic system serve to maintain the productivity and stability of the marsh-estuarine system. When tidal effects and river input are stopped, as in levee-building movement of both detritus and inorganic nutrients are greatly curtailed with a subsequent lowering of biomass and productivity.

Using categories established by the U.S. Fish and Wildlife Service, vegetative habitats are distributed as follows in Orleans Parish (figures in acres; rounded to nearest 500th acre):

ESTUARINE*			LACUSTRINE*		PALUSTRINE*		RIVERINE*	UPLAND*		
Open Water	Emergent Vegetation	Scrub Shrub	Open Water	Open Water	Emergent Vegetation	Forested	Open Water	Developed	Forested	Scrub Shrub
104,500	43,000	0	500	<500	1,500	8000	4000	48,000	1000	2000

* A further discussion and definition of vegetative types can be found in the appendix of this document. Also, Ecological Habitat Characterization Maps for Orleans Parish are repositied in the office of the City Planning Commission.

Vegetation (10)

Vegetation types in the Parish closely parallel natural topography and physiography and in recent years have reflected the man-made alterations to the natural system. Major vegetative types in the Parish include natural levees, fresh swamp, intermediate, brackish and saline marsh, modified wetlands and spoil areas seeking higher elevations.

Natural Levees

The most distinctive physiographic features of the Parish are the natural levee systems which follow the paths of the Mississippi River, Metairie Bayou and Bayou Sauvage. The highest elevations are found along the Mississippi River. These areas of higher elevation and drainage were the first to be inhabited and modified for man's use, but under natural conditions would support a diverse vegetative community dominated by live oak. Other trees found in these areas include hickory, pecan, sweetgum, magnolia, sweet bay, American elm, hackberry and cottonwood. The principal value of the natural levees to the wetlands is in the diversity of habitat which they provide. They support a greater variety of plant species than any other vegetative type and also contribute to diversity by the occurrence of

occasional upland species. They provide nesting areas and cover for many types of animals.

Since these areas provide the most suitable terrain for habitation in the Parish, nearly all have been converted to urban uses. Even in those areas of the Parish that would be considered undeveloped or sparsely developed, the natural levees have been claimed for residential or recreational uses or for transportation corridors, particularly along Bayou Sauvage and Bayou de Lassaire. U.S. Highway 90 essentially follows the path of these abandoned distributaries. The natural levee forests remain in areas which are less accessible for development, such as the north bank of Bayou Sauvage near Chef Menteur Pass.

Fresh Swamps

A swamp may be defined as wetland dominated by woody vegetation which is periodically or permanently inundated. Fresh swamps usually occur adjacent to the natural levee system. They are formed through the natural processes associated with a river delta. With overflow from the river, sediment is deposited on the bank slope of the levee. Eventually, a lowland area with soil conditions stable enough for the establishment of plants is formed. Annual floods and/or rainfall runoff maintain the area as permanently or seasonally flooded with fresh water. The plants in this zone must therefore be tolerant of inundation.

In New Orleans most of the fresh swamp has been drained and converted to urban uses; however, isolated and sporadic areas of fresh swamp still exist in certain locations in eastern New Orleans, particularly adjacent to the Bayou Sauvage natural levee. All of these areas are inside the Parish levee system but have not yet been drained. There are no significant fresh swamp areas outside the levee system. Historically, the fresh swamps were dominated by bald cypress and tupelogram.

Fresh Marsh

Fresh marshes are usually completely isolated from salt water influences; upland drainage, rain, riverine overflow and backwater flooding are the source of water and nutrients. Soil characteristics and the depth of continuously standing water determine the forms of plants that predominate; stands of vegetation, in turn, control the abundance of wildlife species.

The numerous varieties of plants in fresh marshes, like those of delta marshes, are found in zones which are defined by water depths. Floating plants such as waterlilies and duckweed dominate in waters deeper than 2 meters; pondweeds, milfoils and coontails are characteristic submergent plants found in water between 1 and 2 meters deep; similar water depths may support tall emergents such as cattails and common reed. Maidencane, arrowhead, and paspalum are common in shallow water and swales.

Fresh marshes in Orleans Parish frequently existed as narrow bands separating brackish marshes from the natural levees; however, the leveeing of large areas of brackish marsh, separating it from tidal influences, is causing the brackish marsh to take on a distinctly fresh character. The succession from brackish to fresh water marsh is currently taking place in large areas of eastern New Orleans inside the levee system. Outside the levees, the predominant marsh type is brackish, with patches of fresh marsh occurring infrequently, if at all.

Intermediate Marsh

Intermediate marsh, like fresh marsh, normally occupies a transitional zone between the natural levees and the brackish marsh. The vegetation that predominates in areas of intermediate marsh is wiregrass, deer pea, bulltongue, wild millet, bullwhip and sawgrass. Due to extensive leveeing activity in east New Orleans, many areas of formerly brackish marsh are undergoing transition to fresh marsh. During this succession, species usually associated with fresh marsh begin to appear in formerly brackish marsh areas as the salt content of the soil water diminishes. The competition between fresh and brackish marsh species creates the condition identified as intermediate marsh.

Brackish Marsh

A brackish marsh usually occurs as a transition between saline and fresh conditions. In its simplest form this delicate balance occurs during storm tide when saline water adds suspended sediment to the marsh, replenishing nutrient supply. The process rejuvenates vegetation and fauna making it one of the most productive fishery and wildlife habitats in the nation (Palmisano, 1970). Because the brackish marsh is exposed to salt water on an irregular basis, fresh water is an important regulating factor. Large proportions of fresh water tend to favor broadleafed aquatic and semiaquatic plant species: rushes, sedges, and cattails. More saline conditions favor cordgrass, salt-grass, glassworts and sea oxeye (see Table 3 for scientific names).

Dominant plant species in brackish marshes include salt-meadow cordgrass and saltgrass. Lower, wetter regions of the marsh contain sedges, rushes, and canes. Elevated areas may harbor growths of shrubs and woody vegetation such as groundsel bush, myrtle, and willow.

Nearly all of the marshes in Orleans Parish, outside the levees, are brackish marshes.

Saline Marshes

The daily tide is the prime regulating factor in the salt marsh. Rising tides renew the supply of water, nutrients, and dissolved salts. Falling tides remove these materials, along with dead vegetation. Sediment may be moved in either direction by the forces of moving water.

TABLE 3
VEGETATION OF ORLEANS PARISH

Common Name	Scientific Name	Common Name	Scientific Name
Natural Levees			
** Live oak	<i>Quercus virginiana</i>	** Wiregrass	<i>Spartina patens</i>
Hickory	<i>Carya</i> spp.	Saltgrass	<i>Distichlis spicata</i>
Pecan	<i>Carya illinoensis</i>	Oystergrass	<i>Spartina alterniflora</i>
Sweetgum	<i>Liquidambar styraciflua</i>	Three-cornered grass	<i>Scirpus olneyi</i>
Magnolia	<i>Magnolia grandiflora</i>	Dwarf spikerush	<i>Eleocharis parvula</i>
Sweet bay	<i>Magnolia virginiana</i>	Black rush	<i>Juncus roemerianus</i>
American elm	<i>Ulmus americana</i>	Widgeongrass	<i>Ruppia maritimus</i>
Hackberry	<i>Celtis laevigata</i>	Coco	<i>Scirpus maritimus</i> (=S. robustus)
Cottonwood	<i>Populus deltoides</i>		
Water oak	<i>Quercus nigra</i>		
Sycamore	<i>Platanus occidentalis</i>	Saline Marsh	
Willow	<i>Salix</i> spp.		
Dwarf palmetto	<i>Sabal minor</i>	** Oystergrass	<i>Spartina alterniflora</i>
Blackberry	<i>Rubus</i> spp.	Saltgrass	<i>Distichlis spicata</i>
Hawthorn	<i>Crataegus</i> spp.	Black rush	<i>Juncus roemerianus</i>
Deciduous holly	<i>Illex decidua</i>	Wiregrass	<i>Spartina patens</i>
Wax myrtle	<i>Myrica cerifera</i>	Saltwort	<i>Batis maritima</i>
Switch cane	<i>Arundinaria tecta</i>		
Bermuda grass	<i>Cynodon dactylon</i>	Spoil Areas	
Fresh Marsh			
Maiden cane	<i>Panicum hemitomon</i>	Willow	<i>Salix</i> spp.
Pennywort	<i>Hydrocotyl</i> sp.	Buckbrush	<i>Baccharis halimifolia</i>
Pickrelweed	<i>Pontederia cordata</i>	Wax myrtle	<i>Myrica cerifera</i>
Alligator weed	<i>Alternanthera philoxeroides</i>	Goldenrod	<i>Solidago</i> spp.
Bulltongue	<i>Sagittaria</i> sp.	Roseau	<i>Phragmites communis</i>
Water hyacinth	<i>Eichhornia crassipes</i>	Wiregrass	<i>Spartina patens</i>
** Dominant species			
Sources:	Burk and Associates, Inc., field survey, 1977	Hoese and Valentine, 1972	
	Chabrek, 1972	U.S. Army Corps of Engineers,	
	Coastal Environments, 1972, 1977	1974	

Salt marshes from the Texas to the New England coasts are dominated by smooth cordgrass. The most common associates, usually found on higher ground, include black rush, saltwort, glasswort, saltgrass, and shoregrass. The cordgrass is characteristically encrusted with algae and diatoms.

In Orleans Parish salt marshes exist as a narrow band bordering Lake Borgne and the Rigolets.

Fisheries⁽¹¹⁾

Lakes Pontchartrain and Maurepas account for about 9% of Louisiana's crab harvest and 0.13% and 0.10%, respectively, of the state's shrimp and fish harvest. These represent relatively modest contributions; however, the nursery potential of Lakes Pontchartrain and Maurepas amounts to about a half million acres, or about 30% of Hydrologic Unit I and about 15% of the state's total.

The blue crab, Callinectes sapidus, dominates the commercial fishery of Lake Pontchartrain. During the 13-year period of 1963-1975, the blue crab accounted for, on the average, 67% of the value and 79% of the volume of Lake Pontchartrain's catch. Yearly harvest varies between 45% and 96% of total catch.

Shrimp and fishes account for, on the average, 19% and 14%, respectively, of the value and 10% each of the volume of the lake's catch. The shrimp fishery in Lake Pontchartrain is made up predominantly of two species, Penaeus aztecus (brown shrimp) and P. setiferus (white shrimp). During a twelve month study in 1978, 85 species and 80,000 specimens of fish were collected in the lake and surrounding marsh. Four species were dominant: Anchoa mitchilli (bay anchovy), Micropogonias undulatus (Atlantic croaker), Brevoortia patronus (Gulf menhaden), and Menidia beryllina (tidewater silverside). The fish fauna of Lake Pontchartrain is considered very transient with only half of the lake species being year round residents.

Wildlife

The historic populations of wildlife in Orleans Parish have largely been displaced by urban development. Only those areas yet to be developed sustain a varied fauna. These areas include some natural levees and backswamps, fresh water marshes, brackish marshes, and salt marshes. Each area has a characteristic fauna.

Natural Levees and Backswamps

Natural levees support a wide range of upland wildlife. Rabbits, mice and squirrels are particularly abundant. Formerly the levees also provided habitat for bear and mountain lions. The backswamps further provide habitat for a wide range of amphibians and aquatic life forms as well as nutria, muskrats and raccoons. Although the whole area supports numerous snakes, the natural levees and backswamps provide the most opportune habitat. The natural levees and backswamps also provide the only nesting sites for birds which have nests above ground.

Fresh Water Marshes

Crayfish, turtles, bass, catfish, and sunfish are common. Larger consumers which prey upon these water dwellers include raccoons, opossums, muskrats, mink, nutria, waterfowl, and alligators. Many species of geese and ducks utilize the dense vegetation during migrations. Other common birds are red-winged blackbirds, sparrows, rails, egrets, and herons.

Brackish Marshes

Small fish and turtles inhabit ponds in the brackish marsh, feeding primarily upon plant material and small animals. Consumers include insects, waterfowl, raccoons, opossums, muskrats, nutria, and alligators. Typical birds are the marsh red-winged blackbirds, bitterns, rails, herons and egrets.

Salt Marshes

Seasonal cycles in salt marsh animals are common. Salt water and estuarine species migrate into and out of the marsh with the daily tides. Killifish, mullet, spot, croaker, crab, shrimp, and other small fish and crustaceans feed on the abundant dead plant debris and minute living plants. Larger fish include sea trout, flounder, drum and menhaden. Wading and shore birds (herons, egrets, sandpipers) feed voraciously on these abundant aquatic forms. Furbearers commonly found in salt marshes are the nutria and raccoon.

Mosquitos

Most New Orleanians are familiar with the irritating presence of mosquitos in Orleans Parish and can describe vividly the family outings that were ruined by this pest. Many may not be aware, however, of the serious economic and health hazards created by mosquitos. Stockmen in coastal parishes have repeatedly lost half their calf crops and many full-grown cattle due to insect bites in mosquito plague years such as 1955, 1962 and 1963. In the past century diseases such as malaria, yellow fever and dengue, all transmitted by mosquitos, nearly destroyed the City. In 1853, a yellow fever epidemic claimed a third of the City's population; whole families were victims. All means of prevention were attempted, but it was not then known that the mosquitos carried the disease. Though a treatment for yellow fever has been found, other mosquito-borne diseases are still with us, most notably encephalomyelitis. In 1980, eleven cases of this disease in humans were reported in the City, all of them in the Lower Ninth Ward. Also in 1980, two cases of Denque fever were recorded in travelers returning to New Orleans. The high density of Aedes aegypti in the City makes the possibility of this disease coming into the City a real threat.

The main problem mosquito in Orleans Parish is Aedes sollicitans. This salt marsh species constitutes the greatest mosquito problem in all the coastal parishes from Orleans to Cameron. Its eggs are laid on moist ground, largely in the edges of salt and brackish marshes,

and are hatched following rains or high tides. When conditions are right, adults can fly as far as 50 miles.

Two other important species, Aedes aegypti and Culex quinquefasciatus are known as container-breeders, breeding in abandoned tires, jars and other pools of standing water. These two domestic species are important because they can transmit Denque fever and Encephalitis, respectively.

In 1964, New Orleans initiated a mosquito control program that has been very successful. Besides the important monitoring and educational aspects of this program, the focus has been on eliminating areas and conditions conducive to the breeding of mosquitos as well as destroying adult populations by spraying. A dragline is utilized to dig ditches to drain fields and marshes and prevent the periodic fluctuation of water levels conducive to breeding. Spraying is conducted both by trucks and aircraft.

Implications for Planning

Since coastal marsh ecosystems are so complex and diverse, it is of vital importance that important, interrelated processes are maintained.

- . Input of fresh water and sediment should be maintained and improved wherever possible.
- . The production of marsh vegetation should be maintained and enhanced if possible.
- . When wetlands are modified for development purposes, care should be taken to revegetate with species suited to the new environment.
- . Obstructions to marine tidal flow in marshes should be avoided if at all possible.
- . Wildlife that is displaced by urban development should be relocated to appropriate habitat.
- . Development plans should include adequate open space and retention of trees wherever possible to provide habitat for nesting birds.
- . The Mosquito Control Program is vital to the health and welfare of the citizens of New Orleans and continuation of its operations in all aspects is encouraged.

SOILS

The New Orleans area consists of both organic and mineral soils with a wide range of characteristics that affects their use for urban purposes. Flooding, wetness, subsidence and unstable material to support foundations are problems with which planners and developers must cope. The mineral soils range from loamy soils above flooding elevations that have good bearing strength to semifluid clayey soils near sea level. The organic soils, at sea level elevations and below, vary greatly in thickness of organic materials and substratum consistency.

Soil associations typically follow the physiographical and topographic characteristics of the area. In Orleans Parish this consists of three distinct areas: (1) natural levees, (2) swamps, and (3) marshes. Furthermore, man-made features such as leveeing and draining add further distinctions to the soil types. Figure 15 shows the relationship of soils to land form, vegetation and parent material.

The following is a brief description of the soil groups and associations shown in Figure 16. These groups were the result of the general soil survey performed by the Soil Conservation Service in 1970. A detailed soil survey for Orleans Parish is scheduled to be completed in the near future.

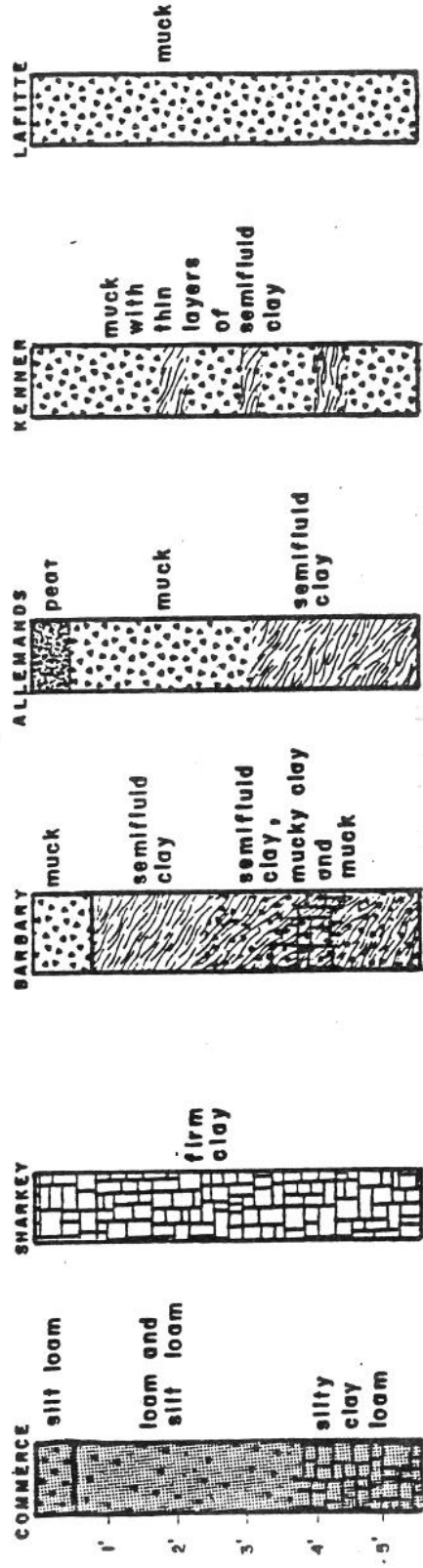
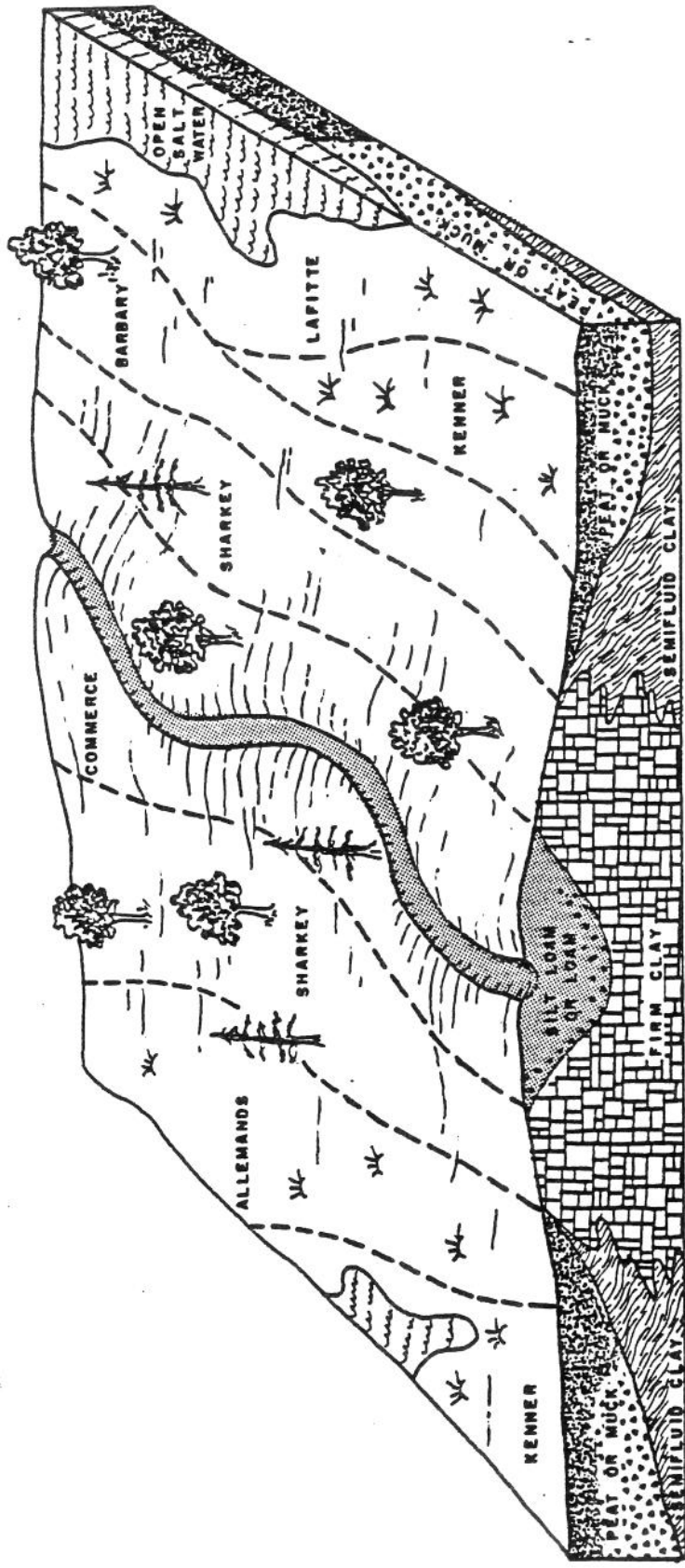
Note: use of the word "protected" means areas protected by levees with pumpoff drainage. The word "unprotected" refers to areas, leveed or not, without pumping capacity.

1. COMMERCE-SHARKEY ASSOCIATION - Nearly level loamy and clayey soils.

This is an area of nearly level, alkaline soils of the natural levees of the Mississippi River and its distributaries. Most of the land is in urban or industrial uses. The somewhat poorly drained Commerce soils at the higher elevations make up about 50 percent of the association. They have a dark grayish-brown silty loam or silty clay loam surface and a grayish-brown silty loam subsoil. The poorly drained Sharkey soils in the depressions and at lower elevations make up about 30 percent of the association. They have a very dark grayish-brown clay surface and a gray clay subsoil. Vacherie, Convent and Tunica soils make up most of the remaining 20 percent of the association.

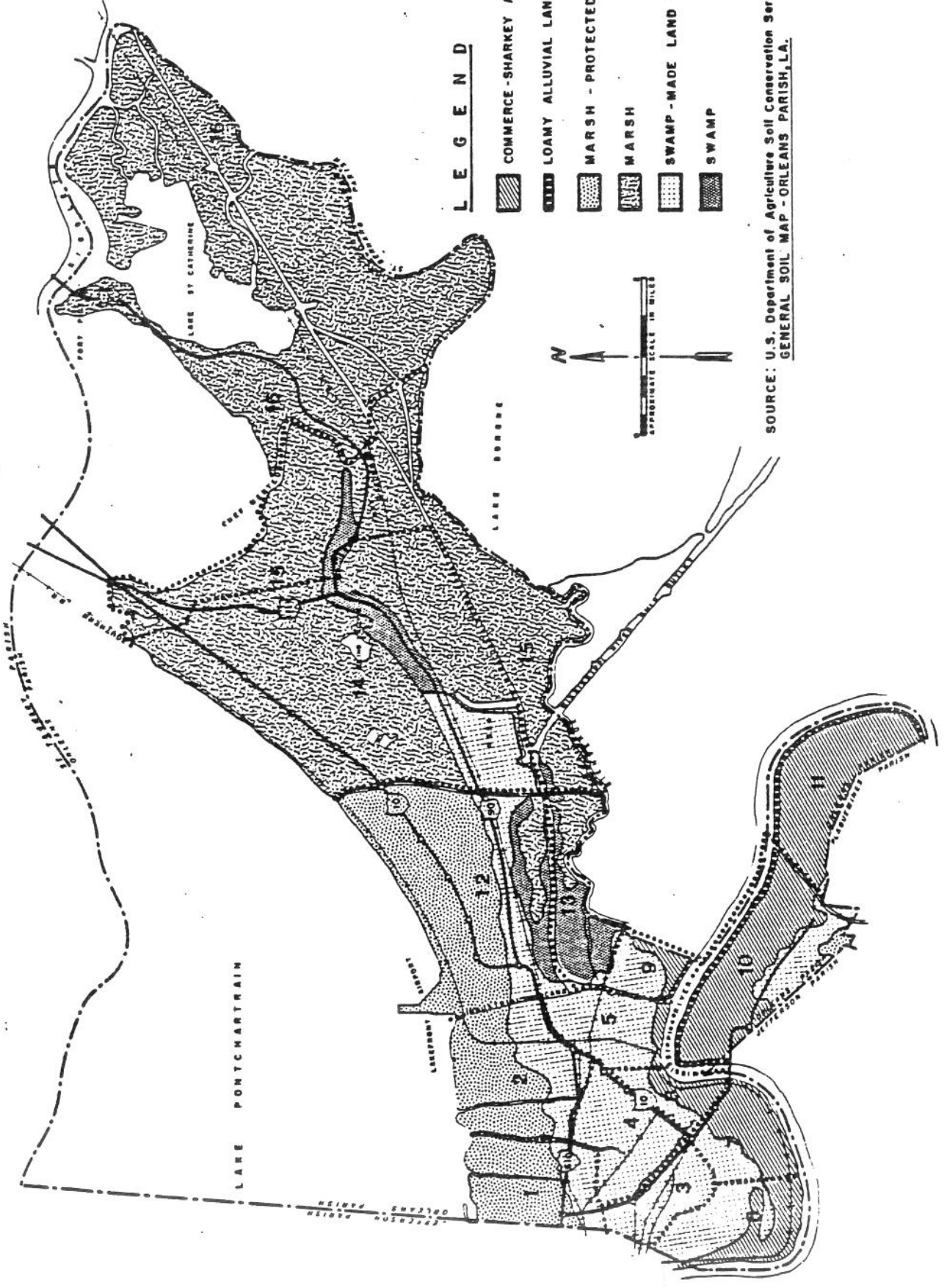
2. LOAMY ALLUVIAL LAND - Loamy floodplain lands.

This is an area of nearly level, alkaline, floodplain land between the Mississippi River and the protection levees, commonly referred to as the batture. The land is subject to frequent flooding, scouring and deposition from flood waters of the Mississippi River. Most of the acreage is covered with dense stands of willows. Harbor facilities and other marine type installations take up a small part of the area. Most of this land consists of stratified grayish-brown silt loam, very fine and fine sandy loam materials.



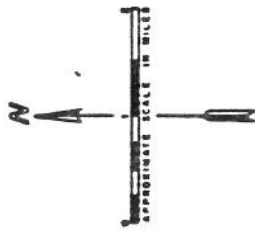
SOURCE: REGIONAL PLANNING COMMISSION - 1970

Schematic Relationship of Soils to Land Form, Vegetation, and Parent Material



L E G E N D

-  COMMERCE-SHARKEY ASSOCIATION
-  LOAMY ALLUVIAL LAND
-  MARSH - PROTECTED
-  MARSH
-  SWAMP-MADE LAND ASSOCIATION
-  SWAMP



SOURCE: U.S. Department of Agriculture Soil Conservation Service
 GENERAL SOIL MAP - ORLEANS PARISH, LA. July, 1970

GENERAL SOIL MAP - ORLEANS PARISH, LOUISIANA

3. MARSH - Protected organic and mineral marshland.

This is an area of protected fresh marshland mostly adjacent to Lake Pontchartrain in the northwestern part of the parish. Most of the acreage is, or is being developed for urban or industrial use. This land occurs mostly at low elevations and is leveed and drained by pumps.

About 70 percent of this association consists of organic material more than several feet thick that is underlain by a slightly firm gray clay. Some of this area is covered with loamy fill material. Marsh lands unprotected, drained swamp lands and "made lands" make up most of the remaining 30 percent of the association. Made lands are leveed and drained areas of former wetlands that have been filled to make them developable.

4. MARSH - Mineral and organic marsh land.

This is an area of moderately saline to salt water marsh land that makes up most of the eastern part of the parish. Most of the area is unprotected from flooding. Most of the land is too unstable for livestock grazing and is left as wildlife habitat. This land is near sea level and the water table is at or above the surface most of the time. It is frequently flooded by saline tide waters. Most of the land consists of organic layers of various thicknesses, underlain by slightly firm to dispersed gray clays. A moderate part of the area is underlain, but mostly at depths of several feet, by fine sands. Made lands and brackish swamp land make up a minor part of the association.

5. SWAMP-MADE LAND ASSOCIATION - Protected swamp land and made land.

This is an area of organic and clayey swamp land that is protected by levees and drained by pumps. A large part of the area is covered with loamy fill material. Most of the land is in urban or industrial uses. The very poorly drained swamp lands make up about 45 percent of the association. They have an organic or gray clayey surface underlain by a firm gray clay subsoil generally interspersed with an organic strata. The "somewhat poorly" to "poorly" drained made lands comprise about 30 percent of the association. They consist of about 3 feet of grayish-brown loamy materials over clayey and organic swamp lands. Sharkey soils, drained marsh lands and lands unprotected from flooding constitute most of the remaining 25 percent of the association.

6. SWAMP - Mineral and organic swamp land.

This is an area of swamp land in the central part of the parish. Most of this area is in woodland or brush and acts as wildlife habitat. This land occurs at low elevations and is flooded some of the time. About 40 percent of the area has a 4 to 15 inch organic surface underlain by a soft gray clay interspersed with an organic strata.

About 35 percent of the area has an organic surface more than 39 inches in thickness and is underlain by soft or dispersed gray clays. Marsh land and small areas that are protected by levees and drainage pumps make up most of the remaining 25 percent of the association.

Implications for Planning

Poorly drained soils and soils with high organic content have historically posed a constraint to development in New Orleans; however, technology can overcome most of these constraints. The most commonly occurring problem is the settlement of structures after they are built or the subsidence of land away from secured structures.

- . Expedite compaction process/or minimize subsidence in new subdivisions in former wetlands.
- . Innovative engineering design should be used to minimize problems associated with subsidence.
- . The Building Code should be reviewed and possible amended to incorporate techniques to minimize subsidence-related problems.
- . Property owners should be advised of soil conditions in their area as a condition of purchasing.

RESOURCES

Major resources attributable to the geologic and physiographic conditions of Orleans Parish can be categorized as either renewable or non-renewable.

Renewable Resources

Renewable resources are those that replenish themselves through natural processes. They can be further grouped into those that can be harvested for economic gain, such as fish, shrimp and crabs, and those that provide beneficial capacities to man but are not easily exploited, i.e.: flood protection and water purification functions. Major economic activities related to renewable resource use include commercial fishing, seafood processing, trapping, recreational hunting and sport fishing.

Fishing is the area's oldest industry and continues to be a vital factor in the regional economy and culture. Commercial landings in Louisiana in 1976 totaled nearly 1.25 billion pounds and amounted to almost one-fourth of all the fish caught by United States fishermen that year (LCRP, DEIS, 1979). Dockside value of the 1976 catch was over \$135 million. Four of the top six commercial fishing ports in the United States, in terms of total fish weight, were located along the Louisiana coast.

At a federal hearing on proposed development projects, Dr. John Day (1974), testified that the Lake Maurepas-Pontchartrain-Catherine-Borgne estuary accounts for 25 percent of Louisiana's total annual fisheries catch of 1.2 billion pounds. He further stated, "more than one-half of the food the fish and shellfish live on is derived from organic material released by wetlands fringing the lake." The eastern section of the state containing the Maurepas-Pontchartrain-Borgne estuary system accounted for 35% of the total shellfish landings in the state in 1977 and had a dollar value of over 32 million dollars. Over 5.5 million pounds of fish were landed in this region and were valued at 1.7 million dollars (Day, 1974). Gosselink, Odum, and Pope (1973) in a study of marshes estimated that seafood processing increases the dockside value of fisheries by 75% (Mumphrey, et al, 1975). This would place the aggregate value of the eastern section estuary system at \$58,975,000. The National Marine Fisheries Service points out that while the documented seafood landings (total fishes caught, including crabs, shrimp, menhaden, oysters, etc.) are not within the confines of Orleans Parish, the life cycle of the sea animals depends upon the interrelationship of the waters within and surrounding Orleans Parish.

The economic impact of recreational hunting and fishing in a state which calls itself "Sportman's Paradise" cannot be overlooked. The State Parks and Recreational Commission (1974) projected high-quarter (the three-month portion of the year in which the activity is most pursued) hunting and fishing participation in excess of 18 million user-days in Jefferson, Orleans, and St. Bernard Parishes. Of that

total roughly 11.5 million high-quarter user-days were projected for fishing (saltwater and freshwater) and shell-fishing (crawfishing and crabbing); and roughly 7 million high-quarter user-days were projected for hunting (big game, small game and waterfowl). Obviously, the economic ramifications--including expenditures for equipment, supplies, transportation and so forth--are extensive and sizeable enough to qualify recreational hunting and fishing as a major economic activity in the Orleans Parish area.

Another basic industry of Lake Pontchartrain is shell dredging. Hundreds of pounds of predominantly fossilized Rangia cuneata clams are taken from the lake each year. In a report by Johnnie W. Tarver (1972), it is estimated that the clam industry has a value of \$40 million dollars. Partial cost breakdown shows \$18.7 million worth of equipment, \$4.0 million payroll to 510 employees who live in parishes surrounding the lake; \$10.1 million in purchased services; \$2.0 million in taxes. While the bulk of the industry depends on fossilized shells, and the industry in today's form has a limited future, replenishment is important to prolong what is presently an important contribution to the area's economy. Replenishment depends on major disturbances not occurring in the clam's environment.

In addition to the exploitive resources, the wetlands in eastern Orleans Parish provide capacities which are beneficial to man, such as the assimilative capacity to absorb pollutants and the function of buffer zones against tropical storms.

The wetlands can assimilate much more than they are currently handling in the form of nutrients. Studies have shown, for example, that water hyacinths, considered a severe plant pest, can concentrate heavy metals (such as mercury) and remove them from the water (Day, 1975). Because of the marsh's high capacity for assimilation, pollutants dumped into the coastal waters can be filtered substantially before they enter the lower estuarine waters.

Another function of wetlands, especially for New Orleans, is to act as a buffer against storms. When a hurricane crosses a marsh, friction slows down the waves and winds to some extent, so that the protective levees take less of a pounding from the elements. This is in addition to the storage of water from tidal surges associated with hurricanes.

Non-Renewable Resources

The most significant non-renewable resources in Orleans Parish are oil and gas. The mining industry in the New Orleans area has grown in recent years as a result of increased offshore drilling activity off the coast of Louisiana. The industry has largely been a mainstay of the CBD office market, yet, in recent years, an increasing number of permits have been sought to drill in Orleans Parish inland waters. Most of this activity has been located in Lake Pontchartrain, Lake St. Catherine or the wetlands adjacent to them. While the extent of oil and gas reserves in the lake is not yet ascertained, it can be anticipated that drilling and exploration will continue to expand in this area.

At this writing, there are 25 producing wells in Orleans Parish, all in the eastern part of the Parish. They are all gas wells and are generally deeper than 16,000 feet. Approximately 20 are in the marshes adjacent to Lake St. Catherine, near Unknown Pass. Four producers are in the Rigolets near the entrance to Lake Borgne and one is in the vicinity of Fort Pike. See Figure 17.

Cultural Resources (Submitted by Dr. Richard Shenkel, University of New Orleans, 1978)

The archaeological resource base of Orleans Parish is both broad and important. It contains a record of human occupation from about 5,000 to 6,000 B.C. to the present with archaeological sites ranging from small Indian encampments to the whole of historic New Orleans. Serious archaeological research has been undertaken in the parish intermittently since the 1930's. Much of the earlier work involved reconnaissance with some excavation in an attempt to inventory and catalogue the prehistoric Indian occupation. The search for sites was not particularly systematic and tended to be concentrated in areas of relatively easy access, especially along the shores of Lake Pontchartrain. More recent work has involved the excavation of certain sites, both historic and prehistoric, in an effort to more fully understand the archaeological past.

It is certain that the full range of archaeological resources of the parish is not yet known. The parish has never been rigorously surveyed and tested for the presence of sites in all areas. Further, given the geomorphic character of the parish, with alternating periods of sedimentation and subsidence, many sites are undoubtedly buried beneath current land surfaces. These sites will only be discovered during subsurface construction activity.

The most common archaeological sites in coastal Louisiana are middens, which are concentrations of various kinds of refuse built up over a period of years and represent the collected garbage of the prehistoric occupants of the site. For most of the periods in Louisiana prehistory middens represent habitation sites. They often contain burials that may or may not have attendant grave goods. In Southeastern Louisiana, two molluscan species were heavily exploited

and their shells are the predominant constituent in the composition of local middens. These are the oyster and the brackish water clam, Rangia cuneata. Oysters were the staple of the Archaic period while the later, ceramic-making peoples shifted to heavy dependence on Rangia.

A very common site type in the Pontchartrain Basin is referred to as a beach deposit. This is generally an inundated shell midden partially or completely destroyed by wave action located on a present beach and characterized by water tumbled artifacts and disturbed surfaces. It is suspected that, given area-wide subsidence, many beach deposits may still have considerable subsurface, hence underwater, intact remains. Relatively rare in Southeast Louisiana is the site type referred to as an earthmound. These mounds of varying sizes and heights are intentionally created elevated areas that serve as special burial tumuli, foundations for special structures, or both. Earth mounds generally have midden deposits near them. Rarely found, but probably quite common are the remains of short occupation campsites. These sites are small and are characterized by a very limited artifact assemblage thinly scattered over the surface.

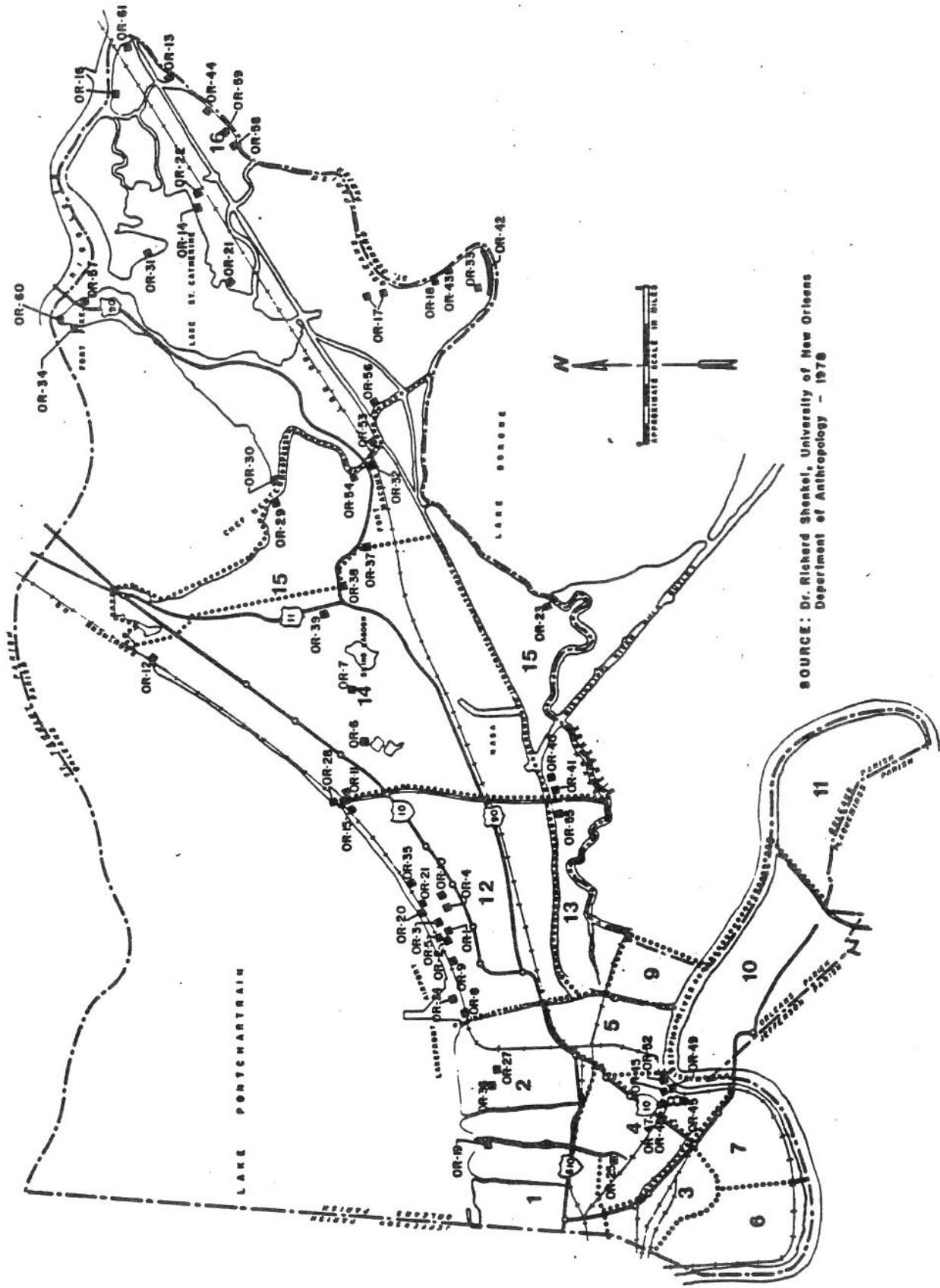
Recently collected data suggests that many midden sites may represent special collection stations and are not the remains of actual settlements. If we are ever to completely understand the full scope of the prehistoric Indian adjustment to the varied and rich environments of southeast Louisiana, the preservation of all remaining archaeological sites, no matter how insignificant in surface appearance, becomes critically important until systematic excavation can be effected.

Figure 18 identifies the listed archaeological sites in Orleans Parish. While the vast majority are middens or beach deposits, three are historical structures of some significance. 16OR60 is the remains of a nineteenth century lighthouse located on the south bank of the Rigolets at Lake Pontchartrain, about 1,000 meters northwest of Fort Pike.

Fort Pike, 16OR57, is an 1830's historic fort located on 125 acres on the east bank of the Rigolets at U.S. Highway 90. The area provides fishing, picnicking and boat launching. Although Fort Pike is in good physical condition, it has serious structural problems. Erosion of the banks of the Rigolets threatens to undermine the stability of the wall facing the Rigolets. Also, the great weight of sodden earth in the corner bastions and over the casemates threatens to break up the fort by causing it to settle unevenly. Presently, funds are being sought by the Office of State Parks to implement a program of stabilization.

16OR32, Fort Macomb, is located at Chef Pass, just off of U.S. Highway 90 and is similar in design and construction to Fort Pike. This masonry fort is reputed to have been built on an Indian site. Unfortunately, Fort Macomb is in an advanced stage of deterioration.

A more detailed discussion of the archaeological record of Orleans Parish is contained in the appendix to this document.



SOURCE: Dr. Richard Shennel, University of New Orleans
 Department of Anthropology - 1976

ARCHAEOLOGICAL AND HISTORICAL SITES

Implications for Planning

The abundant resources of Orleans Parish have been an economic and recreational asset to residents of New Orleans for many generations. More importantly, the coastal marshes in Orleans Parish are vital to the economic well-being of the region in addition to performing crucial water-control functions for the whole estuary.

- . Major reductions of coastal marshes in eastern Orleans Parish would have severe impacts on social and economic activities throughout the region.
- . Sporting activities such as hunting and fishing are important in Orleans Parish and are directly linked to the health of the coastal marshes.
- . While commercial fishing activities occur mostly in adjacent parishes, the harvest is directly linked to the quality of the Pontchartrain estuary.
- . Oil and gas extraction is an important, growing industry in Orleans Parish.
- . The exploration for and extraction of oil and gas should be conducted in a manner compatible with renewable resource conservation.
- . The rich cultural history of Orleans Parish, including archaeological and historical sites, should be preserved.

SOCIO-ECONOMIC CONDITIONS

In spite of the uninviting physical characteristics of the site chosen for the City of New Orleans, the site was successfully developed and the City has enjoyed a long and prosperous history. Having examined the environment and its advantages and disadvantages for human occupation, let us turn our attention to the people who settled here and made the community work.

The Development of Orleans Parish

History traces the development of New Orleans back to the late 17th century at the time of La Salle's claiming this entire area under the name of King Louis XIV of France in 1682. It remained nothing more than a small settlement until 1718, when in honor of the Regent of France, Phillippe, Duc d'Orleans, Sieur de Bienville had his engineers, Pierre Le Blond de la Tour and Adrien de Pauger, plot the original city which is today known as the French Quarter.

The capitol of the Empire of Louisiana was first located in Mobile in 1682, moved to Biloxi in 1699, and finally to the present site of New Orleans in 1718. The existence of Bayou St. John and the old portage by which the Indians commuted from Lake Pontchartrain to the Mississippi River seems to have been the deciding factor in locating the new city. The crescent bend in the river provided a commanding position by which the river was visible both up and down for a considerable distance. The city could also enjoy to a maximum degree the cooling breezes blowing from it.

Levee construction was the first public works in Louisiana, and from it stemmed highway building. Before Bienville could clear the site for New Orleans, the Mississippi flooded and he suspended the work until he could build a low dike in front and a water drainage canal in back to keep the city above water. Colonists extended the embankments in front of their riverfront holdings, which provided land travel through the swampy wilderness. An ordinance issued in 1732 by Governor Perier required property owners along the Mississippi to clear the river front back to the depth of three arpents (573 feet), to raise and maintain a levee six feet wide by at least two high, and to lay out a wagon road eight toises (48 feet) wide on the land side of the levee. According to N.M. Miller Surrey's Commerce of Louisiana During the French Regime, 1699-1763, by 1763, the plantations and settlements above and below New Orleans had evoked 50 miles of coach road along the river front.

John Law's grandiose real estate project, the "Mississippi Bubble," provided New Orleans with an early increase in population. In addition to the civil and military officials, the population consisted of slaves, soliders, trappers, merchants and German redemptioners. In 1727 the Ursuline Order arrived providing nuns working as nurses and teachers, and young French women under their supervision to supply wives for the colonists.

In spite of hardships caused by malaria, floods, and hostile Indians the city continued to expand and develop and by 1737 became a

French crown colony under Louis XV. Population continued to expand. People arrived on ships from France and traders floated down the Mississippi River from the North. Upriver travel was not possible until much later, 1814, when the steamboat appeared.

In 1762, Louis XV ceded Louisiana to his cousin, King Charles III of Spain, by the Treaty of Containbleau, 1762. It was not until 1766, when Don Antonio de Ulloa and his party arrived that Spain actually took possession of New Orleans. The French officials and citizens, feeling that they had been betrayed, refused to follow de Ulloa's rule and forced him to leave in 1768 under threat of being hung. This act marked the first time in America that a colony enjoyed freedom from a foreign rule.

Freedom lasted only eight months, however, as in the summer of 1769, 25 Spanish war ships with over 3,000 soldiers arrived and reclaimed the territory. Don Bernardo de Galvez was made Governor of Louisiana in 1770. During the early 1770's Spain and Great Britain were pirating each other's merchant ships in the Atlantic. This practice continued to expand over the next few years and in August of 1776, upon learning of the revolt of the New England Colonies against Great Britain, de Galvez sent twenty of his largest vessels laden with supplies of ammunitions out into the Gulf of Mexico and up the eastern sea coast to New York. This was greatly appreciated by the revolutionaries and Oliver Pollack, a member of the Continental Congress was sent to Spain to extend personal thanks to Spain and Charles III. This and other events caused Great Britain to declare war on Spain in 1779.

In order that all of Great Britain's holdings were eliminated in America, de Galvez wiped out British colonies in Mobile, Baton Rouge, Pensacola and Natchez in 1780 and 1781.

Spain's war with Great Britain was costly and although she looked on Louisiana as a valued property, she could no longer afford to keep it. Great Britain, it was feared, would seize it. By the Treaty of San Ildefonso in 1801, Louisiana was ceded to France.

The Spanish period had been prosperous for New Orleans. Sugar cane had been successfully planted and processed, the city was rebuilt after the great fires of 1788 and 1794 according to more stringent building codes, and the first newspaper in Louisiana was published.

In two short years France too feared that she could not keep it, and the Louisiana Purchase was signed in 1803, deeding the entire property to the United States for \$15 million.

New Orleanians did not like the intervention and appearance of the Americans and fights were so fierce that the Americans built up their own area on the other side of Canal Street. The city was incorporated in 1805, and in 1812 Louisiana was admitted to the Union.

Late in 1812, during the War of 1812, the British began the first of their repeated attempts to seize New Orleans and thus control the Mississippi River. In early 1815, this reached its head. General Andrew Jackson and his "Kentucks" arrived and teamed up with the noted pirate Jean Lafitte, Choctaw Indians, Creoles and Negro slaves for an extremely fierce 29 day battle, the Battle of New Orleans. The British were beaten back and driven off as Jackson lost only 52 men and the British 2,200.

It was now apparent that at last the Mississippi River was secure and free. This fact, the development of the steamboat, cotton and tobacco brought New Orleans into its "Golden Age." By 1840, the city was the second wealthiest city, second only to New York City, and fourth in population. It grew and became the bulwark of the Confederacy until it was occupied by Union Troops in 1862.

After the Civil War the city boundaries expanded rapidly. The city of Lafayette had been absorbed in 1852, and Algiers and Jefferson City were annexed in 1870 as the fifth and sixth districts; two years later Carrollton became the seventh district, rounding out the present boundaries of the city and parish. The city developed much more slowly toward the lake because the swamp had to be cleared and drained. Bayou Road led to the old French settlements on Bayou St. John near the present head of Esplanade Avenue. Faubourg Tremé developed back of Congo Square in the 1830's, and the building of the Pontchartrain Railroad in 1831 developed Elysian Fields Avenue and Milneburg. There was also a road along Bayou St. John to Spanish Fort. In the 1840's Common Street was the chief road to the cemeteries and Metairie Race Track. A bridge crossed the New Basin Canal at this point and a shell road led to Lake End (now West End). All of the residential sections of the city beyond Claiborne Avenue were swamp tracts and dairy farms until the drainage system was built and their development began.

In 1879 Captain James B. Eads succeeded in overcoming the greatest single obstacle in the commercial development of New Orleans - shallow water at the mouth of the Mississippi. A depth of from twenty-six to thirty feet was secured by a system of jetties which forced the current to deepen its channels and carry the silt out into the Gulf of Mexico. After the jetties proved successful, railroad expansion began. Legislative franchises for railroads being obtained, new lines were constructed. Five large trunk lines entered New Orleans by 1880, and a new era in the commercial development of the city began. The volume of railroad business increased from 937,634 tons in 1880 to 5,500,000 tons in 1899.

In 1882 Canal Street was illuminated by electric lights. Royal Street came next in 1884, and in 1886 the system was extended to include most of the city. In 1884 and 1885 the Cotton Centennial Exposition was held in New Orleans on the present site of Audubon Park. In 1892 the first electric street-car was operated along St. Charles Avenue. Within a year or so several electric lines were in service.

Between 1890 and 1895 a semi-private organization called the Sewerage and Drainage Company undertook the construction and operation of the city's first extensive system of sewage disposal. The first serious effort to drain New Orleans was in 1835, when the New Orleans Draining Co. was formed and dug what became the Melpomene Drainage Canal in 1838. It wasn't until the 1890's that the City Council recognized the problem of drainage. In 1896 a drainage plan was devised and became the basis for an elaborate drainage system, designed by George Earl and presently in use today.

It was not until the improvement of drainage and the invention of the automobile that the decentralization and expansion of the population became evident in the New Orleans region. The trend of population today continues in an outward direction. This dispersal of the population has resulted in a greater economic segregation of the population, a trend experienced in other large metropolitan areas. As the low income area of the central city expands, so does the suburban migration of the middle and upper class resident.

While the economy of the region is shaped by the land and people, it in turn has become a factor influencing the physical environment and activities of the population. During this early period the economy of New Orleans was largely agricultural, but as trade, transportation, manufacturing and services became major components of the economy the importance of agriculture declined steadily.

Americanization brought not only unrestricted trade, but also the improvement of trade routes. The port has always been the region's major economic activity and today it is the second ranking port in the world with port activities accounting directly or indirectly for nearly half of the jobs in the metropolitan area.

Implications for Planning

The cultural history of the city has played a significant role in determining man's reaction to his natural environment. New Orleanians have traditionally sought to reap from the marshes and waterways many food products which collectively have become known as New Orleans cuisine, and to rely upon the estuaries for recreational pursuit. However, at the same time, New Orleanians have sought to drain and fill these marshes which have given the city its distinctive life style. By understanding man's activities in relation to the environment, a more harmonious balance can be achieved which allows expansion without destroying those factors necessary for the preservation of the New Orleans quality of life.

GOVERNMENT (12)

With the passage of the home rule city charter in 1954, the City of New Orleans adopted a mayor-council form of government which remains in existence today. The charter created the executive and legislative branches of the New Orleans Government and specified the organization and functions of the Office of the Mayor, the City Council and the officers, departments and boards associated with the administration of the city government. Moreover, numerous boards and offices created by the State constitution or statute continue to have jurisdiction over various aspects of the city's affairs.

In addition, it is important to note that the City's boundaries are coterminous with those of Orleans Parish and that the City government apparatus performs the governmental function for the City of New Orleans and Orleans Parish. There is no institutional county government although the State has created some parish offices which function as part, or in accordance with, the city governmental machinery.

The Legislative Branch

The City Council is the legislative branch of the city government. It is composed of seven members - five elected from districts and two elected at-large. One of the at-large Councilmen serves as Acting Mayor in the absence of the chief executive.

The Council meets weekly and with a staff of 25 is responsible for passing legislation to govern city affairs, to levy authorized taxes and fees, approve zoning actions, grant franchises and privileges, investigate city operations and adopt an annual operating budget. Any ordinance passed by the Council may be vetoed by the Mayor within ten days of passage, which veto can be overridden by the Council with a two-thirds vote.

The Executive Branch

The Mayor of the City of New Orleans is elected to a four year term and can be reelected to only one consecutive term. Attached to the Mayor's office are three branches: Intergovernmental Relations; Human Resources; and Planning and Development. The Chief Administrative Office (CAO) is a separate office charged with coordinating fiscal and other activities of City departments, agencies and commissions.

The Executive Branch also includes 13 departments which are recognized in the City Charter. Department heads are appointed by the Chief Administrative Officer and approved by the Mayor. Funds are appropriated from the city operating budget to sustain the Departments.

In addition to the Departments, the charter also established a number of boards and commissions which fall into three categories: a departmental board acts as an administrative body for a department;

an attached board is related to but not part of a department to which it is attached; an unattached board functions independently of any department. A list of the departments follows:

Department of Law: headed by the City Attorney who is appointed by the Mayor; provides representation and counsel to the City in all legal matters.

Police Department: responsible for enforcing the laws of Orleans Parish, protecting lives, property rights and liberty of the people.

Fire Department: responsible for fire protection, safety standards, inspection and enforcement.

Department of Safety and Permits: enforcement of ordinances regulating building trades except plumbing; enforcement of minimum housing ordinance; inspection of motor vehicles; attached boards are the Board of Zoning Appeals and Adjustments and Board of Building Standards and Appeals.

Department of Sanitation: responsible for the collection and disposition of solid wastes in the Parish.

Department of Streets: responsible for the design, construction and maintenance of City streets and traffic control facilities.

New Orleans Recreation Department: responsible for recreational programs, which include cultural and athletic activities, for all age groups.

Department of Welfare: The major function of the city welfare department, which is headed by a Mayor-appointed and council-approved nine-member board, is to maintain the operations of city-owned or subsidized welfare institutions. It also administers family counseling and crisis intervention services to families in the Desire, Central City and Fischer poverty areas.

Department of Health: operating bureaus include vital records, communicable diseases, tuberculosis control, public health nursing, maternal and child health, venereal disease control, vector control, public health sanitation, mosquito control and a narcotic addict rehabilitation program; city operates no public hospitals.

Department of Finance: responsible for collection, accounting and disbursing of funds. Property Management: responsible for maintaining and managing public buildings, real estate, and cemeteries owned by the City; maintains records of ownership of all property in the City; attached board is the 24-member Board of Managers of Delgado College.

Department of Property Management: responsible for all Parish-owned property and equipment.

Department of Utilities: responsible for the administration of ordinances, regulating of franchises and privileges, taxicabs and sight-seeing vehicles; planning street lighting; has given a franchise for an indeterminate length of time to a privately-owned corporation, New Orleans Public Service, Inc. (NOPSI) to supply gas and electricity as well a transit to the city's residents. Under the agreement, the City reserves the right to purchase the corporation.

Independent Agencies

Unattached boards created by the charter operate in a relatively autonomous atmosphere except that each board has some or all of its members appointed by the Mayor. The Mayor through the CAO's Office also exercises a general oversight over the operations of the boards and coordinates them with the other activities of the city. The unattached boards are the Board of Liquidation, City Debt; the Sewerage and Water Board; the Board of City Trusts; the Planning Commission; the Public Library Board; the Aviation Board and the Parkway and Park Commission.

The state legislature has created or recognized agencies which are independent of and yet affect the operations of the City government. They include the Housing Authority of New Orleans; the Mississippi River Bridge Authority; the Board of Commissioners of the Port of New Orleans, which maintains and supervises all port facilities in the Port of New Orleans, the Board of Levee Commissioners of Orleans Levee District, which works with the U.S. Army Corps of Engineers, constructs and maintains levees, lakefront reclamation and manages the Levee Board properties including the Lake Pontchartrain beach; the Community Improvement Agency which is responsible for the rehabilitation and development of "community development" neighborhoods; and the Regional Planning Commission which serves and is financed by the four-parish area; Orleans, Jefferson, St. Tammany and St. Bernard Parishes.

The state has also created parish offices which are autonomous agents of the state government even though they have a significant impact upon the city. In addition to the welfare agency mentioned earlier, they are the Board of Assessors and the School Board, each of which provides for the direct election of their members, the District Attorney, the Coroner's Office. The City in part subsidizes the operations of the Board of Assessors, the District Attorney and the Coroner's office.

An agency which has been established as a private corporation but which has a significant effect upon the city government is the Office of Economic Opportunity agency, Total Community Action (TCA), which often acts in concert with the Human Resources Committee to assist low income residents in upgrading their economic status and creating visibility for community problems.

Implications for Planning

The City government apparatus performs the governmental function for both the City of New Orleans and Orleans Parish. This has significant implications for coastal planning since it minimizes the need for intergovernmental agreements and arrangements concerning land use planning and permitting authority. These functions are performed by the City Planning Commission and the Department of Safety and Permits, respectively.

State boards and governmental bodies exercising authority in the coastal zone of Orleans Parish, particularly the Board of Commissioners of the Port of New Orleans and the Orleans Levee Board, are required to be consistent with the Louisiana Coastal Resources Program and approved local programs by Section 213.13 of Act 361.

The preceding list of governmental entities would indicate a fragmentation of the decision-making process within the Parish; however, the Planning Advisory Committee, composed of all the listed agencies, departments and commissions meets once a week to review permit applications and other matters of concern to the City. This interim review process will be valuable in administering the coastal use permit "one stop" process.

POPULATION

The 1980 census population in Orleans Parish was 557,761 persons, a 6.1% decrease in population since the 1970 census. This decrease continues a trend that was first observed in the 1970 census when population declined by 5.4%. Table 4, "Census Populations in Orleans Parish, 1810-1980," gives the population counts for the City of New Orleans during the last 170 years.

Table 4

Census Populations in Orleans Parish, 1810-1980

Year	Population	% Change	Year	Population	% Change
1810	24,552	-	1900	287,104	18.6
1820	41,351	68.5	1910	339,075	18.1
1830	49,826	20.5	1920	387,219	14.2
1840	102,193	105.2	1930	458,762	18.5
1850	119,460	16.6	1940	494,537	7.8
1860	174,491	46.0	1950	570,445	14.7
1970	191,491	9.9	1960	627,525	10.0
1880	216,090	12.9	1970	593,471	-5.4
1890	242,039	12.0	1980	557,761	-6.1

Source: U.S. Census Bureau

The 1970 census indicated that New Orleans was beginning to feel the effects of a trend that had started a decade earlier in other metropolitan areas. Population losses had been occurring in many central cities since 1950. Generally, cities had lost white middle class residents to new suburban developments surrounding the central city. This phenomenon had not occurred in New Orleans largely due to physical constraints to expansion, such as the Mississippi River to the south, Lake Pontchartrain to the north, and the lack of easily developed land in neighboring Jefferson Parish. By 1950, when other cities were beginning to lose population, large areas of newly drained marsh in the lakefront area and east of the Industrial Canal were beginning to be developed, providing room within the Parish for residential expansion. During the 1960's, however, construction of the Mississippi River bridge, Veterans Memorial Highway and the Interstate highway system increased access to Jefferson and St. Tammany Parishes.

The capacity for movement outside of Orleans Parish is reflected in the 1970 and 1980 censuses' loss of population. These decreases are assumed to be primarily the result of out-migration. In Jefferson Parish, for example, population increased by over 128,799 persons between 1960-1970, largely due to in-migration, and by 114,709 between 1970 and 1980, again primarily due to in-migration. This trend also holds true for St. Bernard and St. Tammany Parishes, for while these adjoining parishes are experiencing rapid growth, the rate of increase for the SMSA (Standard Metropolitan Statistical Area) is much more modest as seen in Table 5, "New Orleans SMSA Census Population, 1970-1980."

Table 5
New Orleans SMSA Census Population
1970-1980

Parish	1970 Population	1980 Population*	% Change
Orleans	593,471	557,761	-6.0%
Jefferson	337,568	452,277	34.0%
St. Bernard	51,185	63,700	24.5%
St. Tammany	63,585	109,868	72.8%
N.O. SMSA	1,045,809	1,183,606	13.2%

*Preliminary Census figures. March 1981.

These figures indicate that not only is Orleans Parish experiencing out-migration of its residents, but the adjacent parishes seem to be the preferred location for new arrivals to the SMSA.

Table 6, "Orleans Parish Population By Management Unit," indicates the population breakdown of New Orleans by management unit, as counted by the U.S. Census in 1970 and estimated by the City Planning Commission in 1975. Unfortunately, 1970 block statistics were not compiled for the rural, undeveloped portions of the Parish in a way that would lend themselves to conversion to management units. Population estimates for Management Units 14, 15 and 16 were performed by the City Planning Commission for the 1975 Land Use Plan.

Table 6
Orleans Population

- By Management Unit and Planning District -				
Planning District	Management Unit	1970 Census	1975 estimate (CPC)*	% Change
1		22,792	29,000	+27.2%
2		68,025	66,978	- 1.5%
3		51,783	50,597	- 2.3%
4	I	79,961	76,057	- 4.9%
5		60,494	60,788	+ 0.5%
6		64,822	64,261	- 0.9%
7		86,299	79,684	- 7.6%
8		25,962	23,539	- 9.3%
9		32,907	31,154	- 5.3%
10	II	52,323	63,463	+21.3%
11	III	409	409	0
12	IV	37,125	52,797	+42.2%
13	V	0	0	0
14	VI	N/A**	5,755	-
15	VII	N/A	392	-
16	VIII	N/A	210	-

*City Planning Commission

**N/A-Not Available

From the preceding table, it is plain to see that the older, developed parts of the City are generally losing population, while only Management Units II (Algiers/Aurora) and III (East Gentilly) made substantial gains.

It must be noted that the City of New Orleans has challenged the U.S. Census Bureau's figures for both the 1970 and 1980 counts. Like many large cities, New Orleans maintains that various segments of the population were undercounted (i.e., Hispanic Americans and lower income non-whites) due to the nature of the inquiries. The 1970 census may have been undercounted by as much as 50,000 persons.

Population Projections

Population projects are continually subject to dispute because of methodology, starting figures, and interpretation, particularly those figures based solely on census data. Several groups of researchers have devised population projections for Louisiana with varying degrees of reliability. The majority of the projections indicate a further decline in the population of Orleans Parish with continuous growth in the surrounding metropolitan area parishes. Projected figures for the year 2000 range from a low of 523,026 (a) to a high of 735,000 (b).

(a) Harris S. Segal et al, Projections to the Year 2000 of Louisiana Population and Households (Division of Business and Economic Research, College of Business Administration, University of New Orleans, 1976).

(b) Regional Planning Commission. Transportation Planning Variables Forecast; Socio-Economic Projections for the Year 2000. 1973

Several researchers have disputed the low-range figures, particularly those put forward by Mr. Segal. Contentions center on low fertility rates and a constant out migration rate for Orleans Parish. Dr. Mumphrey, in Coastal Zone Management in the Metropolitan New Orleans Region, 1976, points out that Segal's study does not take into account the amount of available land for residential expansion in each parish. The Regional Planning Commission, however, points out that Orleans Parish has the available land to absorb residential growth, particularly in Management Units 10, 11, 12, and 14, and the RPC expects Orleans' population to increase at an increasing rate once Jefferson Parish growth begins to slow due to a lack of major developable tracts of "close-in" land.

Mumphrey also points out that Segal's projections fail to check projected population against expected employment. Orleans Parish's efforts to develop the Almonaster-Michoud Industrial District could significantly increase Orleans Parish's employment base, further enhancing residential growth within the Parish, again particularly in New Orleans East.

In any case, population projections are fraught with uncertainty and are subject to unpredictable outside influences, such as oil embargoes and economic fluctuations. For purposes of this report a range of population projections will be presented, showing the expected future population of the New Orleans Standard Metropolitan Statistical Area (SMSA). While the range of projections for the SMSA is not great, the range between individual parishes is significant. These projections are shown in Table 7.

Table 7

New Orleans SMSA
Population Projections

Parish	Year 1995 NOMATS*	Year 2000 RPC	Year 2000 Segal
Orleans	750,000	735,000	523,030
Jefferson	570,000	650,000	702,730
St. Bernard	68,000	90,000	98,270
St. Tammany	111,000	150,868	132,920
TOTAL	1,499,000	1,625,000	1,456,950

*New Orleans Metropolitan Area Study - 1995.

Implications for Planning

The differentiation between current and future population is not the key issue in planning. Changes in growth are continually occurring within the parish; therefore, it is of greater importance to recognize and anticipate these internal shifts so that services will be appropriately planned. The key issue in judgement is to be able to recognize at what time and at what stage population within a certain area will bottom out. The most important factor in determining these trends is an area's potential for development (i.e., holding capacity, density level).

This issue is of particular importance in recognizing population impacts on the coastal zone of Orleans Parish. If the land use plans in the New Orleans East and Algiers Lower Coast areas were to be fully implemented, 192,500 persons could be anticipated. These 192,500 people would be a combination of persons moving within the parish as well as persons new to the metropolitan area. These increases in population would require expanded services - housing, utilities, roads, schools, hospital, police and drinking water. These demands will certainly have a direct and indirect affect on Orleans' coastal zone due to the proximity of these anticipated developments. It is also important to recognize that these shifts in population may have a negative impact on the urban core. The availability of land provided by the coastal zone and the implications resulting must be recognized in order to adequately plan for Orleans Parish.

Socio-Economic Profile(13)

In his 1976 work, The New Orleans Economy: Pro Bono Publico?, Dr. James Bobo explored many of the myths that had been hiding the true face of the New Orleans economy for many years. The local economy, he explained, has experienced economic stagnation tendencies since 1966. Economic development did not provide adequate employment opportunities for an expanding labor force, which has grown faster than employment every year since 1966, with the exception of three years.

Unemployment has increased both absolutely and as a percentage of the labor force.

In 1978 in an address to the subcommittee on Economic Growth and Stabilization of the Joint Economic Committee of Congress, Mayor Morial picked up Dr. Bobo's theme, citing three main conditions of the City's economy: unemployment, subemployment and low labor-force participation rates (New Orleans' Comprehensive Economic Development Strategy, 1979). He said that the unemployment rate in New Orleans has probably ranged from 11-17% in the aggregate, and as much as 40% in some social sectors, particularly black teenage males. The causes of this unemployment were described as poverty and poor people, low educational preparation, lack of training for the labor force, and a low labor force participation rate.

The Mayor stated that "subemployment presents an even more dismal picture. Subemployment describes those persons who work full time but cannot earn enough to rise above the poverty line. Nearly 13% of New Orleans heads of families worked between 50 and 52 weeks per year, but were still below poverty levels." Subemployment includes part time workers who want, but cannot find, full time employment (but yet are counted as employed) and, also, those who have given up and no longer even look for work.

Concerning the low labor force participation rate, Mayor Morial noted that "the nonworker/worker ratio in New Orleans is exceeded in only one major SMSA of the 246 SMSA's in the 1970 U.S. census. In New Orleans, the nonworker/worker ratio is lower for men, lower for white men, lower for black men, lower for women, lower for white women, lower for black women, lower for all age groups by age, race and sex. In fact, it is lower for every relevant dimension of the labor force." The Mayor went on to cite the causes of this poor showing as economic discrimination against women and minorities, a high percentage of unemployables (exacerbated by increasing technology), more disadvantaged people (poverty), inadequate employment opportunities due to economic stagnation and an unequal pattern of income distribution.

The Mayor decried New Orleans' disproportionate percentage of poor people, caused by this economic stagnation and subemployment. He described the virtual absence of a middle class, which denies the local economy of the dynamism, entrepreneurship and social and economic leadership so desperately needed. He said, "according to

1970 census information, over 16% of all families, and 20% of all persons, were below the poverty level for the New Orleans SMSA. In Orleans Parish 26.8% of all persons were below the poverty level. Using the Labor Department's Low Income Budget for 1970 as the threshold of poorness, about half of all people in the NOSMSA were poor, and in Orleans Parish about 56% in 1970."

The Mayor said that "New Orleans is also plagued by a highly unequal income distribution," as could be expected without the existence of a substantial middle class. "The lowest one-fifth of the population receive only 4% of all income, while the highest one-fifth receives 44%. Income is more unevenly distributed in Orleans Parish than in any major city in the United States." Table 8, "New Orleans Socio-Economic Profile (Summary)," displays city-wide social and economic characteristics.

The problems of the New Orleans economy are numerous and complex. Mayor Morial contemplated that it was as if there were two economies at work in the City, one which is fairly healthy and which responds to national trends in a predictable way, but another, "sub-economy," that is deep-rooted and difficult to reach with the conventional remedies.

As the goals of his administration, published in the New Orleans' Economic Development Strategy, 1979, the following policy statements were highlighted:

1. Expanding or preserving private sector job opportunities in the CBD, and in the City's older commercial shopping areas, in the Almonaster-Eastern N.O. Industrial Corridor, and in the Inner City's older industrial districts.
2. Reducing poverty, unemployment, subemployment, despair and social distress in the City's disadvantaged neighborhoods.
3. The renovation of the City's older residential neighborhoods and the revitalization of their commercial shopping centers.
4. The revitalization of the City's mature industrial districts.
5. The upgrading of the City's resident work force through the establishment of innovative and "targeted" private sector skills training programs.
6. The support of tourism and convention activity in the City, particularly in the CBD.
7. Expanding foreign trade and port operations.
8. The establishment of equitable revenue generating policies for providing the new capital infrastructure and municipal services needed to maintain expanding levels of employment in the City.

TABLE 8

NEW ORLEANS SOCIO-ECONOMIC PROFILE (SUMMARY)
 NEW ORLEANS, LOUISIANA
 CITYWIDE CHARACTERISTICS

<u>DATA ELEMENT</u>	<u>CITYWIDE STATISTIC OR PERCENTAGE OF CITY</u>	
<u>DEMOGRAPHY</u>		
POPULATION (1976 Polk)	526,863	
Persons Under 18 (1976 Polk)		34.23%
2 Year Change (1974-1976 Polk) (%)		-2.45%
Retired Persons (1976 Polk)		8.02%
2 Year Change (1974-1976 Polk) (%)		21.54%
Racial Composition		
White (1970 Census)		54.50%
Black (1970 Census)		45.00%
Other (1970 Census)		.50%
<u>SOCIAL CHARACTERISTICS</u>		
TOTAL HOUSEHOLDS (1976 Polk)	192,371	
Female Heads of Households with Children (1976 Polk)		11.71%
Incidence of Index Crimes (NOPD 1977)	40,014	
<u>ECONOMIC CHARACTERISTICS</u>		
Households below \$10,000 (1977 Citizen Survey)		41.33%
Low and Moderate Income Families (1970 Census)		46.97%
Labor Force Participation (1977 Citizen Survey)		65.58%
Unemployment (1977 Citizen Survey)		9.94%
Jobless Heads of Households (1976 Polk)		21.84%
Firms in Area (EBE File)	11,437	
<u>PHYSICAL CHARACTERISTICS</u>		
Housing Units (1976 Polk)	208,360	
Residential Structures (1978 Physical Survey)	114,018	
Structures Below City Average (1978 Physical Survey)		22.26%
Abandoned Houses (Safety & Permits 1978)	1,329	
Owner Occupied Units (Polk 1976)		37.83%
Blocks in Area (1978 Physical Survey)	17,727	
Street Blocks Below City Average condition (1978)		20.38%
Temporarily Paved Blocks (1978 Physical Survey)		17.41%
Blocks Without Drains (1978 Physical Survey)		14.71%

Source: Office of Policy Planning, 1978.

Implications for Planning

It is clear from the foregoing that the administration's priorities lie in the creation of greater work opportunities, particularly in the producing section, for the City's resident work force, and in the upgrading of the skills of this work force to take advantage of these increasing opportunities. This policy will have an impact on coastal zone planning, especially since an expanding economy will increase the demands for land, and expansion of port facilities must take place, at least somewhat, in the coastal zone; however, it is anticipated that the vast majority of expansion will occur within the current levee system.

ECONOMIC CONDITIONS⁵(14)Transportation Services and Operations

Port operations and transportation services represent the largest single source of jobs in New Orleans. Employment in transportation related activities is almost 11 percent of total employment in Orleans compared to less than 6 percent of total employment for the nation. However, employment in transportation has been stagnant in recent years. Between 1971 and 1976, for example, while net national increase of jobs in the transportation sector of 96,000 occurred, New Orleans experienced a net loss of forty-seven transportation jobs. Thus, the nation's transportation employment grew at a rate of 1.29 percent, but New Orleans declined at a rate of .18 percent during the period from 1971-1976.

The primary reason for New Orleans' heavy emphasis on transportation-related employment is the Port of New Orleans, one of the largest ports in the world. It is estimated that Port-related activities account for between 30,000 and 35,000 jobs in the New Orleans SMSA, or roughly between 7 percent and 8 percent of total employment. However, the relative importance that the transportation sector plays in the New Orleans Parish economic system has been declining for a number of years. While the Port continues to be the single most important element of the New Orleans economic base, it is becoming a less significant new employment generator because of labor-saving technology and the relative decline in activity compared to other ports on the Gulf Coast. In 1978, for example, cargo volume of the Port of New Orleans fell by 24 percent, resulting in an estimated \$50 million drop in the City's economy compared to 1977; bulk cargo in 1978, for example, decreased by 5.45 million tons from 1977.

In a 1978 University of New Orleans study, Performance of the Port of New Orleans, 1965-1976, authors John Reinecke and Vincent Maruggii conclude that the Port has been losing ground over the last decade:

"The kind of picture obtained depends on whether one focuses upon the absolute volume or the volume relative to that of the neighboring Gulf Coast ports and the rest of the United States. New Orleans' dollar volume is growth. Without correction for inflation, the last decade is seen as one of moderate growth. Compared to all U.S. sea trade, New Orleans has made slight gains in tonnage and has experienced a slight loss of share in dollar terms. By both criteria, our port has lost relative position as compared to its Gulf Coast competitors--especially to Baton Rouge, Galveston, and Port Arthur, but also to Houston, Destrehan, and Gramercy."

Tourism

Perhaps the brightest spot in the economy of Orleans Parish is the consistent expansion of service sector employment, particularly in tourism, travel and related jobs. Although the service sector,

overall, currently generates more than 25 percent of total New Orleans employment, hard data on tourism based employment is sketchy. One inferential measure of the tourist industry's impact on the city's employment can be estimated by reference to the statistics published by the U.S. Travel Data Center (T.D.C.).

For 1976, the T.D.C. estimated that approximately 40,000 jobs in Orleans Parish were travel and tourism related, a statistic which represents approximately 19 percent of the city's total employed civilian labor force. In light of the continued expansion of hotel, tourism, sports and convention related activities, this figure currently may be low, and it is a fair guess that travel and tourism generate 20% or more of today's New Orleans' employment.

The 1976 T.D.C. report cited also estimated that the average annual salary for tourism related employment in New Orleans was only \$5,743. This figure comprises an overall 1976 average service sector salary of \$7,563, a figure roughly 40 percent higher than tourism taken alone.

Central Business District

The heart of New Orleans Region's economic and cultural activity is the Central Business District. The combined impact of the City's recent hotel and tourism growth and a boom in new office construction has made the New Orleans CBD one of the most vibrant in the United States. Since 1970, over 3.5 million square feet of prime office space, over 7,000 new first-class hotel rooms have been built in the CBD, with an additional 1,000,000 square feet of office space and another 1,200 hotel rooms currently in construction, with at least an equivalent amount of office and hotel development current in advanced planning.

Despite these encouraging CBD statistics, and with all due credit to the major employment increases associated with the growth of CBD hotels and tourism and office buildings, employment gains stemming from these developments have served to only prevent New Orleans' total employment from declining, as a result of industrial job losses. To the extent that new hotel jobs merely replace rather than complement new industrial jobs, total income to city residents is reduced and subemployment is increased. Further qualifications about the benefits of new office space development stem from the fact that little direct resident minority job impact is generated, and from the fact that many of the new technical and managerial level jobs opened up in new offices will probably go to suburban commuters, rather than Orleans Parish residents.

This does not mean that the City has not or will not continue to fully and vigorously support CBD growth, because this not the case. It does mean, however, that while the City of New Orleans does recognize and support the future employment and fiscal importance of CBD growth, it also realizes that such developments alone will not and cannot make a significant contribution towards reducing or eliminating the City's poverty, unemployment, and subemployment problems, unless and until the stagnation in other than personal

service sector employment is ended, and unless and until the decline in manufacturing employment is halted and hopefully reversed. Until such time, Central Business District tourism and office development will remain the City's only real hope for employment and fiscal improvement.

Implications for Planning

Current economic conditions indicate that the emphasis of this government administration, and future administrations, will be placed on the creation of new industrial jobs. Target areas for industrial growth will primarily be in the Almonaster-Michoud Industrial District in Management Units IV and VI, and later in Viavant, Management Unit V. Also, industries requiring access to and utilization of coastal waters, light shipbuilding, for example, will be encouraged to locate within the Parish. Adequate land areas for these activities should be identified and set aside.

One of the primary goals for improving the tourist industry is to expand family-oriented recreational opportunities. Some steps have already been taken; such as the new exhibition hall and the new zoo. One such opportunity exists in water-oriented recreational facilities, such as beaches, boat launches and marinas. Adequate space for such improvements should be allocated.

LAND USE

Existing Land Use

Land use in the City of New Orleans ranges in configuration from the very modern - contemporary suburban tract developments of homogeneous housing types with separate commercial centers - to the very old, with its intricate mixtures of residential, commercial, industrial and other uses.

Land use complexity or intricacy is usually related to the age of development in a given area. In Management Unit I, those areas west of the Industrial Canal and south of City Park - Planning Districts 3, 4, 5, 6, 7, 8 and 10 - contain the oldest housing, industrial and commercial uses. The traditional housing in these areas tends to be medium density single family or two family structures on small lots. Commercial areas - outside the Central Business District - tend to be linear developments along major thoroughfares. Industrial uses are usually located adjacent to highways, railways or the Mississippi River, with the Port of New Orleans constituting by far the largest industrial use.

The northern section of the City, between Jefferson Parish and the Industrial Canal, includes planning districts 1 and 2 and exhibits more recent development, reflecting contemporary architectural styles and a larger percent of single family housing, approximately 75% of all residential land use compared to 45% in the older sections. Commercial areas are more automobile oriented than in the older sections of town, with off-street parking generally provided. There is virtually no industry located in this part of town, except at the eastern edge near the Industrial Canal; however, the area devoted to parks and green space far outdistances any other area. City Park accounts for most park acreage, but Audubon Park, Lakeshore Park and Pontchartrain Park are other major recreational amenities.

New Orleans' most recent land development is found east of the Industrial Canal, in Management Unit IV, and on the West Bank of the Mississippi River in Management Unit II. Land uses are characterized by homogeneous subdivision patterns of single family and multiple family units. Regional, community and neighborhood shopping areas are located at major intersections, distinctly separated from residential sections.

Table 9 indicates the acreages associated with various land uses in the developed portion of Orleans Parish.

TABLE 9
1975 LAND USE

Land Use Category	Acreage	Percentage of Developed Acres
Residential	13,654.1	37.3%
Industrial	4,740.0	12.9%
Commercial	1,940.1	5.3%
Public & Semi-Public Parks	4,904.4	13.4%
Streets	11,382.3	31.1%
TOTAL DEVELOPED ACRES	36,620.9	100.0%

In addition to the 36,620.9 acres of developed land, Orleans Parish contains substantial water and vacant acreages. The water category includes lakes, lagoons and bayous internal to the levee system (8,360 acres) as well as the vast acreages associated with Lake Pontchartrain and Lake St. Catherine (107,020 acres). The vacant category includes undeveloped lands and wetlands both inside and outside the levee system. Table 10, "Total Acreage of Orleans Parish - 1975," indicates the amount of land in urban uses, in an undeveloped state, and in water bodies.

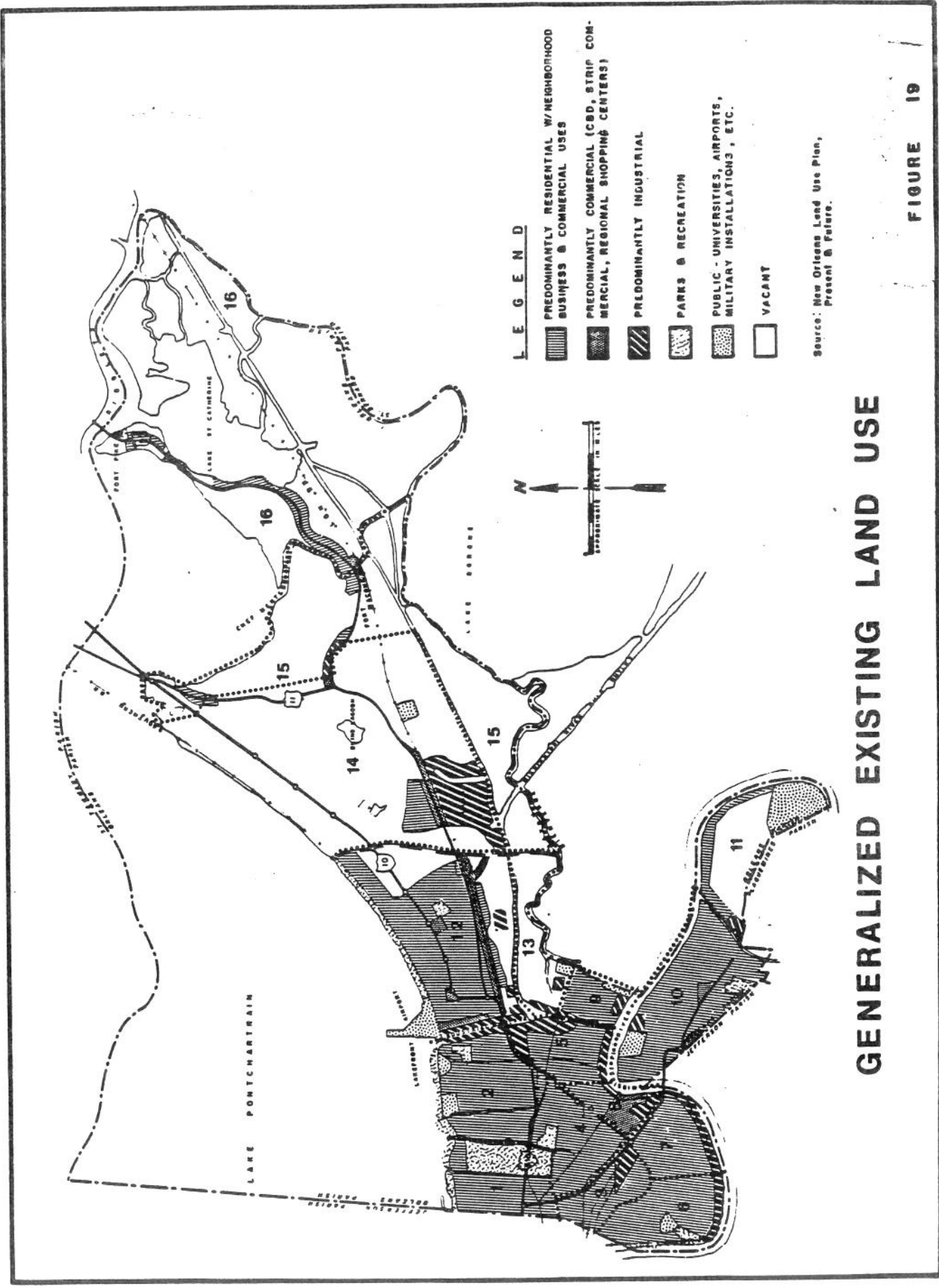
TABLE 10
TOTAL ACREAGE OF ORLEANS PARISH - 1975

Category	Acres	Percentage of Parish Area
Developed	36,620.9	15.7%
Vacant	80,640.7	34.7%
Water Bodies	115,380.4	49.6%
	232,642.0	100.0%







Figure 19, "Generalized Existing Land Use," shows the general land use patterns of Orleans Parish. Table 11, "Existing Land Use by Management Unit," displays existing land use in each management unit.

TABLE 11
EXISTING LAND USE BY MANAGEMENT UNIT-1975

Management Unit	Planning District	Residential		Commercial	Public/Semi-Public Parks		Vacant	Water	Streets	Total Acreage
		Residential	Industrial		Public Parks	Semi-Public Parks				
	# 1 Lakeview	1,212.4	142.9	33.4	1,859.8	323.5	88.9	674.7	4,335.0	
	# 2 Gentilly	2,041.6	400.0	253.4	900.0	593.6	140.5	1,522.1	5,851.2	
	# 3 Broadmoor/Hollygrove	842.8	145.6	179.3	168.9	219.6	0	738.5	2,314.7	
	# 4 Mid-City	1,183.7	206.0	284.2	164.8	457.0	27.1	1,159.0	3,481.8	
	# 5 St. Claude/Desire	1,043.1	425.5	113.2	200.4	584.9	398.3	766.8	3,532.2	
	# 6 Carrollton/University	1,367.0	205.1	127.4	597.3	297.3	585.0	840.2	4,019.3	
	# 7 Central City/Garden District	943.7	211.1	152.9	84.0	297.8	398.0	819.7	2,907.8	
	# 8 CBD	255.5	204.2	252.4	52.1	285.0	193.0	573.2	1,816.0	
	# 9 Lower Ninth Ward/Holy Cross	616.8	46.3	28.1	92.5	326.2	182.1	422.3	1,714.3	
II	#10 Algiers/Aurora	1,795.1	132.9	142.5	514.7	2,614.9	1,009.5	1,249.7	7,459.3	
II	#11 Lower Coast	6.5	9.7	0	4.1	4,366.5	1,064.2	56.7	5,507.7	
IV	#12 East Gentilly	1,965.2	738.7	322.5	252.5	7,623.7	560.3	1,555.8	13,018.7	
V	#13 Viavant	0	27.0	1.3	0.7	2,769.1	369.3	15.3	3,182.7	
VI	#14 N.O. East	73.0	1,725.0	32.7	0	20,115.1	335.0	687.5	22,958.3	
II	#15 N.O. East Special	40.0	60.0	6.5	4.4	15,386.5	1,148.5	149.5	16,795.4	
II	#16 Chef Menteur/Rigolets	267.7	70.0	10.3	8.2	24,380.0	1,859.5	131.3	26,727.0	
	SUBTOTAL	13,654.1	4,740.0	1,940.1	4,904.4	80,640.7	8,360.4	11,382.3	125,622.0	
									TOTAL (INCLUDING LAKES PONTCHARTRAIN & ST. CATHERINE)	232,642



L E G E N D

-  PREDOMINANTLY RESIDENTIAL W/NEIGHBORHOOD BUSINESS & COMMERCIAL USES
-  PREDOMINANTLY COMMERCIAL (CBD, STRIP COMMERICAL, REGIONAL SHOPPING CENTERS)
-  PREDOMINANTLY INDUSTRIAL
-  PARKS & RECREATION
-  PUBLIC - UNIVERSITIES, AIRPORTS, MILITARY INSTALLATIONS, ETC.
-  VACANT

Source: New Orleans Land Use Plan, Present & Future.

GENERALIZED EXISTING LAND USE

Levees and Drainage

It is important to understand two major aspects of land use in Orleans Parish, the levee and drainage systems. Located in the delta area of the coastal plain, there is very little topographic relief providing areas of higher elevation for development. These developable areas are restricted to natural levee ridges of the Mississippi River or abandoned distributaries and were the first parts of Orleans Parish to be urbanized. In order to develop low-lying swamps and marshes between the ridges it was necessary to construct levees, canals and pumps to drain the land and prevent future flooding. It is the extensive system of drainage canals and pumping stations that prevents the City of New Orleans from being flooded during even moderate rainfalls. Figure 20, "City of New Orleans' Primary Drainage System," shows the location of major pumping stations and canals.

It is the levee system, moreover, that has allowed the City to grow and remain a viable place to live. The levee system, for practical purposes, defines the limits of urban development or development potential in the Parish.

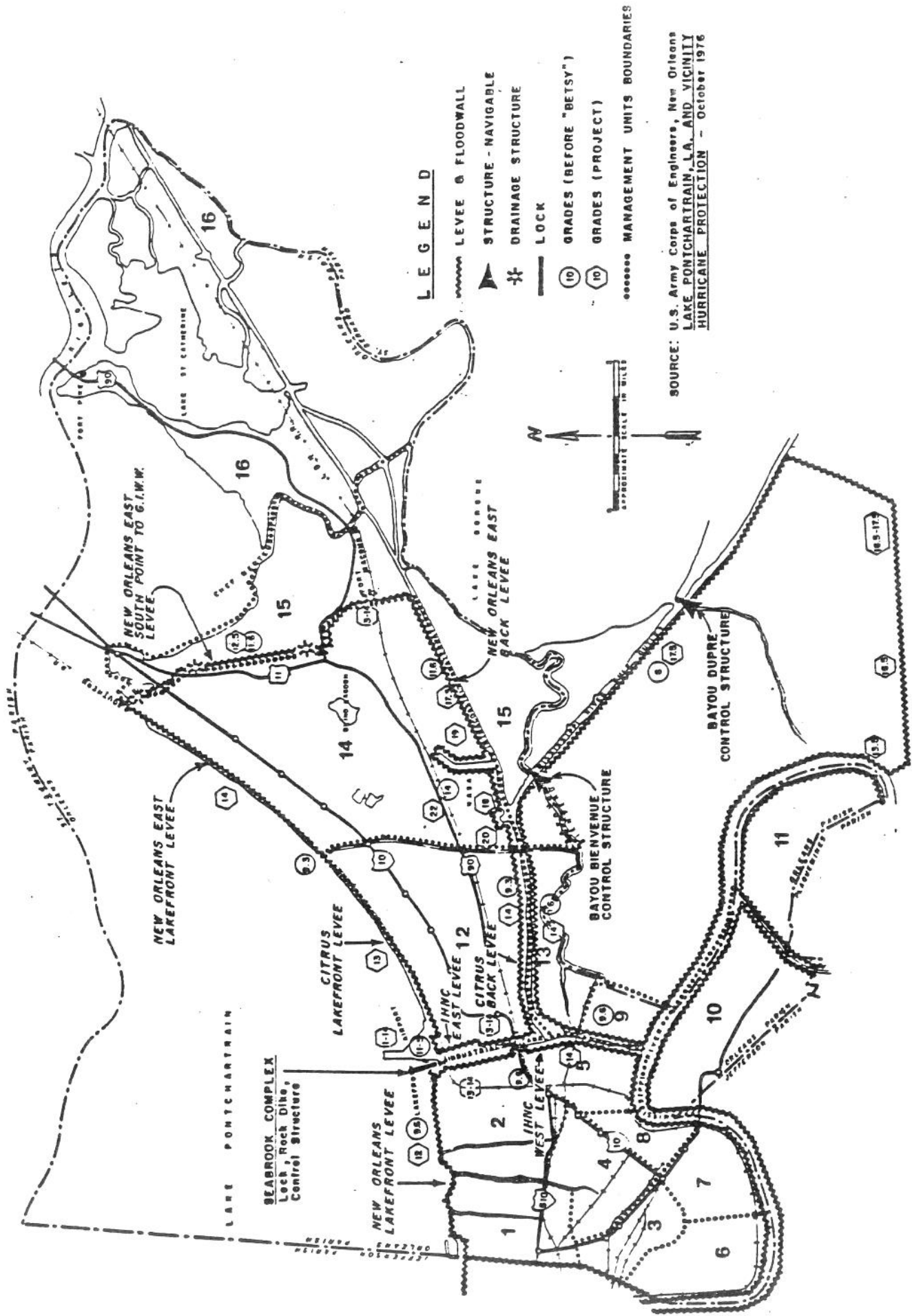
When one speaks of the "levee system," he is actually referring to two systems: one to protect the City from flooding by the Mississippi River, one to protect against tidal flooding from Lake Pontchartrain and the estuary. As New Orleans grew, it began to expand north away from the natural levees and into the backswamps that were always under water. To anyone who lived there, high tides from the lake as well as floodwaters from the River were a constant threat. With the perfection of mechanical pumps in the late 1800's, these problems were solved. It was now possible to build a levee and artificially drain an area and keep the water out by channeling it into leveed sea-level canals for transport to the Lake. With this technological advance, wetlands were systematically sectioned off and drained, first to the north to Lake Pontchartrain, then to the west in Jefferson Parish, and, most recently, to the east in New Orleans East.

Figure 21, "Existing Levee System," shows the current configuration of levees in Orleans Parish.

For purposes of the Louisiana Coastal Resources Program, two types of levees were identified in the FEIS:

Hurricane or Flood Protection Levees - those levees and associated water control structures whose primary purpose is to prevent occasional surges of flood or storm generated high water. Such levee systems do not include those built to permit drainage or development of enclosed wetland areas.

Development Levees - those levees and associated water control structures whose purpose is to allow control of water levels within the area enclosed by the levees to facilitate drainage or development within the leveed areas. Such levee systems also commonly



EXISTING LEVEE SYSTEM
with authorized project elevations

serve for hurricane or flood protection, but are not so defined for purposes of coastal zone management.

According to these criteria, nearly all management units in Orleans Parish are contained within development levees, the exceptions being Management Units V, VII and VIII. Management Unit V, Viavant, is within a hurricane protection levee system (the Chalmette Levee), while units VII and VIII are completely external to any levee systems.

Estimated Demand for Land

In 1975 the Regional Planning Commission estimated the amount of land Orleans Parish would need to develop to accommodate expected expansion of her economic and population sectors during the ten year period, 1975-85. At that time the projected land need was in slight excess of 7,700 acres, with most of this development occurring east of the Industrial Canal. Residential expansion was anticipated to require 3,519 acres during the first five years and an additional 2,669 during the next five years of the study period. Commercial and service activities were expected to expand by 1,307 acres by 1985. The study described industrial growth as having stabilized, requiring no land needs through 1985.

As projected in the study, and borne out during the last five years, most of this growth has occurred in Eastern New Orleans. The two major road arteries, I-10 and Highway 90 have been the main corridors around which this growth has focused. Prior to 1980, most of this growth occurred between Downman Road and Read Boulevard. After 1980 the expansion will continuously move to the east.

Land Use Planning(15)

Land Use Planning in Orleans Parish is the responsibility of the City Planning Commission. The Commission accomplishes the development and implementation of the Comprehensive Land Use Plan by judiciously applying the Comprehensive Zoning Ordinance and Subdivision Regulations in accordance with the Plan.

The first comprehensive land use plan since 1954 was adopted by the Planning Commission on December 3, 1980. The future land use plan for Orleans Parish is generally based on the Managed Growth Plan originally developed by the City as a sketch plan for the Metropolitan Transportation Plan. As a part of that effort two other sketch plans were also produced, one depicting a Continued Growth Policy and the other a Contained Growth Plan. For further information on this sketch planning process, see the Planning Commission Report - "Land Use Plan Development."

The Managed Growth Plan provides for a balance between revitalizing older sections of the City, allowing new growth in developing sections of the City, and permitting limited development in environmentally sensitive areas. The plan emphasizes the following policy considerations:

1. Emphasis on the CBD in terms of work, leisure and living areas with the goal of keeping the CBD as a Regional Center and a 24 hour a day area.
2. Emphasis on transit facilities and services and reduced emphasis on the automobile as the primary transportation mode.
3. Expansion of industrial land opportunities to provide land both within the developed section of the City and in developing sections for new employment opportunities.
4. Recognition of environmentally sensitive areas to provide for limited development and appropriate regulation.
5. Provide for physical expansion of the City with urban development generally occurring within the hurricane levee protection system. This should provide land for continued growth and help relieve density pressures in older areas while providing for a variety of housing options to be available to all socio-economic levels.
6. Emphasis on conservation of existing neighborhoods generally at their current densities. Also provides for selected redevelopment in particular locations where existing conditions so warrant.

The future land use plan, if ultimately achieved, will see an increase in the amount of land devoted to urban development. Even at that point, however, approximately 67% of the area of Orleans Parish will be water areas or areas devoted to limited development.

Table 12, "Orleans Parish Future Land Use" indicates acreages to be in urban uses should the Parish be fully developed. The distinction between the "Developed" and the "Limited Development" categories is that the latter are marshland acres outside the hurricane and flood protection levees which will be subject to coastal zone management requirements.

Table 12
Orleans Parish Future Land Use

Category	Acres	Percentage of Parish Land Area	Percentage of Entire Parish Including Lakes
Developed (Urban)	76,444	61%	33%
Limited Development	40,273	39%	17%
Water Bodies (Leveed)	8,885	0%	4%
Water Bodies (Unleveeded)	107,022	0%	46%
TOTAL	232,624	100%	100%

It is projected that when completely built out the parish would probably contain between 675,000 and 800,000 people. This range, of course, anticipates the enormous amount of flexibility in any estimate. Should local, national or even international conditions drastically change, the population of the parish could vary significantly.

Figure 22, "Generalized Proposed Land Use," shows the City Planning Commission's adopted Land Use Plan.

Land Use Controls

There are two City agencies which play key roles in controlling land use in Orleans Parish. The City Planning Commission is responsible for developing an overall plan and applying zoning and subdivision regulations in accordance with that plan. The Department of Safety and Permits is more involved with the enforcement of the zoning and building standards established by law. These two agencies are described in more detail in the chapter on the Local Program.

There are two key City Ordinances that are enforced by the Department of Safety and Permits. These are the Building Code and the Floodplain Ordinance. Both have great significance regarding Coastal Zone Management, and are described in the following pages. In the back of this document is a handout, The Developer's Guidebook, which details the process of obtaining permits for construction activities in Orleans Parish.

Orleans Parish Building Code⁽¹⁶⁾

The Building Code requires that a person first obtain a permit from the Department of Safety and Permits before commencing with the erection, removal, re-roofing, demolition, all alterations, all additions, repairs...of a building or other structure...or to perform any excavations below lot grade within the City of New Orleans (Sec. 201, Building Code). This law is interpreted to include the wetlands and waters outside the levee system (City Attorney's Office, opinion, Nov. 1979).

Part X, Chapter 28 of the Orleans code was published in its newly revised form in July, 1975. This code, on excavations, footings and foundations, has been strengthened in the areas which apply specifically to coastal development, namely specifications for pile foundations. Due to the unstable conditions of the highly organic soils of former wetlands, it is the "skin friction" between piles and soil particles, rather than transfer of loads to a stable subsoil strata, which supports structures.

The following items are covered under the foundation code and relate to construction in the coastal zone:

- Subsoil investigation
- Excavations
- Spread foundations
- Pile foundations
 - Design
 - Pile load
 - Splices
- Timber piles
 - Treated
 - Untreated
 - Wood-concrete composite
- Concrete piles
 - Precast
 - Cast-in-place
- Steel piles
- Combination piles
- Lightly loaded piles
- Wind pressure and combined loads

(New Orleans City Council, 1975 rev.: Chapter 28).

The last two items are of particular concern for development in both fast and non-fast lands. Special allowances are made for pile support of light structures such as houses, camps, etc. Required pile penetration is reduced from 50 to 30 feet and soil borings are not required. Also specific attention is given to the danger of wind pressure from hurricane force storms on pile supports. Bearing values required for piles are increased by one-third when subjected to wind and other loads and the combined load cannot exceed the safe allowable capacity of the soil or pile (New Orleans City Council, 1975 rev.: Chapter 28, 8-9).

The Orleans Parish foundation code, under Article 2805--"Notification to City," also requires a minimum of 24 hours notice to the

Director of the Department of Safety and Permits in advance of any pile driving. This allows for even greater control through supervision of the quality of construction materials and methods used in structural foundation support.

While it might not be considered a model code, the Orleans Parish building code is more strict in most aspects of construction on former wetlands than the Southern Standard code. Currently it is the most comprehensive available building code among those in effect in coastal Louisiana.

Floodplain Ordinance⁽¹⁷⁾

The second ordinance that has profound implications for all of Orleans Parish, particularly those areas outside the levee system, is the Floodplain Ordinance, Chapter 32 of the City Code. This Ordinance was originally adopted by the City Council in 1974 and was amended in 1978. This legislation was a response to two actions by the U.S. Congress, the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

In 1973 Congress declared that, as a matter of national policy, all lending institutions with federally insured savings or deposits would require flood insurance on all new mortgages in high risk areas as they now generally require fire insurance. This requirement became mandatory for identified special flood hazard areas within communities under Section 102 of the Flood Disaster Protection Act of 1973.

The Federal Insurance Administration adopted the so-called "100-year flood" as the standard for the identification of special flood hazard areas and as the base flood elevation for the adoption of local land use controls. The term "100-year flood" is actually what the Corps of Engineers refers to as an "intermediate" flood and is a compromise between minor floods and the Corps' "standard project flood," which is the greatest flood thought likely to occur in a given area. In many cases, the 100-year or intermediate flood is already far below the flood of record. The "100-year flood" is simply the flood level that is estimated to have a 1-percent chance of occurring each year in a given location.

Regulation of practices within the Program is set up on an accelerating scale based on the amount of flood data currently available for an area. When only general information about the flood-prone nature of an area is available, then restrictions on development practices are broadly defined. As more detailed hydrologic and other technical data is gathered for a particular community by Federal or State agencies, consulting services, or the Administrator of the Flood Insurance Program, then standards for practices become more specific. Once flood insurance regulations are adopted, any new development in a special flood hazard area that does not meet the required construction specifications will not be covered by subsidized flood insurance.

Stages of regulation include the following:

1. The floodplain areas of a community are identified as flood-prone.
2. Special flood hazard areas within a community are defined with publication of a Flood Insurance Rate Map (FIRM).
3. Water surface elevation data for the 100-year flood within certain areas of special flood hazards is provided.
4. Specific floodways are identified.
5. The coastal high hazard area is identified.

Definitions

1. "Flood plain" or "flood-prone area" means a land area adjoining a river, stream, watercourse, ocean, bay, or lake, which is likely to be flooded.
2. "Flood" or "flooding" means a general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of streams, rivers, or other inland water; or abnormally high tidal waters or rising coastal waters proximately caused by severe storms, hurricanes, or tsunamis. It also includes collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels.
3. "Special flood hazard area" or "flood plain area having special flood hazards" means that maximum area of the flood plain that, on the average, is likely to be flooded once every 100 years (i.e., that has a 1-percent chance of being flooded each year).
4. "100-year flood" means the highest level of flooding that, on the average, is likely to occur once every 100 years (i.e., that has a 1-percent chance of occurring each year.)
5. "Floodway" means the channel of a river or other watercourse and the adjacent land areas required to carry and discharge a flood of a given magnitude.
6. "Coastal high hazard area" means the portion of a coastal flood plain having special flood hazards that is subject to high velocity waters, including hurricane wave wash and tsunamis.

7. "Substantial improvement" (hereafter referred to as "improvement") means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either, (a) before the improvement is started, or (b) if the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include either (1) any alteration to comply with existing state or local health, sanitary, building, or safety codes or regulations; or (2) any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

Requirements

The requirements for meeting Flood Insurance Program standards are listed for each of the regulatory stages.

1. Minimum restrictions on practices at the stage of information gathering are as follows:

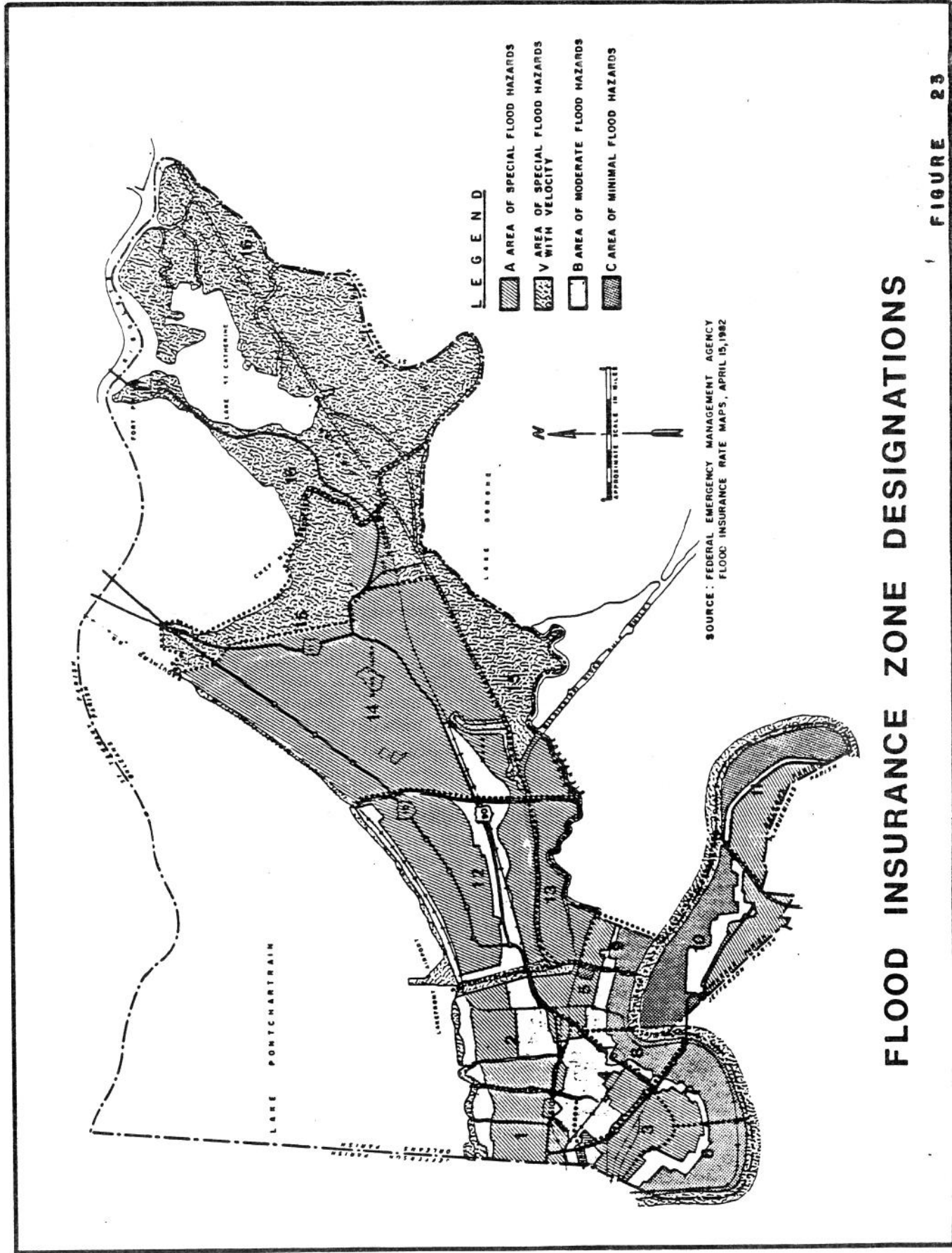
Subdivision proposals and other proposals for new developments must be reviewed by local authorities to assure that:

- a. They are consistent with the need to minimize flood damage.
 - b. All public utilities and facilities such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage.
 - c. Adequate drainage is provided to reduce exposure to flood hazards.
2. Publication of a Flood Insurance Rate Map (FIRM) for a community identifying special flood hazard areas increases the regulations as follows:
 - a. Any available 100-year flood elevation data must be utilized in administering the standards for all flood plain areas.
 - b. Building permits are required for all proposed construction and substantial improvements in the special flood hazard area.

- c. At the time a building permit is issued, information must be obtained concerning the elevation of the lowest floor of the structure (including basement) in relation to mean sea level. Where the lowest floor is below grade on one or more sides, the elevation of the floor immediately above must be obtained. An official record of this information must be maintained.

See Figure 23 for general flood insurance zone designations.

3. Notice of a final flood elevation determination providing water surface elevations for the 100-year flood within certain areas of special flood hazards increases the regulations as follows:
 - a. Review by local authorities of building permit applications for new construction and improvements within the special flood hazard area is required to assure that the proposed construction is designed (or modified) and anchored to prevent flotation, collapse or lateral movement of the structure.
 - b. New or replacement water supply systems and sanitary sewage systems within the special flood hazard area must be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the system into flood waters. On-site waste disposal systems must be located to avoid impairment of them or contamination by them during or subsequent to flooding.
 - c. New residential structures and improvements within the special flood hazard area for which base (100-year) flood elevations have been provided must have the lowest floor (including basement) elevated to or above the level of the 100-year flood, unless an exception for basements is granted. (In Orleans' coastal wetlands, this could be as high as +16 feet MSL.)
 - d. New non-residential structures and improvements within the base flood elevation specified area must be flood-proofed (together with attendant utility and sanitary facilities) to or above the 100-year flood level if their lowest floor elevation is below that level. Flood-proofing must be in compliance with the U.S. Army Corps of Engineers' standards.



FLOOD INSURANCE ZONE DESIGNATIONS

- e. The adequacy of flood-proofing methods utilized must be certified by a registered professional engineer or architect to withstand the flood depths, pressures, velocities, impact and uplift forces and other factors associated with the 100-year flood. An official record of such certificates must be maintained.
 - f. In riverine situations, until a floodway has been designated, no use, including land fill, may be permitted within the identified base flood elevation area unless it is demonstrated that the effect of the proposed use in combination with all other existing and anticipated uses will not increase the 100-year flood water surface elevation more than 1 foot anywhere within the community.
4. Provision of data identifying a floodway(s) increases the regulations as follows (regulations apply only to the designated floodway):
 - a. All fill, encroachments, new construction and improvements which would increase 100-year flood heights within the community are prohibited.
 - b. Location of any portion of a new mobile home park, expansion of an existing facility and placement of a mobile home other than in an existing facility is prohibited.
 5. Identification of a coastal high hazard area increases the development regulations as follows (regulations apply only to the coastal high hazard area):
 - a. All new construction and improvements must be located landward of the reach of the mean high tide.
 - b. All new construction and improvements must be elevated on adequately anchored piles or columns to a lowest floor elevation (including basement) at or above the 100-year flood level. Structures must be securely anchored to such piles or columns.
 - c. New construction and improvements must have the space below the lowest floor free of obstructions or be constructed with "breakaway walls" intended to collapse under stress without jeopardizing the structural support of the building. This is intended to minimize the impact of abnormally high tides or wind-driven water on the building. Such temporarily enclosed space shall not be used for human habitation.

- d. The use of fill for structural support shall be prohibited.
- e. Location of any portion of a new mobile home park, expansion of an existing facility, and placement of a mobile home other than in an existing facility is prohibited.

Implications for Planning

These two ordinances, the Building Code and the Floodplain Ordinance, will play key roles in the Orleans Parish Coastal Management Program. The Building Code triggers all of the City's control mechanisms, while the Floodplain Ordinance sets very rigorous conditions on construction, particularly in the Coastal Zone.

The Building Code requires that a permit be obtained before any work commences that involves the construction of a structure or excavation below lot grade. This in effect includes all activities that would require a coastal use permit, and even some uses that are exempt (such as a camp) from coastal permits. Once a building permit is applied for, compliance with coastal zone procedures will be required, where necessary.

The Floodplain Ordinance, by setting base elevations and first floor requirements, mandates that all construction in Coastal High Hazard Areas be done on pilings and elevated approximately 12 feet above Mean Sea Level. This will have the effect of discouraging many projects by making them too expensive. Projects that do get built will have to maintain natural water flow beneath the structure.

Compliance with the construction requirements of the Building Code and the Floodplain Ordinance would have the effect of meeting or exceeding many of the standards set by the Louisiana Coastal Resources Program.

RESOURCE PROBLEMS AND CONFLICTS

The resources of Orleans Parish, as they have been described in preceeding sections, are both bountiful and diverse. The majestic Mississippi River, the large lakes, the great expanses of marshland, the buried deposits of shell, oil and gas, as well as the historic and picturesque City of New Orleans, are all resources that have shaped the growth and character of the region and its people. Yet, while abundant renewable and non-renewable resources have made New Orleans an attractive and dynamic place in which to live, there are many problems associated with human occupation of the coastal zone. Urbanization of the coastal zone stresses natural systems, and the natural systems, in turn, cause problems for urban development.

Loss of Productive Wetlands

The greatest source of stress to the coastal environment, as identified by Dr. Mumphrey in 1975, is the loss of productive wetlands. The Soil Conservation Service estimates that Orleans Parish contains only twenty-four square miles of "dry land," that is, natural levee ridges. By 1970, over sixty-three square miles of wetlands, including backswamp and marsh, had been converted to urban uses through reclamation. An additional forty-five square miles have been leveed since 1957, but not all of this area has been drained as yet.

Dr. Mumphrey declares reclamation to be a "direct destroyer of estuarine land. When land is drained and/or filled, it is lost to the system. Repercussions are felt in other parts of the estuary in many ways, such as pollution, decreasing fish populations, reduced plant growth, etc." The following is a list of cause-effect relationships that can be attributed to reclamation of wetlands in Louisiana:

1. Irreversible loss of land to the estuary.
 - a. Loss of habitat for birds, fish and reptiles.
 - b. Loss of nursery area for birds and fish.
 - c. Loss of detritus to the estuary.
 - d. Loss of nutrient input to the estuary.
 - e. Resultant loss in natural productivity.
 - f. Loss of fresh water.
2. Loss of productive capacities that benefit man.
 - a. Reduced assimilative capacity of water to absorb pollutants.

- b. Reduced commercial and sport fishing activities due to decreased total productivity.
- c. Loss of relatively cheap, effective municipal sewage treatment by wetlands.
- d. Accelerated loss of wetlands to the ocean.
- e. Loss of a buffer zone against tropical storms.
- f. Shift of land ownership to state and federal entities, thereby reducing local tax revenues.

It is not man's activities alone, however, that are causing the loss of productive wetlands. In a declining estuarine system, cut off from its creative and sustaining force, in this case the Mississippi River, the natural tendency is for the delta to regress to its former state, that of open water body. Subsidence, shoreline erosion and saltwater intrusion processes are all working toward that end. In essence, all of coastal Louisiana which is not building seaward, is sinking.

In addition to natural causes, the exploration and drilling for oil and gas is a substantial cause of wetland deterioration, for it accelerates the processes of salt water intrusion and shoreline erosion. This is in conjunction with canal dredging for rig access, which in itself is a direct destroyer of wetlands.

Implications for Planning

With the construction of the current levee system complete, reclamation by leveeing and draining should cease to be the prime destroyer of coastal wetlands in Orleans Parish. There is adequate room for growth within the present levee alignment, and the Land Use Plan reflects this condition. The emphasis for planning should therefore focus on maintaining the remaining coastal marsh in eastern Orleans Parish in good condition. This can be achieved by establishing standards for land use and construction, particularly in regard to the dredging of canals for navigation and mineral exploration activities.

Another area to be investigated is the possibility of minimizing the loss of wetlands due to natural processes. Artificial barrier islands and/or diversion of fresh water into the marshes may mitigate the effects of subsidence and shoreline erosion.

Subsidence

Another coastal resource problem occurs when man seeks to inhabit former wetlands. Subsidence is a phenomenon common to areas of substantial organic soils. These soils may be compressed under the weight of sand or other fill or construction. They may also sink in response to a lowering of the water table, which accelerates oxidation processes in the soil.

Soil subsidence is a problem found to some degree throughout Orleans Parish; however, newly drained marsh or swamp areas are particularly susceptible. Local subsidence in reclaimed wetlands

increases the cost of development to the developers, which is passed on to the consumer. Additionally, the homeowner must bear the cost of occasional fill for his yard and possible repairs caused by damage to his property by subsidence. Local government, also, must shoulder the costs of subsidence-related maintenance to its streets and utilities.

A study of soil types in a section of eastern New Orleans was prepared in 1978 under auspices of the local Coastal Zone Management program. The Engineering and Geotechnical Study for Drainage Area No. 1 reports a series of undisturbed soil borings and laboratory tests on these. Local codes and ordinances are discussed, with the goal of eventual modification where appropriate. Fortunately, two centuries of experience have helped to ameliorate, or at least cope effectively with problems caused by soil subsidence in Orleans Parish. Just as the City has responded to flooding potential by developing levees, drainage networks and pumping facilities, so also has it responded to this other natural phenomenon. The City's Building Code establishes specific requirements for the support of building, streets, underground utilities and the like. A technology for man-hole construction, in which ringed tiers of bricks support the cover assembly, makes it more convenient to adjust the height of the cover in response to local sinking conditions. The listing of approximately a dozen shoring companies in the local yellow pages is a testimony to the extent of subsidence in this area. Private industry has responded to the need.

If underground gas lines crack in response to land shifting, resulting leaks can touch off serious explosions, as has been experienced in adjoining Jefferson Parish. In that jurisdiction, slab-type building construction has been permitted on soils with subsidence potential. Historically, Jefferson Parish has not had the same building requirements, such as pilings and similar mitigative measures as has Orleans. To reduce possibility of line damage, New Orleans Public Service, Inc. requires coil or u-connection, capable of flexing, for natural gas hookups to residences. This has contributed to safety in such neighborhoods as Lakeview, where sinking land has resulted in -8 foot elevations.

Implications for Planning

Subsidence of organic soils can be stopped or minimized by maintaining the water table at or near the land surface. When used in conjunction with subdivision development, this technique is called the "wet" or "water drawdown" method. The water drawdown method is composed of two major elements; an extensive storage system of canals and lakes, and a system of pumping stations. The canals and lakes serve as drains for the surrounding land. Water is then pumped out of the canals and lakes until a predetermined water table height is achieved. One major requirement of the water drawdown method of land development is that it necessitates the use of pile supports for all structures built on the site.

It is the current policy of the City of New Orleans to utilize the water drawdown method in all developing areas of eastern New Orleans.

Flooding

Along with subsidence in reclaimed wetlands, the homeowner must be aware of the potential for flooding in low-lying areas. This is due to the reduced buffer zone and water storage functions formerly performed by the wetlands and the fact that the reclaimed land is below sea level. Adequate construction and drainage techniques must be incorporated into plans for wetland developments.

The elevation of Orleans Parish ranges from approximately seven (7) feet below sea level to ten (10) feet above. While all lands external to the levee system are subject to storm-related flooding, there is a potential threat to certain leveed areas as well. Protection in developed areas is accomplished by existing levees and by the City's drainage system. The City of New Orleans relies heavily upon its levees and numerous pumping stations for security. Stringent design criteria for levee construction reduces the likelihood of levee failure. This is critical, since the existing pumping facilities cannot be expected to offset storm waters pouring through a serious break in the levees.

To improve conditions, the Orleans Levee Board has undertaken a project to raise all levees in the Parish system to project storm design criteria. Most of the levees have been raised two an additional (2) feet to compensate for settlement. Also, the Sewerage and Water Board has completed the upgrading of older pumping stations. This project made the pumping stations "flood proof" through renovation of the electrical systems, raising electrical components above projected flood levels and the provision of waterproof emergency electrical sources.

A problem associated with flooding is the provision of flood protection while, at the same time, avoiding or minimizing adverse environmental affects. The construction of levees around undeveloped wetland changes the character of these wetlands and encourages development in such areas. Additionally, by leveeing wetlands, economic losses occur by reducing wildlife and fisheries habitat and production. On the other hand, flood protection is needed for a population of over one million residing around the shores of Lake Pontchartrain. The cost in lives and property should severe flooding occur would be immense. Therefore, flood protection works designed to protect currently developed areas should be encouraged. At the present time, existing levees provide flood protection to developed areas of the City of New Orleans to the extent of about 100-year storm probability. New Hurricane protection plans authorized by Congress, would extend such protection to the approximate level of a 200-year storm or Standard Project Hurricane. The authorized plan, the Lake Pontchartrain and Vicinity Hurricane Protection Plan (LPVHPP), proposed to install levees in the region of Chef Menteur and the Rigolets and to construct structures

(barriers) across the passes. These structures could be closed to prevent raising the level of Lake Pontchartrain to unusual heights because of storm-driven tides from Mississippi Sound; however these barriers would also restrict normal tidal flow through the passes, with potentially harmful impacts on the ecology of the lake.

Levees associated with the Hurricane Protection Plan have already been constructed around New Orleans East (Management Unit 14); however, construction related to the barrier structures was halted by the courts in 1977, pending preparation of an adequate Environmental Impact Statement. In subsequent decisions, the court has allowed the New Orleans East Levee to be raised with the opinion that the affected area is already enclosed by levees, the raising of which will not change their present character or cause any environmental impact.

The Corps of Engineers has been ordered to explore alternative flood protection schemes, with and without the barrier structures. Completion of the Environmental Impact Statement, with alternative structural schemes, is expected sometime in 1983.

Implications for Planning

The potential for disastrous flooding in the City of New Orleans is an over-riding problem that should receive high priority in all planning considerations. Protection of developed areas by artificial means, i.e., pumps and levees, is the only method to assure adequate safeguards. On the other hand, coastal marshes provide valuable storage areas for tidal surges associated with tropical storms and hurricanes. Preservation of these marshes for their flood protection properties should be considered in future planning decisions.

Water Quality

One of the primary problems facing coastal resources in Orleans Parish is the impact urban activities have on water quality in the estuary, particularly on Lake Pontchartrain. This is almost an inevitable result of urbanization; however, great strides have been made in recent years in reducing the severity of these impacts and in minimizing the potential of future impacts, due mainly to federal regulatory policies such as the National Environmental Protection Act, the Federal Water Pollution Control Act, and the Resource Conservation and Recovery Act.

In Orleans Parish, one of the most significant sources of water pollution is storm water runoff, which primarily affects Lake Pontchartrain. The most critical time of runoff is the first hour or so during a heavy rain. During this period, rainwater is pumped from storm drains into Lake Pontchartrain by means of long outfall canals. Storm water discharges carry from the developed areas many pollutants that were washed into the canals or accumulated on surface areas of streets or buildings. Most notable of these pollutants are fecal bacteria and viruses indicated by the presence of high concentrations of E. coli bacteria (Mumphrey, et al, 1975:56).

During the late 1960's and early 1970's, a study was conducted on the feasibility of treating polluted storm water by hypochlorination. Unfortunately, only a modest reduction of coliform counts was achieved through extensive effort and expense. The study was subsequently terminated and a cost-efficient solution to this problem remains to be found.

Another source of water pollution is sewage. For years, New Orleans dumped largely untreated sewerage into the Mississippi River; however, a new sewage treatment plant has recently been built in Management Unit V that provides secondary treatment to the City's household wastes. A new treatment plant is also currently being planned for the West Bank in Algiers. The problem of infiltration and inflow, however, remains to be solved.

Another source of sewage is untreated wastes from camps. These fishing camps, primarily located along Hayne Blvd., Highway 11 and Highway 90 outside the levee system, are generally not hooked up to municipal sewerage, nor do they have approved disposal technologies. Unless modified, they will continue to have a detrimental effect on the wetlands and associated water bodies.

The City of New Orleans has historically used the land-fill method for disposing of some of its garbage. The land fill provides a convenient storage area for the large amounts of waste that otherwise would be burned in incinerators, causing increased air pollution. Unfortunately, if operated improperly, there are many adverse effects associated with land fill operations. One of these is severe water pollution. Decaying garbage breeds large quantities of coliform salmoella bacteria. During heavy rains (which are quite common to the New Orleans area most of the year), this highly polluted, nutrient-rich water is washed into Bayou Bienvenue and then into Lake Borgne. Off and on for many years, the oyster beds in Lake Borgne have had to be closed to harvesting due to abnormally high bacterial counts, stemming from the runoff associated with the large landfills on Paris Road in St. Bernard and Eastern Orleans Parish. This pollution killed some oyster beds and rendered some beds unusable due to the risk of infection or disease from the consumption of these shell-fish. (Mumphrey, et al, Metropolitan Wetlands Perspective).

Another source of contamination in Lake Pontchartrain is from industrial discharges through private and municipal sewerage and drainage systems. Industrial waste dumps in the region also contribute a variety of persistent toxic chemicals to the Lake. Hexachlorobenzene, hexachlorobutadiene and polychlorinated biphenyls (PCBs) have been found in the water and are now being found in the Lake's clams (Landon, 1979).

Implications for Planning

The tightening of regulations and standards for operating landfills in recent years should improve this situation. On December 11, 1980, the Solid Waste Management Program was adopted by the Louisiana Environmental Control Commission, initiating the five-year time limit for complying with federal and state standards. Open dumps have been identified by an inventory. Procedures for the classification of these dumps and the issuance of compliance orders to upgrade or close them are being implemented according to a schedule outlined in the rules and regulations of the state program.

The construction of the secondary treatment plant on the East Bank, as well as a new treatment plant on the West Bank should ease the problem of putting untreated sewage into the Mississippi River. Disposal of untreated wastes from camps should cease to be a problem, as these camps are now required to either hook-up to the municipal sewerage system, where possible, or install an acceptable disposal technology. Camps that fail to comply with such requirements will be closed down and/or removed by the Orleans Levee Board.

The problem of pumping polluted storm water runoff into Lake Pontchartrain is one to which a solution does not seem readily at hand. Previous experiments in trying to reduce bacteria counts proved unfeasible in light of the necessity of quickly removing storm water from the City in order to avoid flooding. Additional studies into this problem need to be performed before an effective recommendation can be given.

Saltwater Intrusion

Another potential source of water quality deterioration is increased salinity, or saltwater intrusion.

Saltwater intrusion into Lake Pontchartrain and the surrounding marsh could gradually change the character of the marsh and its wildlife species, however, any potential benefit or detriment to man has, to date, not been accurately evaluated. The most spectacular results of salt water intrusion are to be seen in the deterioration of the brackish marsh and freshwater swamps adjacent to the MR-GO in St. Bernard Parish. According to Darnell (1980), however, Lake Pontchartrain has historically undergone radical changes in salinity levels, usually associated with hurricanes that push saltwater into the estuary, or with the opening of the Bonnet Carre Spillway, which introduces large amounts of fresh water into the lake. Allowing saltwater to enter the Pontchartrain/Borgne estuary complex will increase fishery production in certain species such as shrimp and oysters, but will cause a reduction in the populations of fresh water species.

Implications for Planning

Salinity levels in Lake Pontchartrain have historically fluctuated due to natural causes. Construction of the MR-GO, however, may have caused these fluctuations to occur within an overall higher salinity regime.

The Lake Pontchartrain Basin Special Area Committee should establish a goal for the general salinity level of the lake, either fresher or more saline, so that planning decisions can be based on that criteria.

Shoreline Erosion

Rapid shoreline erosion along Lakes Pontchartrain and Borgne, especially at Alligator Point and between the Chef Menteur Pass and the Rigolets, is simultaneously destroying productive wetlands and reducing land area dimensions.

The Louisiana coastal marsh is so eroded that any disruption in its vegetation cover resulting in the impoundment of water and/or its degradation to below normal water level, will initiate a cycle of erosion from wind/wave action. The long term effects of erosion of the marshes could have a significant impact on the overall economy of the state by destroying fishery nursery grounds.

Erosion ultimately reduces the effectiveness of wetlands as a natural buffer to storm generated waves and causes a net loss in habitat vital to the production of nutrients supportive of both commercial and sport fishing productivity.

Implications for Planning

Shoreline erosion is caused by natural processes as well as man's activities. Wind and wave action, in concert with geologic subsidence, are causing erosion throughout Louisiana marshes. Channelization, the cutting of canals through wetlands for navigational and mineral exploration activities, accelerates the process of erosion.

Locations of severe bank slumping or shoreline retreat in Orleans Parish should be identified and appropriate abatement technologies investigated. Structural techniques such as rip rap, artificial barrier islands and fresh water diversion should be looked into.

Policies to either limit canal dredging or minimize their negative impacts should be incorporated as a high priority into the local coastal management program.

Mineral Exploration

Increased concern about dependency on foreign oil and gas, as well as recent congressional action toward the deregulation of the cost of oil and gas in this country, will undoubtedly further exploration and extraction activities in the New Orleans area. As previously described, most of this activity is presently occurring in the Rigolets/Lake St. Catherine area; however, the possibility that exploratory drilling could take place anywhere in the parish is appreciated. Oil and gas wells in isolated wetlands and waterways present their own special problems, most notably canal dredging for access and pipeline canals for transportation. Unless mitigating actions are taken, such as backfilling canals or plugging canal

heads, environmental damage to coastal areas can occur. Equally serious, as far as Orleans Parish is concerned, is the possible location of drilling sites in proximity to populated areas, for example, along Lakeshore Drive. The Lakeshore of Orleans Parish is heavily used for water-oriented recreational activities and the introduction of drilling equipment and associated hardware would impose hardships upon current uses. The possibility of accidents, spills and underwater obstacles in a recreation area would be detrimental to the welfare of the citizens and visitors of Orleans Parish. Needless to say, the concerns arising from exploration activity in residential areas would be even greater.

Implications for Planning

Policies for minimizing environmental damage to wetlands caused by access and pipeline canals should be formulated. Adequate safeguards to protect populated or recreational areas should be pursued by the City; some effort is already being undertaken, such as the conditional use process, and the Lake Pontchartrain Special Management Ad Hoc Committee.

Lack of Recreational Access

The City of New Orleans is blessed with a number of recreational resources, primarily due to its location within a coastal area. Fishing, hunting and boating are some of the activities practiced within the region's lakes, marshes and bayous. This high level of activity has produced a corresponding demand for facilities needed by such recreational pursuits. This is particularly true with respect to recreational boat mooring spaces. As one of the most popular forms of outdoor recreation, the number of spaces needed is tremendous. (Burk and Associates, Inc. 1978)

The number of recreational boats registered in the New Orleans area increased from 1970 to 1980 by 89% (26,556 to 50,101). At the same time, the population of the area increased by only 9.7% (1,045,000 to 1,147,000). Considering that there has been virtually no increase in the number of slips along the south shore of Lake Pontchartrain since 1960 when the Orleans Levee Board added 427 slips, and that the number of recreational boats is increasing at almost ten times the rate of population growth, the need for additional facilities is obvious. This discrepancy in demand vs. availability has perpetuated a black market for slips that will continue to worsen. It is generally understood in this area that boats sold with slips command much higher prices than the true market value. (Burk and Associates, Inc. 1980) Assuming that all those who wanted slips were satisfied in 1970, though a long waiting list existed at that time, the demand for recreational boat slips has doubled during the past ten years. The effect on the recreational boating industry has been one of suppression. During the past years, several boat dealers in the area have relocated to areas outside the City of New Orleans where boat slips are available. Vessels requiring wet slips cannot be sold where there are no wet slips available (Burk and Associates, Inc. 1980).

There is great difficulty in providing marina facilities to meet this demand. This type of development requires vast amounts of funds and effort in the process of formulation and implementation. The complex nature of such projects means that they cannot be put together overnight. This has been illustrated by the current proposals to expand the Municipal Yacht Harbor, and development of marinas at Bucktown, Lincoln Beach and the Lakefront Airport. All of these projects have been in the development stage for a number of years, but none are under construction at the present time. (Burk and Associates, Inc. 1978).

Lack of recreational access is also perceived in inadequate park and beach facilities in the coastal area. In Orleans Parish there are only two publicly maintained park sites that interface with coastal waters - Lakeshore Park and Fort Pike.

Lakeshore Park is the most used coastal shore in the state and, coincidentally, one of the best in terms of public facilities. One type of amenity which is in short supply is the swimming area. At present, there are only two designated swimming areas, both manmade and severely crowded on holidays and weekends. Summer weekday use is also heavy. A recent study by the University of New Orleans demonstrated that Lakeshore Park actually serves as a regional facility in that half of the users surveyed were from parishes other than Orleans. With as many as 60,000 users on nice summer weekends, overcrowding and friction between recreationists and nearby residents is a common occurrence. See Figure 24.

Fort Pike, which has undergone extensive renovation, provides fishing, picnicking and boat launching facilities. This stands in stark contrast to the continued deterioration of Fort Macomb, located at Chef Pass.

Other potential recreation sites have, like Fort Macomb, not been developed to their potential. The Edgelake/Little Woods strip of shoreline in Management Unit IV on Lake Pontchartrain is located in the rapidly developing eastern section of New Orleans. No public use areas or access points currently exist along this six mile stretch of coast line. The area has great potential for multiple recreation opportunities such as fishing, swimming, biking, etc. These opportunities have not been realized largely because there are many private camps located immediately adjacent to the shoreline which conflict with public recreational use of the shore.

Likewise, Lincoln Beach in the same area is a deserted amusement park which has a concrete fishing pier and man-made beach. Even though the area has the eery atmosphere of a ghost town, it is used daily by fishermen and swimmers. The beach, which has not been maintained since the early 1960's, is still in very good condition, as is the fishing pier. The site is owned by the Orleans Levee Board and leased to the Lake Forest Corporation. The corporation intends to build a 600 slip public marina on the 539-acre property. (Burk and Associates, Inc. 1978).

ORLEANS LAKESHORE PHYSICAL INVENTORY

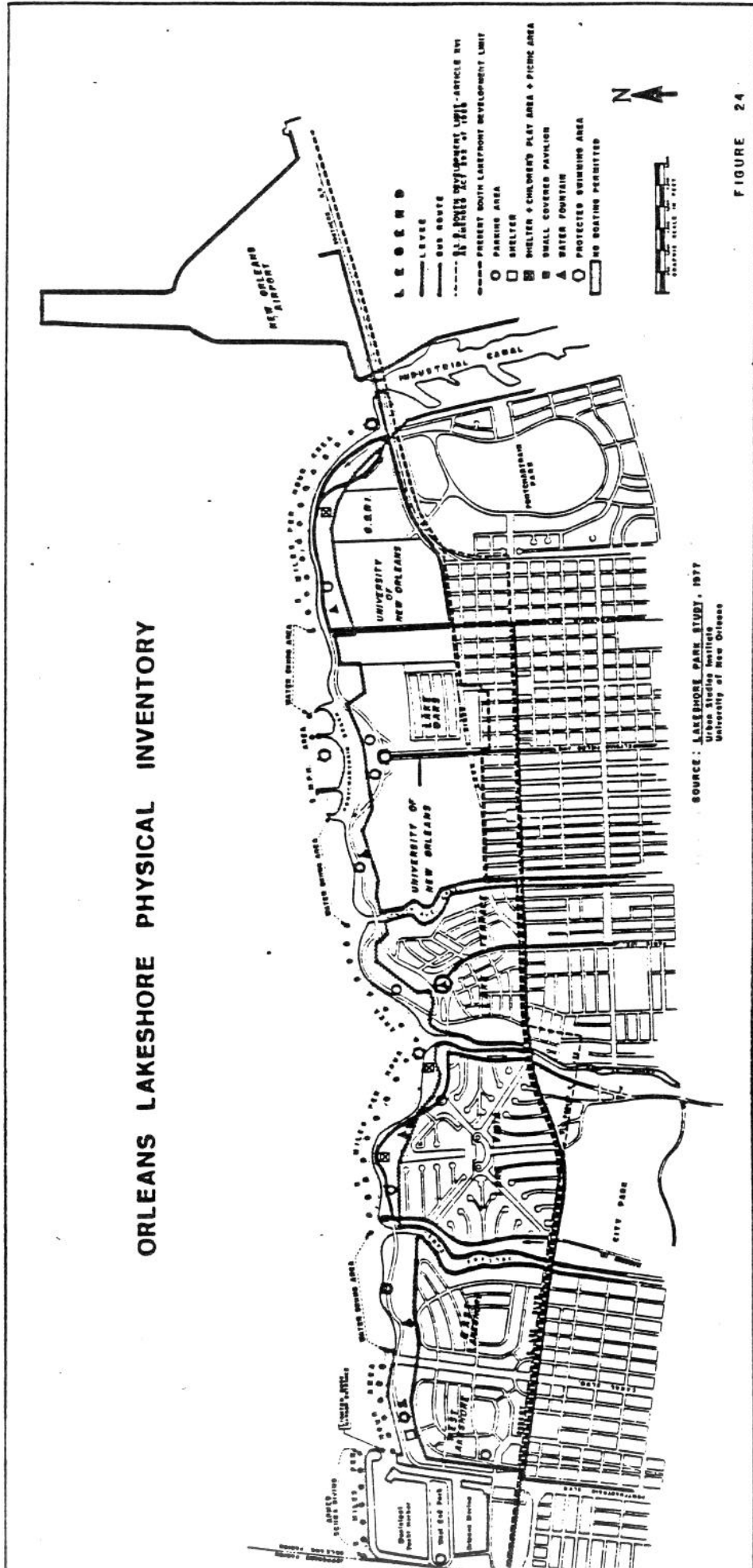


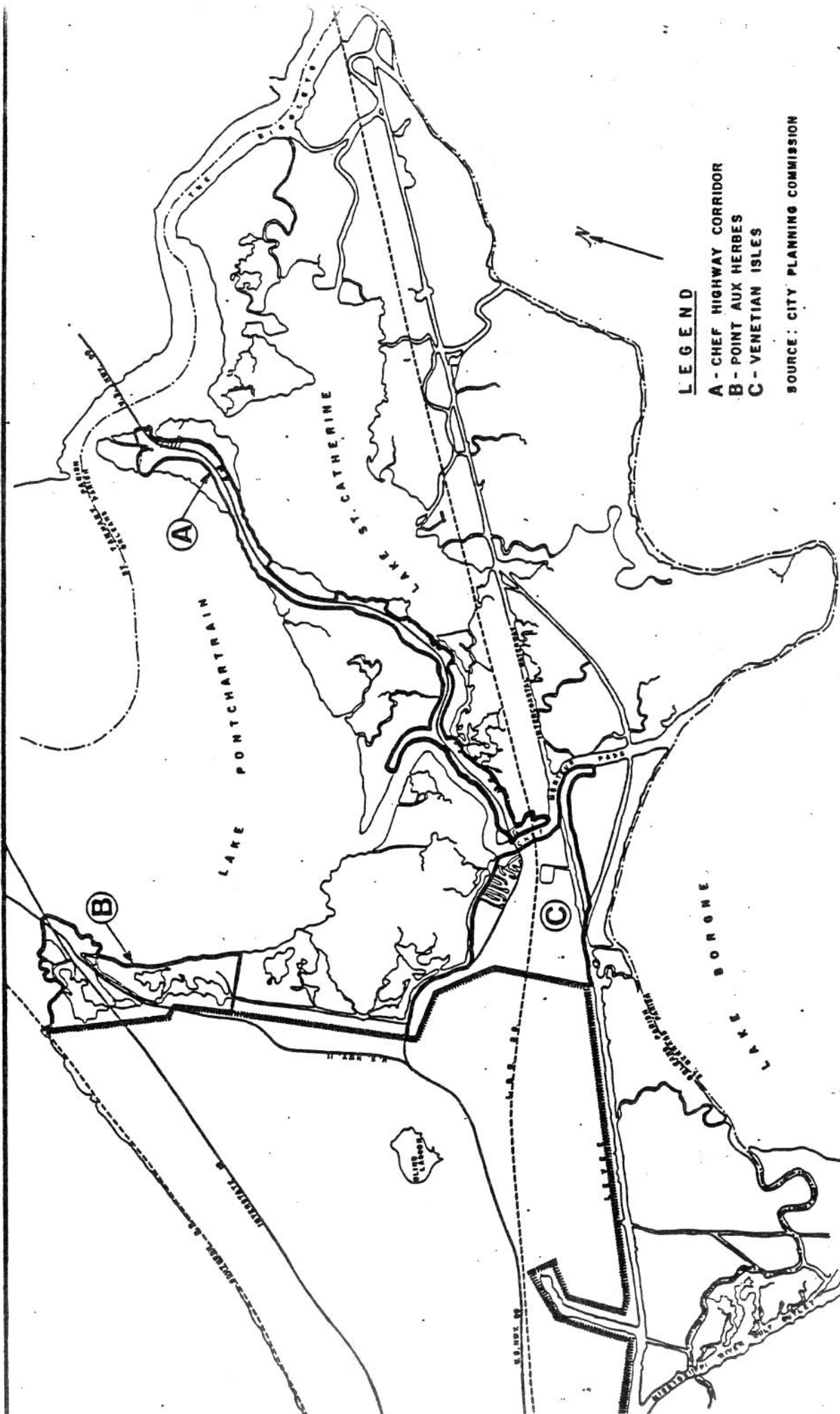
FIGURE 24

Implications for Planning

In spite of the tremendous amount of water in and around New Orleans, adequate recreational access to these water bodies has never been developed. There are really only two alternatives for coastal water-oriented recreation in the Parish. One is to utilize Lakeshore Park, which is overburdened during peak usage times. The other is to take advantage of private boating opportunities. This alternative is limited by two factors in that not everyone can afford a boat, and, secondly, even those who can afford them cannot find adequate storage facilities.

In light of the stated economic goal of expanding family-oriented recreational facilities, and the obvious necessity of increasing public recreational opportunities, high priority should be placed on developing both public and private water-oriented recreational facilities. This priority should be particularly applied to the eastern part of the Parish as this area develops.

In addition, much of the demand for recreational facilities along the Lake Pontchartrain shoreline is being generated by persons who reside outside of the Parish. As Lakeshore Park in essence serves as a regional park, regional funding for improved facilities should be sought.



LEGEND

- A - CHEF HIGHWAY CORRIDOR
- B - POINT AUX HERBES
- C - VENETIAN ISLES

SOURCE: CITY PLANNING COMMISSION

POTENTIAL PARTICULAR AREAS

PARTICULAR AREAS

Particular Areas are areas within the coastal zone which have unique and valuable characteristics requiring special management procedures. Such areas should be identified, designated and managed by local governments, following procedures consistent with those for Special Areas (LCRP, FEIS. c6-3). Special Areas are identified as areas which may include among other things, important geological formations (such as beaches); historical or archaeological sites; corridors for transportation, industrialization or urbanization; ports or other developments or facilities dependent upon access to water. The difference between Particular Areas and Special Areas is a matter of degree. Special Areas are areas of major or regional significance, while Particular Areas are more local in nature and should be managed at the local level.

At this time Orleans Parish does not seek the designation of any Particular Areas within its Coastal Zone. However, in the future, the Parish reserves the right to seek such a designation for three potential sites, three of which are herein described. These include the Chef Menteur Highway Corridor between Chef Pass and the Rigolets, the Point aux Herbes/Irish Bayou area and the Venetian Isles Marsh between Bayou Sauvage and the Gulf Intracoastal Waterway. Such a decision to modify the local program will be made if, and when, future conditions so warrant. Figure 25 shows the location of these potential Particular Areas. Mitigation measures to insure compatibility with surrounding marshes will be included in any Particular Area designation.

Chef Menteur Highway Corridor

This area of about 1500 acres lies partially on a former distributary ridge of the St. Bernard Delta. For this reason it exhibits the characteristics, solid ground and slightly higher elevations, that have permitted the greatest access to the wetlands in eastern New Orleans. Chef Menteur Highway was built on this more stable linear formation with borrow fill dug from canals on either side of the highway. The highway thus acts somewhat as a levee, bisecting the marshes, but, more importantly, the strip between the road and the bayou/canals paralleling it has become an oasis of relatively dry land in the marsh.

Into this gap have moved many persons, creating a linear strip of camp residence and second home development between Chef Pass and the Rigolets. Some commercial uses have evolved to service this community, most notably seafood restaurants and other uses supporting the recreational/commercial exploitation of coastal resources. These uses are a traditional part of the culture of New Orleans. Additionally there is a major historic park site, Fort Pike on the Rigolets.

The maintenance of this cultural reservoir is considered an important and natural goal of CZM, however, policies must be adopted that will insure its continued viability and that future developments in this unit will not endanger adjacent areas.

Point Aux Herbes

The Point Aux Herbes area consists of approximately 1400 acres of brackish marsh and inland lakes. In the past, a distributary arm of the St. Bernard delta coursed through this unit, providing a base of mineral soils. In addition, sand deposits indicate the remnants of the Pine Island trend, which forms the southern boundary of Lake Pontchartrain.

Due partly to this firm base, this area has been crossed by several major arteries, including Highway 11, Interstate 10 and the Southern Railroad. Similar to the conditions on Chef Highway, a fishing camp community has developed on the dry ground between the highway and Irish Bayou. This community provides the first glimpse of Orleans Parish to travelers entering the City from the east on I-10.

Because of the excellent access provided by the major arteries, the Comprehensive Land Use Plan designates this area as appropriate for recreational development. The configuration of inland lakes and bayous in proximity to roads could indicate likely sites for marinas. Management techniques to permit expanded uses while mitigating their impacts should be developed simultaneously.

Venetian Isles

This area of about 1000 acres is bounded on the north by Bayou Sauvage, on the east by Chef Pass, on the south by the GIWW and on the west by the South Point to GIWW levee. The majority of the land is classified as intermediate to brackish marsh, cut by several bayous and man-made canals.

Substantial development has occurred in this unit, including a waterfront subdivision, Venetian Isles, a light industrial business park between Chef Highway and Bayou Sauvage, commercial and recreational uses adjacent to Fort Macomb, marinas and boat launches. The unit is traversed by Chef Highway, the L&N Railroad and the Fort Macomb Canal.

Due to the primary access routes, the existing substantial development and the modified conditions of the marsh, the Comprehensive Land Use Plan identifies this area as suitable for special marine industrial uses. In addition, commercial, light industrial and recreational uses may evolve along the southern side of Chef Highway. As in the previous area, management techniques which would allow marine-oriented development in the coastal zone, while incorporating mitigation measures, should be developed for this unit.

SPECIAL AREAS

As described in the preceding section, Special Areas are similar to Particular Areas, but differ in degree of significance. While Particular Areas are designated and managed at the local level, Special Areas are designated by the Louisiana Department of Natural Resources and may require management by an interparish or intergovernmental team. In the LCRP/FEIS, two proposed Special Areas affecting Orleans Parish were described, the Port of New Orleans and the Lake Pontchartrain Basin.

Lake Pontchartrain Basin(18)

The Lake Pontchartrain basin includes all or part of 15 different parishes. Included in the basin are areas of unique and highly productive habitats, areas of oil and gas production, shell deposits and areas suitable for development.

The large number of political units and interests in the basin opens the possibility of it being a special area for management under Section 213.10 of Act 361. The formulation and implementation of a comprehensive basinwide management plan would require consideration of the project plans and problems of all these political units.

The first step to basinwide management will be taken during the first year of program implementation. This initial project will identify all responsible agencies and applicable regulations within each political unit and interface these responsibilities to eliminate overlaps and gaps in their jurisdictions. This would promote a more efficient and direct application of existing agency resources to the problem of coastal zone management. In addition, this task would provide a list of issues of importance that would need to be addressed in a basinwide program. Possible issues would include development, public access, flood and hurricane protection, and protection of renewable resources.

The City of New Orleans recognizes the necessity of a coordinated planning effort to insure the continued health and viability of Lakes Maurepas, Pontchartrain, St. Catherine and Borgne. To this end the Parish supports efforts to create this Special Area and the establishment of an equitable management program that would be fair to the needs of all the surrounding parishes and to the estuary, especially. On February 12, 1981, Councilman Bryan Wagner was appointed by the New Orleans City Council to the Lake Pontchartrain Basin Special Management Committee in order to begin to achieve these ends.

The Port of New Orleans(19)

The Port of New Orleans is the largest port in the United States; over 14,000 ocean-going vessels and 100,000 barges move through New Orleans a year. The Port acts as the gateway for commerce between the central United States and the rest of the world. Over one

quarter of all the waterborne commerce moved in the U.S. is moved on the Mississippi River between Baton Rouge and the Gulf of Mexico. The total value of the foreign trade (import and export) moved on the lower Mississippi River is estimated at 23 billion dollars and generates over 300 million dollars in custom duties annually. The Port of New Orleans accounts for ten percent of the gross state product. (Letter by Herbert R. Haar, Jr., Associate Port Director).

A recent study prepared by the U.S. Army Corps of Engineers, the New Orleans-Baton Rouge Metropolitan Area (NOBRMA) study, indicates that the Port of New Orleans will have to accommodate increasing amounts of commerce including newer and larger vessels in the future. The NOBRMA study indicates that by the year 2020 the volume of waterborne commerce in the New Orleans region will triple. The NOBRMA study also indicates that all types of commercial ocean-going vessels are increasing in size and that new facilities will be needed to accommodate them.

The Port of New Orleans and the major navigable waterways that connect it to the Gulf, including the Mississippi River, Mississippi River-Gulf Outlet, Gulf Intracoastal Waterway, Inner Harbor Navigation Canal, and Harvey Canal must be maintained and in some cases modified to accommodate this increased amount of commerce and the new, larger ocean-going vessels of the future. Channels will need to be enlarged and existing navigation structures are going to have to be replaced. It is in the national interest that the Port of New Orleans and the Mississippi River navigation system be modernized in order to remain a viable international seaport.

The Port of New Orleans is exempt from the coastal use permit system established by Section 213.13 of Act 361. This section exempts deepwater port commissions and deepwater port, harbor and terminal districts from having to obtain coastal use permits, but requires them to "be consistent to the maximum extent practicable with the state and any affected approved local program."

The CMS/DNR and the staff of the Port of New Orleans believe that because of the tremendous economic and physical impacts of the Port of New Orleans and its navigable waterways as well as the unique needs of the Port, that the Port and its navigable waterways should be managed as a special area.

The special area would consist of those land and water areas, subject to the jurisdiction of the Board of Commissioners of the Port of New Orleans, which are required for the operation and development of the Port of New Orleans. The Coastal Management Section of DNR and the staff of the Port of New Orleans are working together to develop a management program that will allow the Port of New Orleans to remain a viable international deepwater port and at the same time minimize any detrimental effects that any dredge and fill operations may have on the coastal zone.

The basic guidelines developed for the special management program will balance the continuing need for the modernization of the port area and its navigable water corridors with increased concern about the environmental damage that these corridors create. The management program shall address the need for the modernization of the port facilities and the necessity of widening and deepening particular navigation channels. The program shall also contain measures for addressing erosion and siltation problems which are affecting many of the present shipping canals. Additional efforts shall be made to limit the amount of saltwater intrusion caused by the existence of navigation channels. The management program will also contain guidelines on the use of spoil disposal as a method for the creation and restoration of marshlands. In summary, this program will allow for the necessary continuing development of the Port of New Orleans and also provide lessening of damages to wildlife habitats associated with port and channel expansion.

GOALS, OBJECTIVES, POLICIES

The preceding sections have described the environmental, social and economic conditions of Orleans Parish, in order to provide a context for coastal planning. Although the primary emphasis of this report focuses on coastal zone issues, they must be considered in balance with social, economic and other factors as well as the total environmental setting.

This chapter presents the goals, objectives and policies to be used in guiding the future development of Orleans Parish. While these do not possess the force of law, and are not intended to regulate activities directly, they do outline the long-term ends toward which careful planning stages are directed. The policies provide a course of action, chosen from among a range of alternatives. They appear in the context of given conditions, with the intent to guide and influence present and future decisions involving land and resource use.

These guidelines were developed primarily through two programs directed by the New Orleans City Planning Commission: The Comprehensive Land Use Plan and the Orleans Parish Coastal Zone Management Plan. In the first program, an intensive land use analysis was performed in conjunction with citizen attitude surveys. Meetings were held with neighborhood residents in order to ascertain community needs and desires. From these activities, goals and objectives for each planning district were derived. This information served as the basis for a comprehensive land use plan to be used as an element of the master plan for the City of New Orleans. The "Proposed Comprehensive Land Use Plan" was then presented at a series of public hearings held to explain the plan and receive comments from the general public. In December of 1980 the Comprehensive Land Use Plan was adopted by the New Orleans City Planning Commission.

The goals, objectives and policies developed in the Coastal Zone Management Plan are concerned primarily with those management units located outside the levee system. Since there are few residents in these marsh areas, citizen participation and input was achieved by the creation of a CZM Citizen's Advisory Committee, composed of representatives of the various interest groups who use the resources of the coastal zone. Their recommendations for coastal management districts were incorporated into the Comprehensive Land Use Plan, and with the adoption of the Land Use Plan, became part of the Master Plan for the City of New Orleans.

Overall Goals for Orleans Parish

As previously stated, the primary emphasis of this section is the formulation of goals and objectives for the coastal zone; however, they must be balanced by other social and economic factors, taking in the total environment. This total view is reflected in the following four major goals of Orleans Parish, which as outlined in the land use plan are to be achieved primarily within the currently leveed areas of the City.

1. To expand the economic base of the City of New Orleans;

2. To provide additional flood protection for both residents

3. To retain and increase middle income families within the central city area of New Orleans; and
4. To avoid the uncontrolled urban sprawl phenomenon.

The Managed Growth Plan, which seeks to achieve these goals, provides for a balance between revitalizing older sections of the City, allowing new growth in developing sections of the City, and permitting limited development in environmentally sensitive areas. The plan emphasizes the following objectives:

1. Emphasis on the Central Business District in terms of work, leisure and living areas with the goal of keeping the Central Business District as a Regional Center and a 24 hour-a-day area.
2. Emphasis on transit facilities and services with reduced emphasis on the automobile as the primary transportation mode.
3. Expansion of industrial land opportunities to provide land, both within the developed section of the City and in developing sections, for new employment opportunities
4. Recognition of environmentally sensitive areas, particularly wetlands, to provide for limited development and appropriate regulation provided that densities in wetlands are far less than that proposed for areas within the levee.
5. Provide for physical expansion of the City with urban development generally occurring within the hurricane levee protection system. This should provide land for continued growth and help relieve density pressures in older areas while providing for a variety of housing options to be available to all socio-economic levels.
6. Emphasis on conservation of existing neighborhoods generally at their current densities. Also provide for selected redevelopment in particular locations where existing conditions so warrant.

The policies to achieve these objectives are embodied in the Master Plan for the City of New Orleans, of which the Land Use Plan is a key component. The Land Use Plan sets forth the goals, objectives and policies to guide planning and decision-making for each management unit.

LEVEED MANAGEMENT UNITS

As stated in the overall goals for the City of New Orleans, the focus of urban activity will be within the fastland, leveed and otherwise protected management units and will consist of two components: revitalizing older sections of the City and allowing controlled growth in the developing parts of the City. The following descriptions of leveed management units establishes the policies to be followed to accomplish these goals.

Management Unit I: The Urban Core

The Urban Core Unit contains most of the developed portion of the City as well as the majority of the population. Management efforts are, not surprisingly, directed at retaining and improving neighborhoods while at the same time strengthening the Central Core area and maintaining it as a Regional Center.

GOAL: To conserve existing neighborhoods generally at their current densities and to provide for selected redevelopment in particular locations where existing conditions so warrant.

Objectives:

- a. To maintain the quality of existing development with particular attention to general maintenance of structures.
- b. To improve declining residential neighborhoods through the cooperative efforts of both private and public groups.
- c. To prevent the spread of conflicting land uses and to encourage development in accordance with the land use plan.
- d. To preserve areas and structures of historical and architectural significance.

Policies:

- a. To encourage private improvement to structures.
- b. To insure sound new development on scattered vacant sites.
- c. To improve and provide additional community facilities.
- d. To enforce the housing and building codes.
- e. To maintain and beautify streets, particularly minor streets in residential areas.
- f. To maintain and expand, where possible, playgrounds and recreational facilities.
- g. To expand the capacity of the yacht harbor and marina to provide better boating facilities for a greater number of people.
- h. To investigate the potential use of historic district mechanisms as a means of preserving older structures.
- i. To develop in areas with historic buildings or on "tout

ensemble" streets consistent with historic buildings as well as contribute to the overall environmental quality.

- j. To relate each building to the architectural elements of the particular street or adjacent building; height, floor height, fenestration, entry form, materials, etc.
- k. To rehabilitate historic buildings with viable uses.
- l. To stop demolition of historic buildings.
- m. To discourage scattered commercial and industrial uses in residential areas.

GOAL: To expand industrial land opportunities to provide land within the developed section of the City for new employment opportunities.

Objectives:

- a. To encourage the development of vacant and/or underutilized commercial and industrial properties.

Policies:

- a. To guide new development in accordance with the City's Land Use Plan.
- b. To permit industrial expansion to replace poorly located, substandard residential pockets in accordance with the Land Use Plan.

GOAL: To emphasize transit facilities and services with reduced emphasis on the automobile as the primary transportation mode.

Objectives:

- a. To develop an integrated transportation system, balancing automobile facilities with transit and pedestrian movement.

Policies:

- a. Relate development intensity to the street network capacity as well as to the scale and character of adjacent areas and buildings.
- b. Develop pedestrian movement corridors to the Superdome from major hotels and parking areas reinforcing the existing activities and influencing the expansion of activities uptown of Canal Street.
- c. Locate new parking areas only where street capacity can

accommodate peak hour unloading.

- d. Develop inter-area transit to connect new high intensity development with parking areas as well as with existing employment centers.
- e. Establish long-haul mass transit to the CBD from outlying areas.
- f. Minimize auto trips through pedestrian areas such as the Vieux Carre' and HEAL.

GOAL: To emphasize the Central Business District in terms of work, leisure and living areas, with the goal of keeping the CBD as a Regional Center and a 24 hour-a-day area.

Objectives:

- a. To strengthen downtown New Orleans as the administrative, office, retail and entertainment center of the Region.
- b. To encourage development along the Riverfront.
- c. To strengthen the bond between the Vieux Carre and the CBD.
- d. To provide a range of activities in the Central Area to attract residents as well as visitors.
- e. To protect and develop good residential communities within the Central Area.
- f. To treat and rehabilitate Skid Row inhabitants and eliminate Skid Row itself.
- g. To promote architectural design distinction.
- h. To continue the public/private partnership to implement the Growth Management Plan and continue planning for the CBD.

Policies:

- a. Encourage multiple use in the Central Core sub-areas.
- b. Encourage the development of night activity uptown of Canal Street, particularly hotel and residential development.
- c. Encourage residential development throughout the Central Area.
- d. Concentrate major new development in multi-purpose centers in five areas: Poydras Street, Riverfront, Superdome Area, infill in Office Core and Upper Canal Street.

- e. Control further demolition and creation of more surface parking lots within the Core.
- f. Locate commercial development uptown of Iberville Street.
- g. Connect all new projects with a clearly defined high amenity network to present pedestrian corridors, with arcades, galleries, pedestrian walkways and the like.
- h. Connect new employment and residential areas to the Canal Street retail area.
- i. Provide the pedestrian network with a variety of uses where feasible, such as retail, entertainment, and eating facilities.
- j. Provide open space throughout the Central Area, particularly small urban parks along the major pedestrian circulation network.
- k. Landscape large plazas associated with major developments.
- l. Phase out inappropriate dock activities consistent with the Growth Management Plan to allow access to the river and to encourage new development.
- m. Encourage pedestrian use in riverfront activities.
- n. Develop riverfront without blocking public access and views of the river.
- o. Concentrate high rise development on the riverfront at points of high capacity movement system.
- p. Preserve accessibility to the riverfront from adjacent areas.
- q. Maintain view corridors from adjacent areas.
- r. Develop the riverfront without disturbing the character of adjacent areas.
- s. Locate major new residential development uptown of Poydras Street.
- t. Develop Camp, Carondelet, St. Charles and Baronne Streets as primary retail and service streets.
- u. Retain the primary retail core on Canal Street.

- v. Encourage residential development within walking distance of the retail core.
- w. Improve the general character of the retail core by additional landscaping and institution of a coordinated street furniture program.
- x. Separate service traffic to the retail core from pedestrian and auto movement by physical location or access time (early morning and late evening).
- y. Locate large scale development uptown of the retail core with no such construction on Iberville Street, between Rampart and North Peters.
- z. Locate only small scale residential projects in the Vieux Carré, Tremé, and Marigny, and require any development to contribute to the historic character of the areas.
- aa. Construct major new hotel development away from the Vieux Carré, but within walking distance to promote tourist activity in and access to the Vieux Carré as well as the office and retail core area.
- bb. Develop inter-area transit between the Vieux Carré and new development sites.
- cc. Develop the Rampart/Bourbon Street blocks of the Vieux Carré in a manner compatible with the Vieux Carré.
- dd. Preserve the Vieux Carré, Marigny and Tremé as historic residential neighborhoods.
- ee. Provide living opportunities in the Central Area for a range of population groups.
- ff. Continue renovation in the Vieux Carré, Tremé, and Marigny without displacing residents or residential structures.
- gg. Encourage residential construction near high employment centers such as HEAL.
- hh. Establish a Detoxification and Rehabilitation Center to coordinate city and state functions.
- ii. Phase out the activities and land uses that make Skid Row a viable entity.
- jj. Monitor zoning districts and other controls to insure a high level of urban design, architectural and landscape architectural quality.

Management Unit II: Algiers/Aurora

The Algiers/Aurora Planning District experienced an estimated population increase of 11,000 persons between 1970 and 1975. This trend of population growth is anticipated to continue, since the 1995 projection of 80,549 persons indicates an increase of over 23,000 persons from the 1975 estimate of 63,463.

This continued population growth will be accommodated primarily in single family housing, although moderate apartment construction is anticipated and increased townhouse and condominium development are expected.

Projected growth in commercial acreage is compatible with growth in newly developing areas and is indicative of the trend toward larger commercial sites serving neighborhood, community and highway-oriented needs.

Over one-third of Algiers/Aurora is classified as vacant with sizeable tracts available for development.

GOAL: To conserve existing neighborhoods generally at their current densities and to provide for selected redevelopment in particular locations where existing conditions so warrant.

Objectives:

- a. Maintain stability in sound residential neighborhoods.
- b. Encourage and promote rehabilitation efforts, particularly in the older portion of the District.
- c. Achieve land use compatibility by guiding growth in currently undeveloped areas in accordance with the land use plan.
- d. Improve River-crossing capacity connecting the East and West Banks.

Policies:

- a. To inform citizens of various rehabilitation assistance programs available at the local and federal levels.
- b. To secure funds to assist in rehabilitation efforts.
- c. To encourage private maintenance efforts.
- d. To provide improved public facilities and services, particularly in the older portions of the District, such as sidewalks, street maintenance and landscaping, and neighborhood recreational facilities.

- e. To enforce building and housing codes.
- f. To construct a new bridge in the Greater New Orleans area.
- g. To implement transit improvements recommended in the Metropolitan Transportation Study.
- h. To provide neighborhood-type recreational facilities even though major park facilities are within reasonable proximity to District residents.
- i. To guide land use development through the use of public facilities and utilities.
- j. To accommodate intense commercial and multi-family residential uses in areas appropriate to high traffic generation, and to adequately buffer such uses from adjacent single-family developments.

Management Unit III: Lower Coast

Population in the Lower Coast has remained extremely small. However, it is estimated to reach 10,000 by 1995.

Access to the Unit is extremely limited with a narrow drawbridge across the Intracoastal Waterway being the only access from the rest of Orleans Parish. However, this problem should be rectified in the near future.

The City is in the process of developing a major regional park in the Unit which will attract persons to the area and should result in additional development, particularly along roadways providing access to the park.

GOAL: To provide for physical expansion of the City with urban development generally occurring within the hurricane levee protection system. This should provide land for continued growth and help relieve density pressures in older areas while providing for a variety of housing options to be available to all socio-economic levels.

Objectives:

- a. To promote and guide development in accordance with the land use plan.
- b. To improve access to the District by constructing a high level bridge over the Intracoastal Waterway at the foot of General DeGaulle Drive.
- c. Develop the 750 acres of English Turn Wilderness Park as planned, striking a balance between man-use of the environment and the natural eco-system.

Policies:

- a. To formulate and apply techniques such as zoning and subdivision regulations for the District.
- b. To use the provision of public services and utilities to guide development.

Management Unit IV: East Gentilly

Population in East Gentilly has been increasing continually with particularly large gains occurring since 1970. The percentage gain over the five year period 1970-1975 was approximately 35%. It is estimated that over 115,000 people could ultimately live in East Gentilly.

The commercial areas along Chef Menteur Highway and Downman Road, which were once the sole source of District commercial activity are being supplemented by shopping districts and centers along Interstate 10 since Chef Menteur Highway has been replaced as a major gateway into the City.

The semi-rural character of commercial and residential areas between Morrison Road and Hayne Boulevard are changing as subdivisions are opened and roads are improved.

The widening of Hayne Boulevard will place increasing pressure for more intensive use of lakefront property in the District. The City has moved to aggressively develop the Almonaster-Michoud Industrial District which should in the long run become one of the most important job generating sites in the City.

The extension of roadways such as Read Boulevard into the industrial sector between the Chef Menteur Highway and the Mississippi River Gulf Outlet will provide better access to the under-utilized industrial acreage in this area.

Areas of deteriorated housing and poor street conditions exist off Chef Menteur Highway.

Extensive vacant land exists in East Gentilly, particularly in the industrial sector between Chef Menteur Highway and the Mississippi River-Gulf Outlet, and in the area bounded by Bullard Road, Interstate 10, Paris Road and Dwyer Road.

GOAL: To provide for physical expansion of the City, generally within the hurricane levee protection system, while providing a variety of housing options to be available to all socio-economic levels.

Objectives:

- a. Promote and guide development in accordance with the land use plan.

- b. Encourage private maintenance efforts to maintain neighborhood stability in older portions of the District as well as in those areas developed more recently.
- c. Promote rehabilitation of substandard and deteriorated residential property and poor streets in those few areas where these conditions exist.
- d. Encourage revitalization of older strip commercial properties that are deteriorating due to a shift in emphasis to newer commercial districts.
- e. Develop plans to better utilize the lakefront for recreational purposes.

Policies:

- a. To keep "public" pace with subdivision expansion by providing sufficient streets, hospitals, libraries, schools, parks and playgrounds to accommodate population growth.
- b. To utilize the provision of utilities and services to guide development.
- c. To guide development through such techniques as zoning, subdivision regulations and the capital budgeting process.
- d. To inform citizens of available rehabilitation programs at the federal and local levels.
- e. To improve street conditions.
- f. Require camps along Hayne Blvd. to hook-up to municipal sewerage or install alternative disposal technology.

GOAL: To expand industrial land opportunities to provide land in the developing sections of the City for new employment opportunities.

Objectives:

- a. To encourage the rapid development of the Almonaster Corridor.

Policies:

- a. To formulate a detailed plan for industrial development in the Almonaster-Michoud Industrial District.

Management Unit VI: New Orleans East

Although the current population of the District is small, there are indications that significant development will commence in the near future.

New Orleans East experiences varying degrees of development constraints. Virtually the entire District is characterized by organic marsh-type soils which subside when drained. Unless special development techniques are utilized to contain this phenomenon, subsidence results in both public and private property damage. Since much of the District presently is not drained, drainage and subsequent subsidence should be accomplished prior to development taking place.

GOAL: To provide for physical expansion of the City, generally within the hurricane levee protection system, while providing a variety of housing options to be available to all socio-economic levels.

Objectives:

- a. Guide growth in accordance with the adopted land use plan for this area.

Policies:

- a. To use the provision of public facilities and utilities to guide growth.
- b. To implement the land use plan for the District by the use of mechanisms including zoning and subdivision regulations.
- c. To prepare specific regulations to guide development in the Interstate 10 corridor.

GOAL: Minimize subsidence problems prior to further development.

Objectives:

- a. To accomplish early, controlled drainage of currently undrained areas that are programmed for development so that subsidence is properly monitored and mitigated, as the East Gentilly unit was.
- b. To revise development codes to insure the use of building and land preparation techniques appropriate to areas subject to severe subsidence, if necessary.

Policies:

- a. To utilize the water-drawdown method of drainage in this area.
- b. To investigate new construction techniques appropriate for low-lying, floodprone, and subsidence-prone areas.

COASTAL ZONE MANAGEMENT UNITS

The Purpose of the Coastal Zone Management is to regulate man's interaction with the natural environment in a manner most beneficial to the current and future generations of New Orleanians. The coastal zone is an area rich in both renewable and non-renewable resources. The rich deposits of oil, gas, and shell located here are the product of thousands of years of biological processes. The retrieval of these resources is necessary to society; however, these resources are limited and can be exhausted.

The interface of land and water serves as the production area for important species of fish and shellfish. The quantity produced is directly dependent on the extent and quality of the coastal wetlands. This resource is renewable and with care can supply future generations. It is due to this abundance that people are drawn here to live and work.

The importance of the coastal zone goes beyond its resource production. Our attempts to exploit its riches have influenced our culture and heritage. The coastal environment is a major source of recreation and helps define our city, contributing to its uniqueness.

Along with these productive resources go a scarcity of land suitable for urban uses. Uncontrolled urban development is the single largest threat to the environment which was the attraction of that development. The unavoidable by-products of human activities are also a threat to the natural environment. At the same time, this coastal environment poses threats to man's occupation. The low elevation and lack of topographic relief coupled with the threat of storms poses problems from flooding. The organic composition of the soils presents special problems for urban uses.

In summary, Coastal Zone Management seeks to strike a balance between man's use of the environment and the maintenance of the natural ecosystem. The process of planning implies the formulation of goals. The following goals are those which guided the preparation of a Coastal Zone Management Plan for the City of New Orleans. Planning for the Coastal Zone must also be viewed in the higher context of the City's desire to improve the welfare and quality of life for all its citizens.

General Goals

1. The maintenance of a high level of quality within estuary areas in particular and within the City of New Orleans in general.
2. The formulation of land use policies, guidelines and techniques appropriate to marsh-estuary areas.

3. The formulation of a means by which energy resources may be exploited while mitigating or minimizing the negative environmental impacts.
4. The provision of adequate open space and recreational areas for the benefit of the citizens of the New Orleans Metropolitan Area and the State of Louisiana.
5. To protect and promote the wise use of economic and ecological resources, both renewable and nonrenewable, represented by the natural environment.
6. The efficient utilization of existing governmental agencies, in a coordinated fashion, in the management of sensitive environmental areas.

Management Unit V: Viavant

The Viavant Management Unit is not currently leveed; however, this unit is included in the Chalmette Levee hurricane protection system, construction of which by the U.S. Corps of Engineers will begin during the summer of 1981. Much of the 4000 acres of this unit has been significantly modified by the placing of large amounts of spoil material during the dredging of the Gulf Intra-coastal Waterway and, subsequently, the Mississippi River-Gulf Outlet. Due to this significant modification, this unit has been designated as a transitional area.

The most significant aspect of the existing land usage is the predominant amount of vacant acreage; however, with access to deep draft waterways, and high surface elevations created by spoil disposal, virtually all of the unit could be developed for industrial uses. The Board of Commissioners of the Port of New Orleans' long range expansion plans involve part of Viavant, and it is anticipated that this area will be included in the Port of New Orleans Special Area when the management plan for that entity is established. Waterborne commercial activity in Viavant could be enhanced if the Industrial Canal lock were enlarged to permit passage by larger ships and if the MR-GO were deepened to accommodate deeper-draft ships.

GOAL: To provide land in Viavant as an industrial development reserve to meet long-range industrial needs.

Objectives:

- a. To resist the extension of public facilities into the area until other available industrial land is absorbed, except in unusual circumstances.

- b. Support efforts of the Board of Commissioners of the Port of New Orleans and the Coastal Management Section/Department of Natural Resources to establish a Port of New Orleans Special Area, to include Viavant, which would allow the necessary expansion of the Port of New Orleans and port-related industry without causing undue deterioration of the coastal zone.

Policies:

- a. To require coastal use permits in conformance with the LCRP for any activities, other than deep water port activities, which will result in modifications to coastal wetlands, until such time as this area is placed under Special Management.

Management unit VII: New Orleans East/Special

The land area in this unit is mostly vacant wetlands. The most significant probable land use change would entail the development of a special marine industrial area along the present Gulf Intra-coastal Waterway.

The majority of the acreage within this unit is included in the Master Plan for New Orleans East. That plan and the City's Coastal Zone Management Plan designate most of the area as wetlands to remain in its natural state. Exceptions to this general rule would include residential uses in Venetian Isles, recreational uses in the Irish Bayou area, an industrial strip between U. S. Highway 90 and Bayou Sauvage, and other marine commercial and industrial development. Another significant proposal which will affect the area's status is the concept of a major turning basin and ship anchorage approximately where the MR-GO meets the GIWW. This anchorage may prove vital to the operations of the Port of New Orleans and, as such, has the support of the CZM Advisory Committee.

Two potential particular areas have been identified in this unit. One is Point-aux-Herbes in the northern most section and the other is the Venetian Isles Marsh between Bayou Sauvage and the GIWW.

Implications for Future Land Use

1. The population of this District remains small.
2. Because the area is outside of the hurricane protection levee system, the threat of flooding places constraints upon development.
3. Soils in the district are organic marsh types, except immediately adjacent to U. S. Highway 90, which is located on the Bayou Sauvage ridge, and have severe subsidence potential, posing special development constraints.
4. Wetlands within the District, especially those adjacent to Lake Pontchartrain, are in relatively good condition and function as habitat for numerous species of fish and wildlife.

5. The City's Coastal Zone Management Plan recognizes the ecological and recreational value of the wetlands within this District and recommends that such wetlands be preserved in their natural state to the maximum extent practicable.

GOAL: To preserve viable wetlands in recognition of their ecological and recreational value.

Objectives:

- a. To establish land use and control measures that would allow uses that are compatible with and would minimally impact wetland areas, while prohibiting inappropriate and environmentally damaging uses.
- b. To allow coastal landowners some reasonable use of their land so as not to cause an unconstitutional taking.
- c. To establish performance standards for any use permitted in wetland areas.
- d. To control erosion.

Policies:

- a. To create a zoning district within the New Orleans Comprehensive Zoning Ordinance that would be applied to coastal wetlands in a near pristine state. This district would have the following purpose: to protect and preserve coastal wetland areas minimally impacted by man.
- b. To apply this zoning district to appropriate areas as identified in the Comprehensive Land Use Plan and this document.
- c. To strictly enforce existing housing, building code and floodplain performance standards.
- d. To incorporate the Louisiana Coastal Resources Program's "Guidelines for Uses" into the local coastal management program to insure that these performance standards are applied to uses of local concern.
- e. To minimize new canal development where possible and to minimize environmental impacts of canal and slip construction. The following conditions may be required for uses of local concern and will be the basis for the parish's recommendations on uses of state concern.
 - 1) Minimize the need for new canals and/or slips by the use of directional drilling, where possible, in drilling operations, and the use of existing pipeline canals for new pipelines, where possible. Since drilling barges normally require 8 feet of water draft, either sweeping out of the proposed barge

route or floating the barge in during high tide is required. Floating the barge in during high tide is the preferred technique.

- 2) When dredging operations are dictated by site conditions, only the minimum amount of dredging necessary to accomplish the job should be allowed. Turbidity screens shall be used during all dredging operations.
 - 3) The deposition of dredged material should be specified in the permit and should have the following priorities:
 - a) Where possible, dredged material should be placed so as to encourage new marsh development (in non-navigation water areas adjacent to existing marsh.
 - b) The method of spoil deposition should be decided on a case-by-case basis. Also, at times, spoil could be placed in ponds to the elevations of adjacent marsh and thus create new areas conducive to the establishment of marsh vegetation.
 - 4) In navigable waterways, spoil should be spread so as not to decrease the water depth by more than 0.5 feet. All logs and stumps unearthed during dredging operations should be buried beneath the waterway or removed to a disposal site on land to avoid underwater obstructions.
 - 5) Spoil banks should be graded, where possible, to avoid potholes or other fissures which would create mosquito breeding habitat.
 - 6) Stabilization material should be used on areas of severe erosion along canal lengths, preferably revegetation with appropriate native plants.
 - 7) Upon abandonment, canals should be plugged using earthen plugs and rip-rap or other stabilizing material.
- f. In order to minimize the impacts of board road construction to access oil well sites in wetlands, the following recommendations shall be made to the State.
- 1) Culverts should be placed where streams and sloughs are crossed by the roadway embankment and at other locations to promote or maintain sheet flows. The maximum spacing between culverts should be maintained so as to allow for free flow of water.

- 2) Broken boards and other extraneous construction materials should be removed from the site when the road is abandoned by the permittee. All plastic sheeting should be removed from areas of the roadway from which the boards are removed.
 - 3) The road fill placed in wetlands should be degraded when the location is abandoned. The material should be deposited into the borrow areas or ditches, and the area restored to as near preproject conditions as practical using the material available in the road fill.
- g. Mitigation or compensation at off-site locations should be required for areas to be adversely impacted.
 - h. Shorelines should be stabilized by methods other than bulkheading (i.e., rip-rap, matting material or natural vegetation.)

GOAL: To allow limited port and marine-oriented industrial development in particular areas.

Objectives:

- a. To create a zoning district within the City's Comprehensive Zoning Ordinance that would have the following purpose: to permit limited port and marine-oriented industrial development requiring access to and utilization of coastal waters.
- b. To establish special development requirements to ensure that such marine-oriented industrial development will not significantly degrade the coastal environment.

Policies:

- a. To apply the special port and marine-oriented industrial zoning district to appropriate areas as identified in the Land Use Plan and in this document.
- b. To require that significant industrial developments permitted in this district include adequate mitigating features to compensate for wetlands modified by development.
- c. To strictly enforce building code and floodplain performance standards.
- d. To incorporate the Louisiana Coastal Resources Program's "Guidelines for Uses" into the local program to ensure that these performance standards are applied to uses of local concern.

GOAL: To increase recreational access to and expand water-oriented recreational opportunities in the coastal zone for residents and visitors.

Objectives:

- a. To create a zoning district within the City's Comprehensive Zoning Ordinance that would have the following purpose: to allow the orderly and systematic development of particular areas suited to marine-oriented recreational facilities.
- b. To establish special development requirements to ensure that such marine-oriented recreational development will not significantly degrade the coastal environment.

Policies:

- a. To apply the special marine-oriented recreational zoning district to appropriate areas as identified by the Land Use Plan and this document.
- b. To require that significant recreational developments permitted in this district include adequate mitigating features to offset environmental damages caused by the development.
- c. To strictly enforce building code and floodplain performance standards.
- d. To incorporate the Louisiana Coastal Resources Program's "Guidelines for Uses" into the local program to ensure that these performance standards are applied to uses of local concern.

Management Unit VIII: Chef Menteur/Rigolets

The Chef Menteur/Rigolets Management Unit is characterized by viable wetlands, approximately 27,000 acres, and is an important fish and wildlife habitat. Since this unit is totally outside the hurricane protection levee system and is surrounded by major bodies of water, it usually sustains heavy tidal inundation whenever a tropical storm passes through the New Orleans area. In addition, soil types in the unit exhibit severe subsidence characteristics when drained, and thus are poorly suited for conventional urban development.

This management unit also contains a potential "particular area" as previously identified in this report. This is the Chef Menteur Highway Corridor. This corridor has traditionally been the site of fishing camps which are primarily occupied on weekends and holidays.

GOAL: To conserve renewable natural resources.

Objectives:

- a. To establish land use and control measures that would allow uses that are compatible with and would minimally impact wetland areas, while prohibiting uses that are inappropriate and environmentally damaging.
- b. To allow coastal landowners some reasonable use of their land so as not to cause an unconstitutional taking.
- c. To establish minimum performance standards for any use permitted in wetland areas.
- d. To control erosion

Policies:

- a. To create a zoning district within the City's Comprehensive Zoning Ordinance that would apply to coastal wetlands wherein limited uses would be allowed which would maintain the nearby wetlands in a near pristine state. This district would have the following purpose: to protect and preserve coastal wetland areas minimally impacted by man.
- b. To apply this zoning district to appropriate areas as identified in the Land Use Plan and this document.
- c. To strictly enforce existing housing, building code and floodplain performance standards.
- d. ✓ To incorporate the Louisiana Coastal Resource Program's "Guidelines for Uses" into the local program to insure that these performance standards are applied to uses of local concern.
- e. To minimize new canal dredging where possible, and to minimize detrimental impacts of new canals and slip construction. The following conditions may be required for uses of local concern and will be the basis for the parish's recommendations on uses of state concern.
 - 1) Minimize the need for new canals and/or slips by the use of directional drilling, where possible, in drilling operations, and the use of existing pipeline canals for new pipelines, where possible. Since drilling barges normally require 8 feet of water draft, either sweeping out of the proposed barge route or floating the barge in during high tide is required. Floating the barge in during high tide is the preferred technique.

- 2) When dredging operations are dictated by site conditions, only the minimum amount of dredging necessary to accomplish the job should be allowed. Turbidity screens should be used during all dredging operations.
 - 3) The deposition of dredged material should be specified in the permit and should have the following priorities:
 - a) Where possible, dredged material should be placed so as to encourage new marsh development (in non navigation water areas adjacent to existing marsh.
 - b) In existing marsh, the dredged material should be placed to maintain natural drainage and nutrient exchange. Along lengthy canals, spoil should be deposited leaving at least 50-foot gaps every 500 feet. (This condition is to be used in areas where salt water intrusion is not a problem.) No spoil should be placed in marsh ponds or tidal streams.
 - 4) In navigable waterways, spoil will be spread so as not to decrease the water depth by more than 0.5 feet. All logs and stumps unearthed during dredging operations should be buried beneath the waterway or removed to a disposal site on land to avoid underwater obstructions.
 - 5) Spoil banks should be graded, where possible, to avoid potholes or other fissures which would create mosquito breeding habitat.
 - 6) Stabilization material should be used on areas of severe erosion along canal lengths, preferably revegetation with appropriate native plants.
 - 7) Upon abandonment, canals should be plugged using earthen plugs and rip-rap or other stabilizing material.
- f. In order to minimize the impacts of board road construction to access oil well sites in wetlands, the following conditions should be met:
- 1) Culverts should be placed where streams and sloughs are crossed by the roadway embankment and at other locations to promote or maintain sheet flows. The maximum spacing between culverts should be maintained so as to allow for free flow of water.
 - 2) Broken boards and other extraneous construction materials should be removed from the site when the

road is abandoned by the permittee. All plastic sheeting should be removed from areas of the roadway from which the boards are removed.

- 3) The road fill placed in wetlands should be degraded when the location is abandoned. The material should be deposited into the borrow areas or ditches, and the area restored to as near preproject conditions as practical using the material available in the road fill.
- g. Mitigation, the improving of one area of marsh or swamp to replace another area destroyed by a use, should be required as a condition of the permit, depending on the magnitude of the permitted use and the destruction associated with it.
- h. Shorelines should be stabilized by methods other than bulkheading (i.e., rip-rap, matting material or natural vegetation.)

GOAL: To allow orderly recreational and residential development in areas of higher elevations near existing access roads and development.

Objectives:

- a. To create a zoning district within the City's Comprehensive Zoning Ordinance that would have the following purpose: to protect and preserve wetland habitats through careful supervision of adjacent areas subject to increasing activity.
- b. To establish performance standards for uses permitted in recreational and residential areas.

Policies:

- a. To apply the recreational and residential zoning district to the Chef Menteur Highway Corridor as identified in this report.
- b. To strictly enforce existing housing, building code and floodplain performance standards.
- c. To incorporate the Louisiana Coastal Resources Program's "Guidelines for Uses" into the local program to insure that these performance standards are applied to uses of local concern.

GOAL: To eliminate or reduce pollution of lakes and other water bodies.

Objectives:

- a. To determine which camps can be served by existing sewers and into which areas sewers can reasonably be extended.
- b. To seek state participation in financial provisions for extension of sewer services.
- c. To establish specifications for an incinerator-type disposal system in areas where sewers cannot be extended.

Policies:

- a. To require all camps to hook up to the City's sewerage system or maintain an incinerator-type disposal system or other acceptable technology.
- b. To amend the Building Code to require all new construction in coastal wetlands not serviceable by public sewers to include such a disposal technology.
- c. To require all existing structures to be retrofitted with such facilities.

GOAL: To minimize the cumulative impacts of camp development and construction.

Objectives:

- a. To ensure that adequate open space is maintained between structures.
- b. To allow sunlight to penetrate beneath structures.
- c. To limit the disturbance of wetlands during and after construction.

Policies:

- a. To limit lot development to a predetermined percentage of total lot or tract area.
- b. To elevate all construction above flood elevations to prohibit major restrictions on water flow and allow sunlight to penetrate underneath the structures.

GOAL: To control shoreline erosion.

Objectives:

- a. To reduce destruction of wetlands
- b. To abate the reduction of land area dimensions.

- c. To prevent the loss of archaeological sites.

Policies:

- a. To construct artificial barrier islands to prevent shoreline erosion.
- b. To place rip-rap or matting material along shorelines of rapidly eroding waterways.
- c. To divert water from the Mississippi River to restore eroding marsh areas.

PART TWO

The Local Program

THE LOCAL PROGRAM

The Orleans Parish Coastal Management Program is designed to mesh with and complement the Louisiana Coastal Resources Program. For this purpose, a Coastal Zone Ordinance has been prepared which will enable the local government to participate in the state program. This ordinance establishes the rules and procedures for issuing local coastal use permits and enumerates the guidelines to be used in reviewing permits for uses of state or local concern. The proposed Coastal Zone Ordinance is reproduced in full in a later section of this report. The following sections summarize the highlights of the ordinance and other pertinent aspects of the local program.

In designing the local program, three main goals were sought:

- 1) To utilize the City's existing governmental structure;
- 2) To issue Coastal Use Permits for uses of local concern; and
- 3) To review and comment on uses of state concern.

It is felt that within the proposed Coastal Zone Ordinance these three goals have been met. The permitting process will be administered by the Department of Safety and Permits, while the permit review responsibility will be shared with the Planning Advisory Committee and the City Planning Commission. At this time, the hiring of additional personnel to administer the local program is not anticipated.

The Permit Process

Once the local program is approved and the Orleans Parish Coastal Zone Ordinance is passed by the City Council, the City of New Orleans will commence to issue Coastal Use Permits for uses of local concern. The Department of Safety and Permits will be the agency responsible for processing and issuing coastal permits. The coastal use permitting process will be triggered by the Building Code, which requires a person to first obtain a permit from the Department of Safety permits prior to commencing with the "erection, removal, re-roofing, demolition, alteration, addition or repair of a building or other structure, or to perform any excavation below lot grade within the City of New Orleans." The building code has been interpreted to apply to all areas of Orleans Parish, including the wetlands and water bodies outside the Parish's levee system. The effect of this ordinance is so broad that it would cover any use that would normally require a coastal use permit. During the process of obtaining a building permit a determination of whether or not a coastal use permit is required will be made by the permitting agent. This determination, as well as a determination of whether the proposed use is a use of state or local concern, will be based on the type of use and its location, in accordance with the rules and procedures of the Louisiana Coastal Resource Program. (Uses that will normally require coastal use permits and areas in which activities will normally require coastal use permits are discussed in later sections of this chapter.)

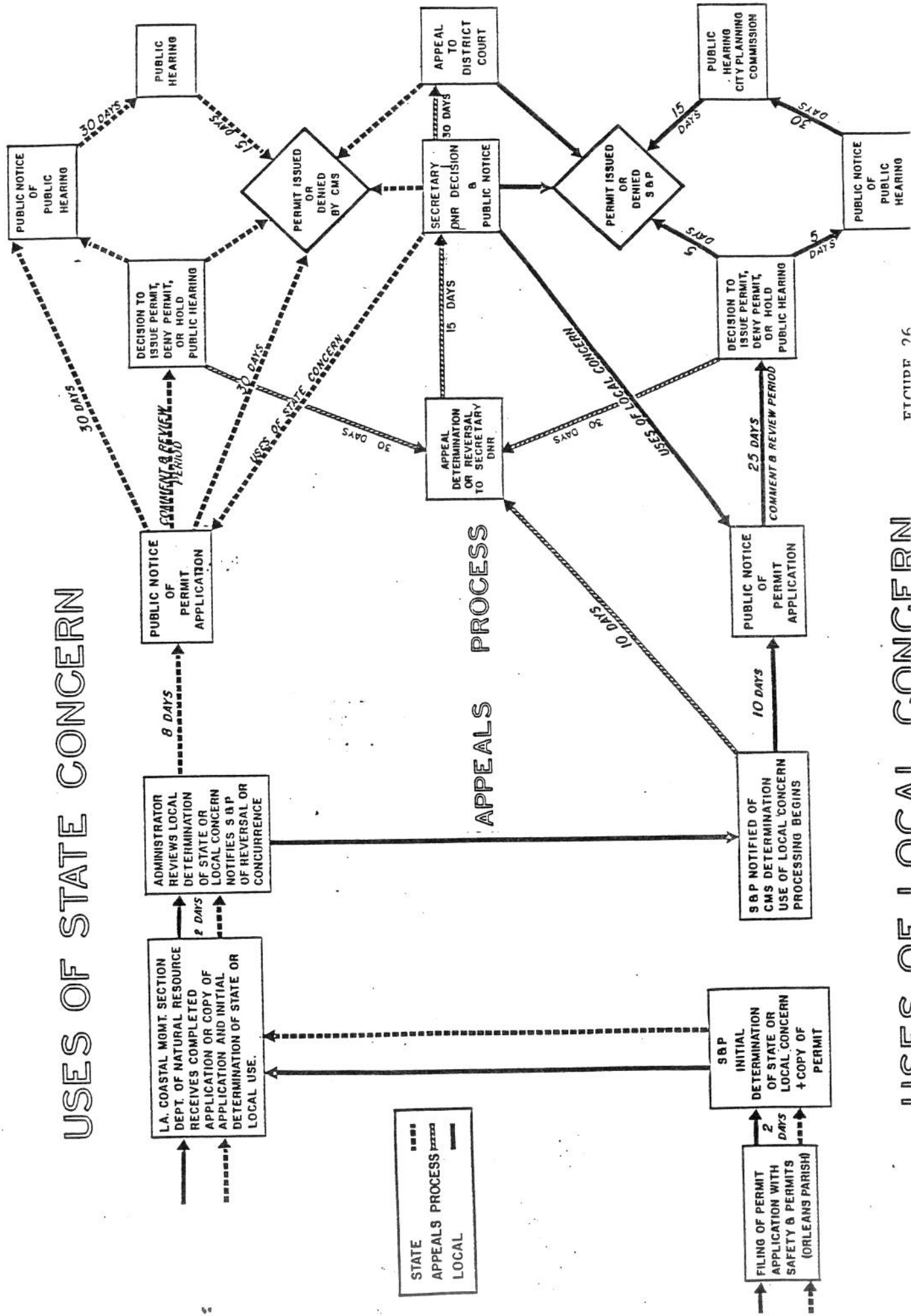
The process of obtaining a building permit actually initiates a series of reviews of the proposed activity to insure compliance with the many land use controls and construction standards mandated by the laws of Orleans Parish. A publication produced by the City Planning Commission entitled Development Guidebook, lists the steps to be taken and the agencies to be contacted during the process of obtaining the necessary approvals and permits. (This book, updated and revised to include the coastal use permit process, is enclosed in a jacket at the end of this document.) In addition to the guidelines, or performance standards, enumerated in the Orleans Parish Coastal Zone Ordinance, which are to be applied to uses or activities requiring coastal use permits, these uses or activities will also be required to meet other standards mandated by local laws, such as the Zoning Ordinance, the Floodplain Ordinance and the Building Code. The effects of these other ordinances are described in the section "Ordinances to be Included in the Local Program."

Once a building permit has been applied for, and it has been determined that a coastal use permit is also required, the procedure for obtaining the coastal use permit will be as stated in the Louisiana Coastal Resources Program and as shown in the chart in Figure 26.

For uses of local concern, the highlights of the permit procedure are as follows:

- 1) The Director of Safety and Permits receives an application for a Coastal Use Permit.
- 2) The Director makes the initial determination as to whether the use is of state or local concern and then forwards a copy of the permit application, along with his determination, to the Administrator of the state program.
- 3) The Administrator either concurs with or reverses the decision of the Director.
- 4) Public Notice of the permit application is published, including where to address comments.
- 5) A comment and review period of twenty-five (25) days follows publication of Public Notice.
- 6) During the twenty-five day review period, the Planning Advisory Committee will review the permit application and make a recommendation to the Director.
- 7) At the conclusion of the review period, the Director makes a decision to either issue or deny the permit or to hold a public hearing.

COASTAL USE PERMIT PROCESS



- 8) If a decision is made to hold a public hearing, the City Planning Commission shall conduct the hearing at least thirty (30) days after notification of the hearing.
- 9) Upon completion of the public hearing, the City Planning Commission shall make a recommendation to the Director, who will then either issue or deny the permit, within 15 days of the public hearing.
- 10) Appeals on permit decisions are made to the Secretary.

The above outline is a brief description of the local permit process. The requirements for publication of public notice and for conducting public hearings are consistent with the Louisiana Coastal Resources Program.

Permit Review

how do you?

The (Planning Advisory Committee) will be the local government body reviewing coastal use permits for uses of both state and local concern. This body is extremely well suited for such a task since it is composed of representatives from all City agencies as well as some state agencies and public and semi-public corporations. The Planning Advisory Committee currently advises the City Planning Commission on various technical matters in such fields as major street planning, utility extensions, recreation planning and transportation services. (The committee also reviews Corps of Engineers 404 permit requests and DNR Coastal Use Permit applications.)

The following list itemizes the agencies, boards and corporations represented on the Planning Advisory Committee.

Planning Advisory Committee

City Council - Budget Analyst and Research
 City Administration - Chief Administrative Office
 Department of Finance
 Department of Fire
 Department of Law
 Department of Police
 Office of Planning and Development
 Department of Property Management
 Department of Recreation
 Department of Safety and Permits
 Department of Sanitation
 Department of Streets
 Department of Utilities
 Department of Welfare
 Department of Civil Defense
 Board of Health
 Board of Commissioners Orleans Levee District
 Board of Commissioners of the Port of New Orleans
 Orleans Parish School Board
 Public Library Board

Sewerage and Water Board
Audubon Park Commission
City Planning Commission
Civil Service Commission
Park and Parkway Commission
Public Belt Railroad Commission
Vieux Carre Commission
Housing Authority
Mississippi River Bridge Authority
Community Improvement Agency
Human Relations Committee
Louisiana Power and Light Company
New Orleans Aviation Board
New Orleans Public Service, Inc.
New Orleans Re-location Agency
South Central Bell Telephone Company
Total Community Action
Veterans Administration

The review of permit applications will ensure that proposed uses are in conformance with the guidelines of the Louisiana Coastal Resources Program and the Orleans Parish Coastal Management Program.

Uses Requiring Coastal Use Permits

The following shall be considered as uses of state or local concern subject to coastal use permits:

- a. Dredging or filling and discharges of dredged or fill material.
- b. Levee siting, construction, operation and maintenance.
- c. Hurricane and flood protection facilities, including the siting, construction, operation and maintenance of such facilities.
- d. Urban developments, including the siting, construction or operation of residential, commercial, industrial, and governmental structures and transportation facilities.
- e. Energy development activities, including any siting, construction, or operation of generating, processing and transmission facilities, pipeline facilities, and exploration for and production of oil, natural gas and geothermal energy.
- f. Mining activities, including surface, subsurface, and underground mining, sand or gravel mining and shell dredging.
- g. Wastewater discharge, including point and non-point sources.

- h. Surface water control or consumption, including marsh management projects.
- i. Shoreline modification projects and harbor structures.
- j. Waste disposal activities.
- k. Recreational developments, including siting, construction and operation of public and private recreational facilities and marinas.
- l. Industrial development, including siting, construction, or operation of such facilities.
- m. Any other activities or projects that would require a permit or other form of consent or authorization from the U.S. Army Corps of Engineers, the Environmental Protection Agency or the Louisiana Department of Natural Resources.
- n. Activities which impact barrier islands, salt domes, cheniers and beaches.
- o. Drainage projects.

Uses of State Concern

The following shall be considered as uses of state concern to be permitted by the Coastal Management Section of the Department of Natural Resources:

- (a) Any dredge or fill activity which intersects with more than one water body.
- (b) Projects involving use of state owned lands or water bottoms.
- (c) State publicly funded projects.
- (d) National interest projects.
- (e) Projects occurring in more than one parish.
- (f) All mineral activities, including exploration for, and production of oil, gas, and other minerals, all dredge and fill uses associated therewith, and all other associated uses.
- (g) All pipelines for the gathering, transportation or transmission of oil, gas and other minerals.
- (h) Energy facility siting and development.
- (i) Uses of local concern which may significantly affect interests of regional, state or national concern.

Uses of Local Concern

The following shall be considered as uses of local concern to be permitted by the Department of Safety and Permits of the City of New Orleans.

- (a) Privately funded projects which are not uses of state concern.
- (b) Publicly funded projects which are not uses of state concern.
- (c) Maintenance of uses of local concern.
- (d) Jetties or breakwaters.
- (e) Dredge or fill projects not intersecting more than one water body.
- (f) Bulkheads.
- (g) Piers
- (h) Camps and cattlewalks
- (i) Maintenance dredging.
- (j) Private water control structures of less than \$15,000 in cost.
- (k) Uses on cheniers, salt domes, or similar land forms.

Areas that Will Normally Require Permits

Coastal Use Permits will normally be required for uses occurring in all coastal waters and wetlands in Orleans Parish. Figure 27, "Areas Normally Requiring Coastal Use Permits," indicates the general areas that require coastal permits. For practical purposes, this will include all areas outside the levee system of Orleans Parish. The exception, where no coastal use permit will be required outside the levees, includes activities in sites within identified transition areas above 5 feet MSL, where no significant and direct impacts are expected from the proposed project. Furthermore, deepwater ports are exempted from coastal use permits under Section 213.13 of the Coastal Resource Management Act of 1978. Activities proposed within fastlands, expected to have a direct and significant impact upon coastal waters require a coastal use permit. This does not include existing pumpage of water from fastlands for drainage purposes. (Future pumpage of water may require a permit.) Coastal waters shall include, but not be limited to:

- Lake Pontchartrain
- Lake St. Catherine
- Chef Menteur Pass
- The Rigolets
- Unknown Pass

Mississippi River-Gulf Outlet
 Gulf Intracoastal Waterway
 Inner Harbor Navigation Canal
 Mississippi River
 Bayou Bienvenue
 Bayou Sauvage
 Irish Bayou

Numerous other bayous, lakes, ponds and tidal streams with measurable seawater content shall be considered coastal waters for permitting purposes.

Coastal wetlands shall include the tidal marsh in Management Units V (Viavant), VII (New Orleans East/Special) and VIII (Chef Menteur Pass/Rigolets).

Transitional Areas

Uses occurring in transitional areas may or may not require coastal use permits depending on the type of use and its specific location. Uses in transitional areas in the Coastal Zone lying above 5 feet MSL will generally not require a permit unless it is determined that there will be a direct and significant impact on Coastal Waters. Uses below 5 feet MSL will require a permit.

Fastlands

Uses occurring in fastlands will normally not be required to obtain coastal use permits. There are exceptions, however. Uses which occur within fastlands that will have direct and significant impacts on coastal waters or wetlands will have to obtain permits for that part of the use affecting the coastal zone. An example would be a large, new subdivision with runoff into coastal waters. The discharge of stormwater into coastal waters would require a permit. Another example would be a large new industrial facility with wastewater discharges. The point source of wastewater discharge into coastal waters would require a coastal use permit.

Existing Ordinances Regulating Activities in the Coastal Zone.

As described throughout the text of this report, there are numerous City ordinances that give the City effective control of activities occurring in the coastal zone. The most important of these are the Comprehensive Zoning Ordinance, the Building Code and the Floodplain Ordinance.

Comprehensive Zoning Ordinance

The City of New Orleans has recently finalized its Comprehensive Land Use Plan. This plan anticipates the land use needs of the population of the City during forthcoming decades and serves as a guide for orderly development and provision of public services, roads, parks and open spaces, servitudes, schools, and subdivision location, design, and density, etc. The Land use Plan is implemented by means of the Comprehensive Zoning Ordinance. The purpose

of this Ordinance is to encourage and promote, in accordance with present and future needs, the safety, morals, health, order, convenience, prosperity, and general welfare of the citizens of the City of New Orleans and to provide for efficiency and economy in the process of development, for the appropriate and best use of land, for preservation, protection, development, and conservation of the natural resources of land, water, and air, for convenience of traffic and circulation of people and goods, for the use and occupancy of buildings, for healthful and convenient distribution of population, for adequate public utilities and facilities, for promotion of the civic amenities of beauty and visual interest, for preservation and enhancement of historic buildings and places, for promotion of large-scale developments as means of achieving unified civic design, and for development in accord with the Comprehensive Plan by establishing zoning districts and by regulating the location and use of buildings, signs and other structures, water and land for agriculture, trade, industry, and residence, by regulating and limiting or determining the height, bulk, and access to light and air of buildings and structures, the area of yards and other open spaces and the density of use. To accomplish these objectives, the regulations and districts have been designed with reasonable consideration, among other things, to the character of the districts and their peculiar suitability for particular uses.

The effect of the Comprehensive Zoning Ordinance is to make the Orleans Parish Coastal Management Program somewhat more restrictive than the state's plan, since the Zoning Ordinance limits the location of many uses and activities to certain districts while also setting limits on the amount of a site that can be developed. A close reading of the Comprehensive Zoning Ordinance is necessary to understand the complex set of standards applicable to each zoning district.

Building Code

While the Comprehensive Zoning Ordinance translates planning concepts and principles into law, the administration and enforcement of these laws are vested in the Building Code. The Building Code, by requiring that a permit be obtained for any significant construction or operation involving physical structures or facilities in Orleans parish, initiates the permit process that will include coastal use permits, where necessary. The process for obtaining a building permit requires a series of reviews to insure that the proposed use is in conformance with the Comprehensive Zoning Ordinance and other City ordinances, while at the same time setting standards for the construction and operation of the proposed use. As mentioned on page 61, the Orleans Building Code is the most comprehensive building code in effect in coastal Louisiana, stiffer in many respects than the Southern Standard Code. This is because New Orleans has had a long history of encountering and solving problems associated with construction in coastal areas.

The Floodplain Ordinance

There currently exists a municipal ordinance that directly and significantly affects activities in the coastal zone of Orleans Parish. This is Chapter 32 of the City Code (Ord. 828) M.C.S., referred to as the Floodplain Ordinance. Originally passed in 1974, this ordinance designates areas of the City according to their flood potential through maps and criteria developed by the Flood Insurance Administration. The significance of this as regards coastal management is that all of the area in eastern New Orleans outside the hurricane protection system is classified as Coastal High Hazard Area with Velocity. The Ordinance determines techniques and standards to be used in construction within this district, the most important of which are that the first floor elevation of any new structure must be at or above the project storm level and that the use of fill to reach this elevation is prohibited.

This, in essence, dictates that new construction shall be on pilings, which would allow water to flow through, minimizing damage during storms from wind driven water and also maintaining the marsh as a water storage area.

The effect of this ordinance is to discourage new development in coastal floodplains, since the first floor elevation requirements would make many developments prohibitively expensive. Those projects that are constructed will, because of this law, maintain natural water flow patterns beneath the structure.

The Corps of Engineers is currently remapping the flood districts in Orleans Parish to take into account the "splash effect" associated with wind driven water during hurricanes. This re-evaluation will likely result in increased standards for first floor elevations in Coastal High Hazard Areas With Velocity.

Administrative Arrangements

As stated at the outset of this chapter, one of the goals sought in designing the local program was to utilize the City's existing governmental structure to the maximum extent possible. This is because New Orleans is fortunate to have, in place, administrative procedures for processing, reviewing and issuing permits for a wide variety of activities occurring throughout the Parish, including coastal waters and wetlands. Three City organizations play important roles in the permit process. They are the Department of Safety and Permits, the Planning Advisory Committee and the City Planning Commission. Through the years, these bodies have developed sufficient expertise to make decisions on many issues of concern to coastal management planning. It is these agencies that review Corps of Engineers permit applications and comment on them by sending either letters of objection or no objection. They will perform a similar role in the coastal use permitting process. A brief description of these agencies and their responsibilities follows.

Department of Safety and Permits

Head: Director of Safety and Permits

Organization: Three departmental boards for examining and licensing: the Board of Electrical Examiners, the Board of Mechanical Examiners, and the Board of Examiners of Operating Engineers. Members are appointed by the mayor with Council approval.

Two autonomous boards are attached to the department. Each is composed of five members appointed by the Mayor with Council approval. The Board of Zoning Adjustments serves as an appeal board for applicants who have been denied a variance from the Comprehensive Zoning Ordinance. The Board of Building Standards and Appeals hears appeals on all matters pertaining to design, construction, alteration, and demolition of buildings, and hears appeals if there is an alleged error in the enforcement of building regulations. Relief from decision by these boards is through the Civil District Court.

Divisions of the department are Building Inspection, Electrical Inspection, Mechanical Inspection, Plan Processing, Housing Improvement, Central Relocation, Motor Vehicle Inspection. The department has 204 employees.

Funds: City General Fund

Function: To enforce ordinances regulating building trades except plumbing; enforce the Minimum Housing Ordinance for housing in serious need of repair; inspect motor vehicles; deal with other agencies involved in issuing a building permit, such as the City Planning Commission, Sewerage and Water Board, Department of Utilities.

City Planning Commission

Membership: 9 members appointed by Mayor with Council's approval.

Organization: Commission appoints Director-Secretary and Assistant Director; 26 employees.

Funds: City General Fund

Function: To adopt and administer comprehensive city plan; make recommendations to City Council regarding zoning, land use, and the use of public property. To prepare Capital Budget Program based on a Master Plan. The Master Plan includes streets, bridges, and waterways; parks and open spaces; public buildings and structures; public utilities and terminals; public housing, redevelopment, and slum clearance; sewerage and drainage; transportation; and neighborhood plans.

Functional organization includes administrative division; advance planning division for long-range (5-20 years) comprehensive planning; project planning division for short-range (1-5 years) planning; specific project planning division including capital project programming. There is a planning services division for administrative matters, including processing petitions for zoning changes, subdivisions and the review of various proposed public housing projects and proposed ordinances. A federal programs division arranges for participation in federally assisted planning programs (Community Renewal Program, open space acquisition, Cultural Center project, etc.).

Planning Advisory Committee

A 50 member Planning Advisory Committee is composed of representatives from the Mayor's and CAO's offices, most of the city departments and boards, and parish, state and federal agencies. (A complete listing of the organizations represented is shown in the section "Permit Review"). The Planning Advisory Committee was created as part of the "Interim Review Process" which allows the multifarious government organizations operating in the Parish to keep abreast of developments and to comment and advise the Planning Commission and the Department of Safety and Permits on issues in which they have expertise.

These three organizations will play important roles in the coastal use permitting process. The Department of Safety and Permits will process the permit applications, making sure that the proposed activity conforms to all LCRP standards as well as other local requirements. The City Planning Commission will advise permit applicants on the requirements of the Coastal Management Program and conduct Public Hearings on permit applications, when necessary. The Planning Advisory Committee will advise the other two groups by reviewing local permit applications and by commenting on uses of state concern.

Multi-Parish Environmental Considerations

Permit decisions or management projects in Orleans Parish may from time to time affect a neighboring parish. If Orleans Parish receives approval of its local program, however, these occurrences should be rare. No particular arrangements for considering uses that may affect neighboring parishes have been included in the local program for two reasons:

- 1) Uses of such magnitude as to effect more than one parish will automatically be considered uses of state concern, and will not be permitted at the local level.
- 2) The public notice requirements of both the state and local program give neighboring parishes adequate information and time to comment on proposed uses.

Additionally, in an effort to coordinate management efforts among neighboring parishes, Orleans Parish strongly supports efforts to create Special Areas for the Port of New Orleans and the Lake Pontchartrain Basin. Formation of these Special Management Areas would provide a context for regional planning and coordination.

Regional, State or National Interests

Act 361 and the FEIS/LCRP require that local governments develop "special procedures and methods for considering uses within special areas, uses of greater than local benefit, and uses affecting the state and national interests."

Uses of federal and regional concern are described in Chapter VI of the FEIS, as well as how the national and regional interests were considered in the development and implementation of the LCRP.

Tables 13 and 14 from the LCRP/FEIS provide a listing of the facilities and resources which have a national interest.

The CZMA requires that state programs be able to prevent local governments from unreasonably restricting uses of regional benefit, stating that:

...the program must provide for a method of assuring that local land and water use regulations within the coastal zone do not unreasonably restrict or exclude land and water uses of regional benefit.

"Unreasonable" shall mean that which would constitute arbitrary, capricious or confiscatory action as defined in the jurisprudence involving zoning and land use regulations.

A "use of regional benefit" is a use which beneficially affects more than one parish or has beneficial interstate effects, and which has direct and significant impacts on coastal waters. Uses of regional benefit would include the following:

- 1) Interstate natural gas transmission pipelines.
- 2) Major state or federal transportation facilities such as highways and expressways.
- 3) Major state or federal transportation facilities such as deepwater ports and navigation projects.
- 4) Public wildlife and fisheries management projects.
- 5) Public utility or cooperative energy generating plants.
- 6) State parks and beaches and other state owned recreational facilities.

TABLE 13
NATIONAL INTEREST FACILITIES

National defense and aerospace.....	Military bases and installations; defense manufacturing facilities aerospace facilities.
Energy production and transmission.....	Oil and gas rigs, storage, Storage, distribution and transmission facilities; power plants; deep-water ports; Liquefied natural gas facilities geothermal facilities; coal mining facilities.
Recreation.....	National seashores, parks, forests; large and outstanding beaches and recreational waterfronts.
Transportation.....	Interest highways, railroads; airports; ports; aids to navigation including Coast Guard Stations.

TABLE 14
RESOURCES IN WHICH THERE IS A NATIONAL INTEREST

Air and Water Quality
Wetlands and Endangered Species
Flood Plains and Barrier Islands
Historic and Cultural Resources
Fisheries and Other Living Marine Resources

DRAFT COASTAL ZONE ORDINANCE
CITY OF NEW ORLEANS

CITY HALL _____

CALENDAR NO. _____

NO: _____ MAYOR COUNCIL SERIES

BY: _____

AN ORDINANCE to adopt a Chapter 70 of Ordinance No. 828 M.C.S., known as the Code of City of New Orleans relative to coastal zone management.

SECTION 1. THE COUNCIL OF THE CITY OF NEW ORLEANS HEREBY ORDAINS, That Chapter 70 of Ordinance No. 828 M.C.S., known as the Code of the City of New Orleans, is hereby ordained to read as follows:

CHAPTER 70

COASTAL ZONE MANAGEMENT

Article I

Purpose of Chapter

Article II	Definitions
Article III	Coastal Use Permits Required
Article IV	Activities Not Requiring Permits
Article V	Determination of Uses of State or Local Concern
Article VI	Permit Application, Issuance and Denial
Article VII	Modifications, Suspensions or Revocations
Article VIII	General Permits
Article IX	Conflict of Coastal Zone Ordinance with Other Ordinances

ARTICLE I. PURPOSE OF CHAPTER

Section 70-1. Purpose of Chapter

The principal purpose of this regulation is to provide the authorities and procedures for implementing a unified coastal use permitting process. This regulation is based on the policies, guidelines and procedures set forth in Act 361 of the Louisiana Legislature, in the Final Environmental Impact Statement of the Louisiana Coastal Resources Program, and the Orleans Parish Coastal Zone Management Plan. This regulation provides procedures for local government determination of what activities require a coastal use permit, whether the activity is a use of state or local concern, and the process for the issuance, denial, modification, suspension and/or revocation of coastal use permits and general coastal use permits for uses of local concern in Orleans Parish.

ARTICLE II. DEFINITIONS Section 70-2. Definitions

When used in this regulation, the following terms shall have the indicated meaning unless the context clearly indicates otherwise:

- (1) Act: Act 361 of the 1978 Louisiana Legislature (P.L. 49:213.1-213.21)
- (2) Administrator: The Administration of the Coastal Management Section within the Louisiana Department of Natural Resources
- (3) After-the-Fact Permits: A coastal use permit which is issued after the commencement of a use. Such a permit may only be issued after all legal issues resulting from the commencement of a use without a coastal use permit have been resolved.

- (4) Alterations of Waters Draining in Coastal Water -those uses or activities that would alter, change, or introduce polluting substances into runoff and thereby modify the quality of coastal waters. Examples include water control impoundments, upland and water management programs, and drainage projects from urban, agricultural and industrial developments.
- (5) Approved Local Program: A local coastal management program which has been and continues to be approved by the Secretary pursuant to 213.9 of the Act. Also referred to as "local program."
- (6) Best Practical Techniques - best practical techniques shall mean those methods or techniques which would result in the greatest possible minimization of the adverse impacts listed in Guideline 1.7 and in specific guidelines applicable to the proposed use. Those methods or techniques shall be the best methods or techniques which are in use in the industry or trade or among practitioners of the use, and which are feasible and practical for utilization.
- (7) Coastal Use Permit: A permit required by S213.11 of the Act. The term does not mean or refer to, and is in addition to, any other permit or approval required or established pursuant to any other constitutional provision or statute.

- (8) Coastal Water Dependent Uses - those which must be carried out on, in or adjacent to coastal water areas or wetlands because the use requires access to the water body or wetland or requires the consumption, harvesting or other direct use of coastal resources, or requires the use of coastal water in the manufacturing or transportation of goods. Examples include surface and subsurface mineral extraction, fishing, ports and necessary supporting commercial and industrial facilities, facilities for the construction, repair and maintenance of vessels, navigation projects, and fishery processing plants.
- (9) Coastal Waters: Those bays, lakes, inlets, estuaries, rivers, bayous, and other bodies of water within the boundaries of the coastal zone which have measurable seawater content (under normal weather conditions over a period of years.)
- (10) Coastal Zone:
- a) "Coastal Zone" shall mean the coastal waters and adjacent shorelands within the boundaries of the coastal zone established in Section 213.4 of the Act, which are strongly influenced by each other, and in proximity to the shorelines, and uses of which have a direct and significant impact on coastal waters.

- (11) Commission: The Louisiana Coastal Commission
- (12) Department: The Louisiana Department of Natural Resources.
- (13) Development Levees - those levees and associated water control structures whose purpose is to allow control of water levels within the area enclosed by the levees to facilitate drainage or development within the leveed areas. Such levee systems also commonly serve for hurricane or flood protection, but are not so defined for purposes of these guidelines.
- (14) Direct and Significant Impact: A modification or alteration in the physical or biological characteristics of coastal waters which results from an action or series of actions caused by man.
- (15) Director: The Director of the Department of Safety and Permits of the City of New Orleans or his designated representative.
- (16) Fastlands: Lands surrounded by publicly owned, maintained or otherwise validly existing levees or natural formations as of January 1, 1979, or as may be lawfully constructed in the future, which levees or natural formations would normally prevent activities, not to include the pumping of water for drainage purposes, within the surrounded area from having direct and significant impacts on coastal waters. Wetlands may be found within the boundaries of fastlands.

- (17) Feasible and Practical - those locations, methods and/or practices which are of established usefulness and efficiency and allow the use or activity to be carried out successfully.
- (18) Guidelines: Those rules and regulations adopted pursuant to §213.8 of the Act.
- (19) Hurricane or Flood Protection Levees - those levees and associated water control structures whose primary purpose is to prevent occasional surges of flood or storm generated high water. Such levee systems do not include those built to permit drainage or development of enclosed wetland areas.
- (20) Hydrologic and Sediment Transport Modifications - those uses and activities intended to change water circulation, direction of flow, velocity, level, or quality or quantity of transported sediment. Examples include locks, water gates, impoundments, jetties, groins, fixed and variable weirs, dams, diversion pipes, siphons, canals, and surface and groundwater withdrawals.
- (21) Impoundment Levees - those levees and associated water control structures whose primary purpose is to contain water within the levee system either for the prevention of the release of pollutants, to create fresh water reservoirs, or for management of fish or wildlife resources.

- (22) Levees - any use or activity which creates an embankment to control or prevent water movement, to retain water or other material, or to raise a road or other lineal use above normal of flood water levels. Examples include levees, dikes and embankments of any sort.
- (23) Linear Facilities - those uses and activities which result in creation of structures or works which are primarily linear in nature. Examples include pipelines, roads, canals, channels, and powerlines.
- (24) Local Government: The Council of the City of New Orleans and its authorized agencies.
- (25) Minerals - oil, gas, sulfur, geothermal, geopressured, salt, or other naturally occurring energy or chemical resources which are produced from below the surface in the coastal zone. Not included are such surface resources as clam or oyster shells, dirt, sand, or gravel.
- (26) Oil, Gas and Other Mineral Activities - those uses and activities which are directly involved in the exploration, production, and refining of oil, gas and other minerals. Examples include geophysical surveying, establishment of drill sites and access to them, drilling, on site storage of supplies, products and waste materials, production, refining, and spill cleanup.
- (27) Permit: A coastal use permit.

- (28) Permitting Body: Either the Louisiana Department of Natural Resources (Coastal Management Section) or the New Orleans Department of Safety and Permits, as appropriate.
- (29) Person: Any individual, partnership, association, trust, corporation, public agency or authority or governmental body.
- (30) Public Hearing: A hearing announced to the public at least 30 days in advance, at which all interested persons shall be afforded a reasonable opportunity to submit data, views or arguments, orally or in writing. At the time of the announcement of the public hearing all materials pertinent to the hearing, including documents, studies, and other data, in the possession of the party calling the hearing, must be made available to the public for review and study. As similar materials are subsequently developed, they shall be made available to the public as they become available to the party which conducted the hearing.
- (31) Radioactive Wastes - wastes containing source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).
- (32) Safety & Permits: Department of Safety and Permits, City of New Orleans.
- (33) Secretary: The Secretary of the Department of Natural Resources.

- (34) Sediment Deposition Systems - controlled diversions of sediment-laden water in order to initiate land building or sediment nourishment or to minimize undesirable deposition of sediment in navigation channels or habitat areas. Typical activities include diversion channels, jetties, groins, or sediment pumps.
- (35) Shoreline Modifications - those uses and activities planned or constructed with the intention of directly or indirectly changing or preventing change of a shoreline. Examples include bulkheading, piers, docks, wharves, slips and short canals, and jetties.
- (36) Spoil Deposition - the deposition of any excavated or dredged material.
- (37) Surface Alterations - those uses and activities which change the surface or usability of a land area or water bottom. Examples include fill deposition, land reclamation, beach nourishment, dredging (primarily areal), clearing, draining, surface mining, construction and operation of transportation, mineral, energy and industrial facilities, and industrial, commercial and urban developments.
- (38) Use: Any use or activity within the coastal zone which has a direct and significant impact on coastal waters.

- (39) Waste Disposal - those uses and activities which involve the collections, storage and discarding or disposing of any solid or liquid material. Examples include littering; landfill; open dumping; incineration; industrial waste treatment facilities; sewerage treatment; storage in pits, ponds or lagoons; ocean dumping and subsurface disposal.
- (40) Water or Marsh Management Plan - a systematic development and control plan to improve and increase biological productivity, or to minimize land loss, saltwater intrusion, erosion or other such environmental problems, or to enhance recreation.

ARTICLE III. Coastal Use Permits Required

Section 70-3. Coastal Use Permits Required

It shall be unlawful to proceed with any use of state or local concern within the coastal zone of Orleans Parish without a valid coastal use permit unless the activity is exempted from permitting by the Act or by provisions within this chapter.

Section 70-4. Permit Applications

The Department of Safety and Permits has been designated as the review agency for coastal use permits in Orleans Parish and applications for such permits can be obtained from that office.

Section 70-5. Uses Requiring Coastal Use Permits

The following shall be considered as uses of state or local concern subject to the requirements of Section 70-3 above:

- a. Dredging or filling and discharges of dredged or fill material.
- b. Levee siting, construction, operation and maintenance.
- c. Hurricane and flood protection facilities, including the siting, construction, operation and maintenance of such facilities.

- d. Urban developments, including the siting, construction or operation of residential, commercial, industrial, and governmental structures and transportation facilities.
- e. Energy development activities, including any siting, construction, or operation of generating, processing and transmission facilities, pipeline facilities, and exploration for and production of oil, natural gas and geothermal energy.
- f. Mining activities, including surface, subsurface, and underground mining, sand or gravel mining and shell dredging.
- g. Wastewater discharge, including point and non-point sources.
- h. Surface water control or consumption, including marsh management projects.
- i. Shoreline modification projects and harbor structures.
- j. Waste disposal activities.
- k. Recreational developments, including siting, construction and operation of public and private recreational facilities and marinas.
- l. Industrial development, including siting, construction, or operation of such facilities.
- m. Any other activities or projects that would require a permit or other form of consent or authorization from the U.S. Army Corps of Engineers, the Environmental Protection Agency or the Louisiana Department of Natural Resources.
- n. Activities which impact barrier islands, salt domes, cheniers and beaches.
- o. Drainage projects.

Section 70-6. Permits issued in lieu of Coastal Use Permits

Coastal Use Permits shall not be required for the location, drilling, exploration and production of oil, gas, sulphur and other minerals subject to regulation by the Office of Conservation of the Department of Natural Resources as of January 1, 1979. The parameters and procedures of the in-lieu permit process are as provided for under existing Memorandum of Understanding between the Coastal Management Section and the Office of Conservation and the rules and procedures of the Office of Conservation.

ARTICLE IV. Activities Not Requiring Coastal Use Permits

Section 70-7. Activities Not Requiring Coastal Use Permits

A. General

- (1) The following activities normally do not have direct and significant impacts on coastal waters; hence a coastal use permit is not required.
 - (a) Agricultural, forestry, and aquaculture activities on land consistently used in the past for such activities.
 - (b) Hunting, fishing, trapping, and the preservation of scenic-historic, and scientific areas and wildlife preserves.

- (c) Normal maintenance or repair of existing structures including emergency repairs of damage caused by accident, fire, or the elements.
- (d) Construction of a residence or camp.
- (e) Construction and modification of navigational aids such as channel markers and anchor buoys.
- (f) Activities which do not have a direct and significant impact on coastal waters.

Section 70-8. Activities on Lands Five Feet or more above Sea Level or Within Fastlands

- (1) Activities occurring wholly on lands five feet or more above sea level or within fastlands do not normally have direct and significant impacts on coastal waters. Consequently, a coastal use permit for such uses generally need not be applied for.
- (2) However, if a proposed activity exempted from permitting in Subsection 8(1), above is determined by the Secretary of DNR to have a direct and significant impact on coastal waters or will result in discharges into coastal waters, or significantly change existing water flow into coastal waters, then the person proposing the activity shall notify the Director and provide such information regarding the proposed activity as may be required by the Director in deciding whether the activity is a use subject to a coastal permit.

- (3) Should it be found that a particular activity exempted by Subsection 8(1) above may have a direct and significant impact on coastal waters, the Director may conduct such investigation as may be appropriate to ascertain the facts and may require the persons conducting such activity to provide appropriate factual information regarding the activity so that a determination may be made as to whether the activity is a use subject to a permit.
- (4) The Director or the Secretary shall determine whether a coastal use permit is required for a particular activity. A coastal use permit will be required only for those elements of the activity which have direct and significant impacts on coastal waters.
- (5) The Secretary's decision whether an activity subject to this section requires a coastal use permit shall be appealable to the Secretary pursuant to the provisions of §213.11(D) of the Act and the regulations adopted pursuant thereto. Provided, however, that in the event of an appeal to the Commission by the person conducting or proposing to conduct the activity, the burden of proof shall be on the Secretary. In the event of an appeal by any other person, the burden of proof shall be on the appellant.

- (6) The exemption described in this section shall not refer to activities occurring on cheniers, salt domes, barrier islands, beaches and similar isolated, raised land forms in the coastal zone. It does refer to natural ridges and levees.

Section 70-9 Emergency Uses

- (1) Coastal use permits are not required in advance for conducting uses necessary to correct emergency situations.
- (a) Emergency situations are those brought about by natural or man-made causes, such as storms, floods, fires, wrecks, explosions, spills, which would result in hazard to life, loss of property, or damage to the environment if immediate corrective action were not taken.
- (b) This exemption applies only to those corrective actions which are immediately required for the protection of lives, property or the environment necessitated by the emergency situation.
- (2) Prior to undertaking such emergency uses, or as soon as possible thereafter, the person carrying out the use shall notify the Director and give a brief description of the emergency use and the necessity for carrying it out without a coastal use permit.

A verbal or written authorization from the Director shall be sufficient to carry out the emergency use.

- (3) As soon as possible after the emergency situation arises, any person who has conducted an emergency use shall report on the emergency use to the Director. A determination shall be made as to whether the emergency use will continue to have direct and significant impacts on coastal waters. If so, the person shall apply for an after-the-fact permit. The removal of any structure or works occasioned by the emergency and the restoration of the condition existing prior to the emergency use may be ordered if the permit is denied in whole or in part.

Section 70-10. Normal Maintenance and Repair

- (1) Normal repairs and the rehabilitation, replacement or maintenance of existing structures shall not require a coastal use permit provided that:
 - (a) The structure or work was lawfully in existence, currently serviceable, and in active use during the year preceding the repair, replacement or maintenance; and,
 - (b) The repair or maintenance does not result in an encroachment into a wetland area greater than that of the previous structure or work; and

- (c) The repair or maintenance does not involve dredge or fill activities; and
 - (d) The repair or maintenance does not result in a structure or facility that is significantly different in magnitude or function from the original.
- (2) This exemption shall not apply to the repair or maintenance of any structure or facility built or maintained in violation of the coastal management program.
- (3) Coastal use permits will normally authorize periodic maintenance including maintenance dredging. All maintenance activities authorized by coastal use permits shall be conducted pursuant to the conditions established for that permit. Where maintenance is performed which is not described in an applicable coastal use permit, it shall conform to this section.

Section 70-11. Construction of a Residence or Camp

- (1) The construction of a residence or a camp shall not require a coastal use permit provided that:
- A. The terms shall refer solely to structures used for non-commercial and non-profit purposes and which are commonly referred to as "single family" and not multiple family dwellings.

B. The terms shall refer solely to the construction of one such structure by or for the owner of the land for the owner's use and not to practices involving the building of more than one such structure as in subdividing, tract development, speculative building, or recreational community development.

- (2) The exemption shall apply only to the construction of the structure and appurtenances such as septic fields, out buildings, walkways, gazebos, small wharves, landings, boathouses, private driveways, and similar works, but not to any bulkheading or any dredging or filling activity except for small amounts of fill necessary for the structure itself and for the installation and maintenance of septic or sewerage facilities.

Section 70-12. Navigational Aids

- (1) The construction and modification of navigational aids shall not require a coastal use permit.
- (2) The term shall include channel markers, buoys, marker piles, dolphins, piling, pile clusters, etc; provided that the exemption does not apply to associated dredge or fill uses or the construction of mooring structures, advertising signs, platforms, or similar structures associated with such facilities. All navigational aids constructed

pursuant to this section shall conform to United States Coast Guard standards and requirements.

Section 70-13. Agricultural, Forestry and Aquaculture Activities

(1) Agricultural, forestry and aquacultural activities on lands consistently used in the past for such activities shall not require a coastal use permit provided that:

- a. The activity is located on lands or in waters which have been used on an ongoing basis for such purposes, consistent with normal practices, prior to the effective date of the Act,
- b. The activity does not require a permit from the U.S. Army Corps of Engineers and meets federal requirements for such exempted activities, and,
- c. The activity is not intended to, nor will it result in, changing the agricultural, forestry, or aquacultural use for which the land has been consistently used in the past to another use.

(2) The exemption includes but is not limited to normal agricultural, forestry and aquacultural activities such as plowing; seeding; grazing; cultivating; insect control; fence building and repair; thinning; harvesting for the production of food, fiber and forest products; maintenance and drainage of

existing farm, stock or fish ponds; digging of small drainage ditches; or maintenance of existing drainage ditches and farm or forest roads carried out in accordance with good management practices.

Section 70-14. Blanket Exemption

(1) No use or activity shall require a coastal use permit if:

- a. The use or activity was lawfully commenced or established prior to the implementation of the coastal use permit process; as per the requirements of the Zoning Ordinance.
- b. The Secretary determines that a use within a fastland or above 5 feet MSL does not have a direct or significant impact on coastal waters; or
- c. The Director or Administrator determines one is not required pursuant to Section 7 of these rules.

ARTICLE V. Determination as to whether Uses are of State Concern or Local Concern.

Section 70-15 Filing of Applications with the Department of Safety and Permits.

(1) The Director shall make the initial determination as to whether the use is one of state concern or local concern on all applications filed with the local government. This determination shall be based on

the criteria set forth in Sections 70-16, 70-17 and 70-18.

- (2) The determination and a brief explanation of the rationale behind the determination shall be forwarded to the Administrator within two (2) working days of receipt of the apparently complete application.
- (3) The administrator shall review the decision and rationale and shall let it stand or reverse it. If the Administrator reverses the local decision, notice, including a brief explanation of the rationale for the reversal shall be sent to the local government within two working days of the application from the local government.
- (4) The appropriate permitting body for the use, as determined by the Administrator, shall thereafter be responsible for the permit review process. The Administrator's determination is binding unless reconsidered and reversed by the Secretary.

Section 70-16 Criteria for Determination

- (a) The specific terms of the uses as classified in the Act,
- (b) The relationship of a proposed use to a particular use classified in the Act,
- (c) If a use is not predominantly classified as

either state or local by the Act or the use overlaps the two classifications, it shall be of local concern unless it:

1. Is being carried out with state or federal funds;
2. Involves the use of or has significant impacts on state or federal lands, water bottoms or works,
3. Is mineral or energy development, production or transportation related,
4. Involves the use of, or has significant impacts, or barrier islands or beaches or any other shoreline which forms part of the baseline for Louisiana's offshore jurisdiction,
5. Will result in major changes in the quantity or quality of water flow and circulation or in salinity or sediment transport regimens, or
6. Has significant interparish or interstate impacts.

Section 70-17 Uses of State Concern

Those uses which directly and significantly affect coastal waters and which are in need of coastal management and which have impacts of greater than local significance or which significantly affect interests of regional, state, or national concern, shall be considered uses of state concern. Uses of state concern shall include, but not be limited to:

- (a) Any dredge or fill activity which intersects with more than one water body.
- (b) Projects involving use of state owned lands or water bottoms.
- (c) State publicly funded projects.
- (d) National interest projects.
- (e) Projects occurring in more than one parish.
- (f) All mineral activities, including exploration for, and production of oil, gas, and other minerals, all dredge and fill uses associated therewith, and all other associated uses.
- (g) All pipelines for the gathering, transportation or transmission of oil, gas and other minerals.
- (h) Energy facility siting and development.
- (i) Uses of local concern which may significantly affect interests of regional, state or national concern.

Section 70-18

Uses of Local Concern

Those uses which directly and significantly affect coastal waters and are in need of coastal management, but are not uses of state concern, should be regulated primarily at the local level if the local government has an approved program. Uses of local concern shall include, but not be limited to:

- (a) Privately funded projects which are not uses of state concern
- (b) Publicly funded projects which are not uses of state concern.
- (c) Maintenance of uses of local concern.
- (d) Jetties or breakwaters.
- (e) Dredge or fill projects not intersecting more than one water body.
- (f) Bulkheads.
- (g) Piers
- (h) Camps and cattlewalks.
- (i) Maintenance dredging.
- (j) Private water control structures of less than \$15,000 in cost.
- (k) Uses on cheniers, salt domes, or similar land forms.

Section 70-19 Appeals

Within 30 days after public notice of the decision, the applicant, the Secretary of DNR, any affected local government or affected local, state or federal agency, an "aggrieved person" or any person adversely affected by a decision may petition for reconsideration to the Secretary in writing. The Secretary will render a decision upon the reconsideration within fifteen days of its receipt. As final recourse, proceedings for review may be instituted by filling a petition in the district court of the parish in which the proposed use is to be situated within thirty days after mailing of notice of the final decision by the Secretary or, if a reconsideration is requested, within thirty days after the decision thereof. The courts must give the case "preference and priority" and allow trial de novo at the request of the party.

ARTICLE VI. Permit Application, Issuance and Denial

Section 70-20 General Requirements

- (1) Any person seeking to obtain a coastal use permit is required to file a completed application. The Department of Safety and Permits will provide the application forms and instructions, including example plats and interpretive assistance, to any interested party. The staffs of the Department of Safety and Permits and the City Planning Commission shall be available for consultation prior to submission of an application and such consultation is strongly recommended. Application forms may be periodically revised to obtain all information necessary for review of the proposed project.
- (2) Separate applications shall be made for unrelated projects or projects involving noncontiguous parcels of property. Joint applications may be made in cases of related construction involving contiguous

parcels of property.

Section 70-21 Content of Application

The application submitted shall contain the same information required for a permit from the U. S. Army Corps of Engineers and such additional information as the Director determines to be reasonably necessary for proper evaluation of an application.

Section 70-22 Fee Schedule

All fees for permits required under Article III shall be paid as set forth below except that no fee for an application that is determined to be a use of State concern shall be collected, or if collected shall be returned after such a determination has been made.

Cost of Item	Basic Fee	Plus
0-1,000	\$ 5.00	\$3.50 per M or fraction thereof
\$ 1,001-10,000	\$ 10.00	\$3.25 per M or fraction thereof
10,001-30,000	\$ 10.00	\$3.00 per M or fraction thereof
30,001-100,000	\$ 15.00	\$2.75 per M or fraction thereof
100,001-200,000	\$ 20.00	\$2.50 per M or fraction thereof
200,001-500,000	\$ 50.00	\$2.25 per M or fraction thereof
500,000-over	\$ 100.00	\$2.00 per m or fraction thereof

Where work for which a permit is required by this Chapter is started, or proceeded with, prior to obtaining said permit, the fees above specified shall be increased 100 per cent, but the payment of such fee shall not relieve any persons from fully

complying with the requirements of this Chapter in the execution of their work, nor from any other penalties prescribed herein.

Section 70-23 Processing the Application

- (1) When an apparently complete application for a permit is received, the permitting agent shall immediately assign it a number for identification, acknowledge receipt thereof, and advise the applicant of the number assigned to it.
- (2) Application processing will begin when an application that is apparently complete is accepted by the permitting agent.
- (3) Within two (2) working days of receipt of an apparently complete application by the Department of Safety and Permits, a copy of the application and all attachments and the local decision as to whether the use is one of state or local concern shall be sent to the Administrator.
- (4) Public notice as described in Section 70-24 below, will be issued within ten (10) days of receipt of an apparently complete application by the Administrator.
- (5) The Director shall evaluate the proposed application pursuant to Section 70-25 below, to determine the need for a public hearing.

- (6) The Director, pursuant to Section 70-27 below, shall either send a draft permit to the applicant for acceptance and signature or send notice of denial to the applicant within thirty (30) days of the giving of public notice or within fifteen (15) days after the closing of the record of a public hearing, if held, whichever is later.
- (7) Public notice of permit decisions shall be given pursuant to Section 70-24(b) below.
- (8) The applicant, the secretary, any affected local government or affected federal, state, or local agency, any aggrieved person, or any other person adversely affected by a coastal use permit decision may appeal the coastal use permit decision to the Secretary. An appeal must be filed in writing within thirty days following public notice of the final decision and shall be in accordance with procedures adopted by the Secretary.

Section 70-24 Public Notice and Consideration of Public Comment

Public notice of the receipt of all apparently complete applications for coastal use permits shall be given by causing the publication of notice of the application once in the official journal of the parish. Notice shall be considered given upon publication in the official parish journal. The notice shall set forth that any comments on the proposed

activity shall be submitted to the Department of Safety and Permits within twenty-five (25) days from the date of official journal publication of the notice.

The Director shall consider comments received in response to the public notice in its subsequent actions on the permit application. Comments received will be made a part of the official file on the application. If comments received related to matters within the special expertise of another governmental body, the permitting body may seek advice of that agency. If necessary, the applicant will be given the opportunity to furnish his proposed resolution or rebuttal to all objections from government agencies and other substantive adverse comments before a final decision is made on the application.

Section 70-25 Public Hearings on Permit Applications

- (1) A public hearing may be held in connection with the consideration of an application for a new permit and when it is proposed that an existing permit be modified or revoked.
- (2) Any person may request in writing within the comment period specified in the public notice that a public hearing be held to consider material matters at issue in a permit application. Upon receipt of any such request, the Director shall determine whether the

issued raised are substantial and there is a valid public interest to be served by holding a public hearing.

- (3) Public hearing(s) are appropriate when there is significant public opposition to a proposed use, or there have been requests from legislators or from local governments or other local authorities, or in controversial cases involving significant economic, social, or environmental issues. The Director has the discretion to require hearings in any particular case. Failure of the Director to hold a hearing on an application may not be appealed to the Secretary.
- (4) If the determination is made to hold a public hearing, such hearings shall be held by the City Planning Commission, and said hearing shall be placed on the calendar of a regularly scheduled meeting of the Planning Commission, allowing thirty (30) days for public notice.
- (5) If a request for a public hearing has been received, and the decision is made that no hearing will be held, public notice of the decision shall be given.

Section 70-26

Additional Information

- (1) If an application is found to be incomplete or inaccurate after processing has begun, or if it is determined that additional information from the

applicant is necessary to assess the application adequately, processing will be stopped pending receipt of the necessary changes or information from the applicant and the processing periods provided for in Section 70-23(4) or (6) will be interrupted. Upon receipt of the required changes or information, a new processing period will begin.

- (2) If the applicant fails to respond within thirty (30) days to any request or inquiry of the permitting body, the permitting agent may advise the applicant that his application will be considered as having been withdrawn unless and until the applicant responds within fifteen (15) days of the date of the letter.

Section 70-27 Decisions on Permits

- (1) The Director will determine whether or not the permit should be issued. Permits shall be issued only for those uses found to be consistent with the Code of the City of New Orleans (Ordinance No. 828 M.C.S., as amended), the New Orleans Building Code (Ordinance No. 17,525 C.C.S., as amended,) and the Coastal Use Guidelines enumerated in Section 70-28. Permit decisions will be made only after a full and fair consideration of all information before the permitting body, and shall represent an appropriate balancing of social, environmental and economic factors. The Director shall prepare a short and plain statement explaining the basis for his decision on all applications.

This statement shall include the Director's conclusions on the conformity of the proposed use with the guidelines of the state and local program. The statement shall be dated, signed, and included in the record prior to final action on the application.

- (2) If the final decision is to issue the permit, the Director will forward two (2) copies of the draft permit to the applicant for his signature accepting the conditions on the permit, along with its findings on the application. The applicant will return both signed copies to the Director for signature and dating by the issuing official. If the final decision is to deny the permit, the applicant shall be sent a copy of the statement prepared pursuant to Subsection (1) above, setting forth the reason(s) for denial.

- (3) Final action on the permit application is the signature of the issuing official on the permit or the mailing of the letter notifying the applicant of the denial.

Section 70-28 Coastal Use Guidelines

A. GUIDELINES APPLICABLE TO ALL USES

Guideline 1.1 The guidelines must be read in their entirety. Any proposed use may be subject to the requirements of more than one guideline or section of guidelines and all applicable guidelines must be complied with.

Guideline 1.2 Conformance with applicable water and air quality laws, standards and regulations, and with those other laws, standards and regulations which have been incorporated into the coastal resources program shall be deemed in conformance with the program except to the extent that these guidelines would impose additional requirements.

Guideline 1.3 The guidelines include both general provisions applicable to all uses and specific provisions applicable only to certain types of uses. The general guidelines apply in all situations. The specific guidelines apply only to the situations they address. Specific and general guidelines should be interpreted to be consistent with each other. In the event there is an inconsistency, the specific shall prevail.

Guideline 1.4 These guidelines are not intended to nor shall they be interpreted so as to result in an involuntary acquisition or taking of property.

Guideline 1.5 No use or activity shall be carried out or conducted in such a manner as to constitute a violation of the terms of a grant or donation of any lands or waterbottoms to the State or any subdivision thereof. Revocations of such grants and donations shall be avoided.

Guideline 1.6 Information regarding the following general factors shall be utilized by the permitting authority in evaluating whether the proposed use is in compliance with the guidelines.

- a) type, nature and location of use.
- b) elevation, soil and water conditions and flood and storm hazard characteristics of site.
- c) techniques and materials used in construction, operation and maintenance of use.
- d) existing drainage patterns and water regimes of surrounding area including flow, circulation, quality, quantity and salinity; and impacts on them.

- e) availability of feasible alternative sites or methods for implementing the use.
- f) designation of the area for certain uses as part of a local program.
- g) economic need for use and extent of impacts of use on economy of locality.
- h) extent of resulting public and private benefits.
- i) extent of coastal water dependency of the use.
- j) existence of necessary infrastructure to support the use and public costs resulting from use.
- k) extent of impacts on existing and traditional uses of the area and on future uses for which the area is suited.
- l) proximity to and extent of impacts on important natural features such as beaches, barrier islands, tidal passes, wildlife and aquatic habitats, and forestlands.
- m) the extent to which regional, state and national interests are served including the national interest in resources and the siting of facilities in the coastal zone as identified in the coastal resources program.
- n) proximity to, and extent of impacts on, special areas, particular areas, or other areas of particular concern of the state program or local programs.
- o) likelihood of, and extent of impacts of, resulting secondary impacts and cumulative impacts.
- p) proximity to and extent of impacts on public lands or works, or historic, recreational or cultural resources.
- q) extent of impacts on navigation, fishing, public access, and recreational opportunities.
- r) extent of compatibility with natural and cultural setting.
- s) extent of long term benefits or adverse impacts.

Guideline 1.7 It is the policy of the coastal resources program to avoid the following adverse impacts. To this end, all uses and activities shall be planned, sited, designed, constructed, operated and maintained to avoid to the maximum extent practicable significant:

- a) reductions in the natural supply of sediment and nutrients to the coastal system by alterations of freshwater flow.
- b) adverse economic impacts on the locality of the use and affected governmental bodies.
- c) detrimental discharges of inorganic nutrient compounds and coastal waters.
- d) alterations in the natural concentration of oxygen in coastal waters.
- e) destruction or adverse alterations of streams, wetlands, tidal passes, inshore waters and waterbottoms, beaches, dunes, barrier islands, and other natural biologically valuable areas or protective coastal features.
- f) adverse disruption of existing social patterns.
- g) alterations of the natural temperature regime of coastal waters.
- h) detrimental changes in existing salinity regimes.
- i) detrimental changes in littoral and sediment transport processes.
- j) adverse effects of cumulative impacts.
- k) detrimental discharges of suspended solids into coastal waters, including turbidity resulting from dredging.
- l) reductions or blockage of water flow or natural circulation patterns within or into an estuarine system or a wetland forest.
- m) discharges of pathogens or toxic substances into coastal waters.
- n) adverse alteration or destruction of archaeological, historical or other cultural resources.
- o) fostering of detrimental secondary impacts in undisturbed or biologically highly productive wetland areas.

- p) adverse alteration or destruction of unique or valuable habitats, critical habitat for endangered species, important wildlife or fishery breeding or nursery areas, designated wildlife management or sanctuary areas, or forestlands.
- q) adverse alteration or destruction of public parks, shoreline access points, public works, designated recreation areas, scenic rivers, or other areas of public use and concern.
- r) adverse disruptions of coastal wildlife and fishery migratory patterns.
- s) land loss, erosion and subsidence
- t) increases in the potential for flood, hurricane or other storm damage, or increases in the likelihood that damage will occur from such hazards.
- u) reductions in the long term biological productivity of the coastal ecosystem.

Guideline 1.8. In those guidelines in which the modifier "maximum extent practicable" is used, the proposed use is in compliance with the guideline if the standard modified by the term is complied with. If the modified standard is not complied with, the use will be in compliance with the guideline if the permitting authority finds, after a systematic consideration of all pertinent information regarding the use, the site and the impacts of the use as set forth in guideline 1.6, and a balancing of their relative significance, that the benefits resulting from the proposed use would clearly outweigh the adverse impacts resulting from non-compliance with the modified standard and there are no feasible and practical alternative locations, methods and practices for the use that are in compliance with the modified standard and:

- a) significant public benefits will result from the use, or;
- b) the use would serve important regional, state or national interests, including the national interest in resources and the siting of facilities in the coastal zone identified in the coastal resources program, or;
- c) the use is coastal water dependent.

The systematic consideration process shall also result in a determination of those conditions necessary for the use to be in compliance with the guideline. Those conditions shall assure the use is carried out utilizing those locations, methods and practices which maximize conformance to the modified standard; are technically, economically,

environmentally, socially and legally feasible and practical and maximize or offset those adverse impacts listed in guideline 1.7 and in the guideline at issue.

Guideline 1.9 Uses shall to the maximum extent practicable be designed and carried out to permit multiple concurrent uses which are appropriate for the location and to avoid unnecessary conflicts with other uses of the vicinity.

Guideline 1.10 These guidelines are not intended to be, nor shall they be, interpreted to allow expansion of governmental authority beyond that established by La. R.S. 49:213.1 through 213.21, as amended; nor shall these guidelines be interpreted so as to require permits for specific uses legally commenced or established prior to the effective date of the coastal use permit program nor to normal maintenance or repair of such uses.

B. GUIDELINES FOR LEVEES

Guideline 2.1 The leveeing of unmodified or biologically productive wetlands shall be avoided to the maximum extent practicable.

Guideline 2.2 Levees shall be planned and sited to avoid segmentation of wetland areas and systems to the maximum extent practicable.

Guideline 2.3 Levees constructed for the purpose of developing or otherwise changing the use of a wetland area shall be avoided to the maximum extent practicable.

Guideline 2.4 Hurricane and flood protection levees shall be located at the non-wetland/wetland interface or landward to the maximum extent practicable.

Guideline 2.5 Impoundment levees shall only be constructed in wetland areas as part of approved water or marsh management projects or to prevent release of pollutants.

Guideline 2.6 Hurricane or flood protection levee systems shall be designed, built and thereafter operated and maintained utilizing best practical techniques to minimize disruptions of existing hydrologic patterns, and the interchange of water, beneficial nutrients and aquatic organisms between enclosed wetlands and those outside the levee system.

C. Guidelines For Linear Facilities

Guideline 3.1 Linear use alignments shall be planned to avoid adverse impacts on areas of high biological productivity or irreplaceable resource areas.

Guideline 3.2 Linear facilities involving the use of dredging or filling shall be avoided in wetland and estuarine areas to the maximum extent practicable.

Guideline 3.3 Linear facilities involving dredging shall be of the minimum practical size and length.

Guideline 3.4 To the maximum extent practicable, pipelines shall be installed through the "push ditch" method and the ditch backfilled.

Guideline 3.5 Existing corridors, rights-of-way, canals, and streams shall be utilized to the maximum extent practicable for linear facilities.

Guideline 3.6 Linear facilities and alignments shall be, to the maximum extent practicable, designed and constructed to permit multiple uses consistent with the nature of the facility.

Guideline 3.7 Linear facilities involving dredging shall not traverse or adversely affect any barrier island.

Guideline 3.8 Linear facilities involving dredging shall not traverse beaches, tidal passes, protective reefs or other natural gulf shorelines unless no other alternative exists. If a beach, tidal pass, reef or other natural gulf shoreline must be traversed for a non-navigation canal, they shall be restored at least to their natural condition immediately upon completion of construction. Tidal passes shall not be permanently widened or deepened except when necessary to conduct the use. The best available restoration techniques which improve the traversed area's ability to serve as a shoreline shall be used.

Guideline 3.9 Linear facilities shall be planned, designed, located and built using the best practical techniques to minimize disruption of natural hydrologic and sediment transport patterns, sheet flow, and water quality, and to minimize adverse impacts on wetlands.

Guideline 3.10 Linear facilities shall be planned, designed, and built using the best practical techniques to prevent bank slumping and erosion, saltwater intrusion, and to minimize the potential for inland movement of storm-generated surges. Consideration shall be given to the use of locks in navigation canals and channels which connect more saline areas with fresher areas.

Guideline 3.11 All non-navigation canals, channels and ditches which connect more saline areas with fresher areas shall be plugged at all waterway crossings and at intervals between crossings in order to compartmentalize them. The plugs shall be properly maintained.

Guideline 3.12 The multiple use of existing canals, directional drilling and other practical techniques shall be utilized to the maximum extent practicable to minimize the number and size of access canals, to minimize changes of natural systems and to minimize adverse impacts on natural areas and wildlife and fisheries habitat.

Guideline 3.13 All pipelines shall be constructed in accordance with parts 191, 192, and 195 of Title 49 of the Code of Federal Regulations, as amended, and in conformance with the Commissioner of Conservation's Pipeline Safety Rules and Regulations and those safety requirements established by La. R.S. 45:408, whichever would require higher standards.

Guideline 3.14 Areas dredged for linear facilities shall be backfilled or otherwise restored to the pre-existing conditions upon cessation of use for navigation purposes to the maximum extent practicable.

Guideline 3.15 The best practicable techniques for site restoration and revegetation shall be utilized for all linear facilities.

Guideline 3.16 Confined and dead end canals shall be avoided to the maximum extent practicable. Approved canals must be designed and constructed using the best practical techniques to avoid water stagnation and eutrophication.

D. GUIDELINES FOR DREDGED SPOIL DEPOSITION

Guideline 4.1 Spoil shall be deposited utilizing the best practical techniques to avoid disruption of water movement, flow, circulation and quality.

Guideline 4.2 Spoil shall be used beneficially to the maximum extent practicable to improve productivity or create new habitat, reduce or compensate for environmental damage done by dredging activities, or prevent environmental damage. Otherwise, existing spoil disposal areas or upland disposal shall be utilized to the maximum extent practicable rather than creating new disposal areas.

Guideline 4.3 Spoil shall not be disposed of in a manner which could result in the impounding or draining of wetlands or the creation of development sites unless the spoil deposition is part of an approved levee or land surface alteration project.

Guideline 4.4 Spoil shall not be disposed of on marsh, known oyster or clam reefs or in areas of submersed vegetation to the maximum extent practicable.

Guideline 4.5 Spoil shall not be disposed of in such a manner as to create a hindrance to navigation or fishing, or hinder timber growth.

Guideline 4.6 Spoil disposal areas shall be designed and constructed and maintained using the best practicable techniques to retain the spoil at the site, reduce turbidity, and reduce shoreline erosion when appropriate.

Guideline 4.7 The alienation of state-owned property shall not result from spoil deposition activities without the consent of the Department of Natural Resources.

E. GUIDELINES FOR SHORELINE MODIFICATION

Guideline 5.1 Non-structural methods of shoreline protection shall be utilized to the maximum extent practicable.

Guideline 5.2 Shoreline modification structures shall be designed and built using best practical techniques to minimize adverse environmental impacts.

Guideline 5.3 Shoreline modification structures shall be lighted or marked in accordance with U. S. Coast Guard regulations, not interfere with navigation, and should foster fishing, other recreational opportunities, and public access.

Guideline 5.4 Shoreline modification structures shall be built using best practical materials and techniques to avoid the introduction of pollutants and toxic substances into coastal waters.

Guideline 5.5 Piers and docks and other harbor structures shall be designed and built using best practical techniques to avoid obstruction of water circulation.

Guideline 5.6 Marinas, and similar commercial and recreational developments shall to the maximum extent practicable not be located so as to result in adverse impacts on open productive oyster beds, or submersed grass beds.

Guideline 5.7 Neglected or abandoned shoreline modification structures, piers, docks, mooring and other harbor structures shall be removed at the owner's expense, when appropriate.

Guideline 5.8 Shoreline stabilization structures shall not be built for the purpose of creating fill areas for development unless part of an approved surface alteration use.

Guideline 5.9 Jetties, groins, breakwaters and similar structures shall be planned, designed and constructed so as to avoid to the maximum extent practicable downstream land loss and erosion.

F. GUIDELINES FOR SURFACE ALTERATIONS

Guideline 6.1 Industrial, commercial, urban, residential, and recreational uses are necessary to provide adequate economic growth and development. To this end, such uses will be encouraged in those areas of the coastal zone that are suitable for development. Those uses shall be consistent with the other guidelines and shall, to the maximum extent practicable, take place only:

- a) on lands five feet or more above sea level or within fast lands; or
- b) on lands which have foundation conditions sufficiently stable to support the use, and where flood and storm hazards are minimal or where protection from these hazards can be reasonably well achieved, and where the public safety would not be unreasonably endangered; and
 - 1) the land is already in high intensity of development use, or
 - 2) there is adequate supporting infrastructure, or
 - 3) the vicinity has a tradition of use for similar habitation or development

Guideline 6.2 Public and private works projects such as levees, drainage improvements, roads, airports, ports, and public utilities are necessary to protect and support needed development and shall be encouraged. Such projects shall, to the maximum extent practicable, take place only when:

- a) they protect or serve those areas suitable for development pursuant to Guideline 6.1; and
- b) they are consistent with the other guidelines; and
- c) they are consistent with all relevant adopted state, local and regional plans.

Guideline 6.3 BLANK (Deleted)

Guideline 6.4 To the maximum extent practicable wetland areas shall not be drained or filled. Any approved drain or fill project shall be designed and constructed using best practicable techniques to minimize present and future property damage and adverse environmental impacts.

Guideline 6.5 Coastal water dependent uses shall be given special consideration in permitting because of their reduced choice of alternatives.

Guideline 6.6 Areas modified by surface alteration activities shall, to the maximum extent practicable, be revegetated, refilled, cleaned and restored to their predevelopment condition upon termination of the use.

Guideline 6.7 Site clearing shall to the maximum extent practicable be limited to those areas immediately required for physical development.

Guideline 6.8 Surface alterations shall, to the maximum extent practicable, be located away from critical wildlife areas and vegetation areas. Alterations in wildlife preserves and management areas shall be conducted in strict accord with the requirements of the wildlife management body.

Guideline 6.9 Surface alterations which have high adverse impacts on natural functions shall not occur, to the maximum extent practicable, on barrier islands and beaches, isolated cheniers, isolated natural ridges or levees, or in wildlife and aquatic species or spawning areas, or in important migratory routes.

Guidelines 6.10 The creation of low dissolved oxygen conditions in the water or traps for heavy metals shall be avoided to the maximum extent practicable.

Guideline 6.11 Surface mining and shell dredging shall be carried out utilizing the best practical techniques to minimize adverse environment impacts.

Guideline 6.12 The creation of underwater obstructions which adversely affect fishing or navigation shall be avoided to the maximum extent practicable.

Guideline 6.13 Surface alteration sites and facilities shall be designed, constructed, and operated using the best practicable techniques to prevent the release of pollutants or toxic substances into the environment and minimize other adverse impacts.

Guideline 6.14 To the maximum extent practicable only material that is free of contaminants and compatible with the environmental setting shall be used as fill.

G. Guidelines For Hydrologic And Sediment Transport Modifications

Guideline 7.1 The controlled diversion of sediment-laden waters to initiate new cycles of marsh building and sediment nourishment shall be encouraged and utilized whenever such diversions will enhance the viability and productivity of the outfall area. Such diversions shall incorporate a plan for monitoring and reduction and/or amelioration of the effects of pollutants in the freshwater source.

Guideline 7.2 Sediment deposition systems may be used to offset land loss, to create or restore wetland areas or enhance building characteristics of a development site. Such systems shall only be utilized as part of an approved plan. Sediment from these systems shall only be discharged in the area that the proposed use is to be accomplished.

Guideline 7.3 Undesirable deposition of sediments in sensitive habitat on navigation areas shall be avoided through the use of the best preventive techniques.

Guideline 7.4 The diversion of freshwater through siphons and controlled conduits and channels, and overland flow to offset saltwater intrusion and to introduce nutrients into wetlands shall be encouraged and utilized whenever such diversion will enhance the viability and productivity of the outfall area. Such diversions shall incorporate a plan for monitoring and reduction and/or amelioration of the effects of pollutants present in the freshwater source.

Guideline 7.5 Water or marsh management plans shall result in an overall benefit to the productivity of the area.

Guideline 7.6 Water control structures shall be assessed separately based on their individual merits and impacts and in relation to their overall water or marsh management plan of which they are a part.

Guideline 7.7 Weirs and similar water control structures shall be designed and built using the best practical techniques to prevent "cut arounds," permit tidal exchange in tidal areas, and minimize obstruction of the migration of aquatic organisms.

Guideline 7.8 Impoundments which prevent normal tidal exchange and/or the migration of aquatic organisms shall not be constructed in brackish and saline areas to the maximum extent practicable.

Guideline 7.9 Withdrawal of surface and ground water shall not result in saltwater intrusion or land subsidence to the maximum extent practicable.

H. GUIDELINES FOR DISPOSAL OF WASTES

Guideline 8.1 The location and operation of waste storage, treatment, and disposal facilities shall be avoided in wetlands to the maximum extent practicable, and best practical techniques shall be used to minimize adverse impacts which may result from such use.

Guideline 8.2 The generation, transportation, treatment, storage and disposal of hazardous wastes shall be pursuant to the substantive requirements of the Department of Natural Resources adopted pursuant to Act 334 of 1978 and approved pursuant to the Resource Conservation and Recovery Act of 1976 P.L. 94-580, and of the Office of Conservation for injection below surface.

Guideline 8.3 Waste facilities located in wetlands shall be designed and built to withstand all expectable adverse conditions without releasing pollutants.

Guideline 8.4 Waste facilities shall be designed and constructed using best practical techniques to prevent leaching, control leachate production, and prevent the movement of leachate away from the facility.

Guideline 8.5 The use of overland flow systems for non-toxic, bio-degradable wastes, and the use of sump lagoons and reservoirs utilizing aquatic vegetation to remove pollutants and nutrients shall be encouraged.

Guideline 8.6 All waste disposal sites shall be marked and, to the maximum extent practicable, all components of waste shall be identified.

Guideline 8.7 Waste facilities in wetlands with identifiable pollution problems that are not feasible and practical to correct shall be closed and either removed or sealed, and shall be properly revegetated using the best practical techniques.

Guideline 8.8 Waste shall be disposed of only at approved disposal sites.

Guideline 8.9 Radioactive wastes shall not be temporarily or permanently disposed of in the coastal zone.

I. GUIDELINES FOR USES THAT RESULT IN THE ALTERATION OF WATERS DRAINING INTO COASTAL WATERS

Guideline 9.1 Upland and upstream water management programs which affect coastal waters and wetlands shall be designed and constructed to preserve or enhance existing water quality, volume, and rate of flow to the maximum extent practicable.

Guideline 9.2 Runoff from developed areas shall to the maximum extent practicable be managed to simulate natural water patterns, quantity, quality and rate of flow.

Guideline 9.3 Runoff and erosion from agricultural lands shall be minimized through the best practical techniques.

GUIDELINES FOR OIL, GAS AND OTHER MINERAL ACTIVITIES

Guideline 10.1 Geophysical surveying shall utilize the best practical techniques to minimize disturbance or damage to wetlands, fish and wildlife and other coastal resources.

Guideline 10.2 To the maximum extent practicable, the number of mineral exploration and production sites in wetland areas requiring flotation access shall be held to the minimum number, consistent with good recovery and conservation practices and the need for energy development, by directional drilling, multiple use of existing access canals and other practical techniques.

Guideline 10.3 Exploration, production and refining activities shall, to the maximum extent practicable, be located away from critical wildlife areas and vegetation areas. Mineral operations in wildlife preserves and management areas shall be conducted, in strict accordance with the requirements of the wildlife management body.

Guideline 10.4 Mineral exploration and production facilities shall be to the maximum extent practicable designed, constructed and maintained in such a manner to maintain natural water flow regimes, avoid blocking surface drainage, and avoid erosion.

Guideline 10.5 Access routes to mineral exploration, production and refining sites shall be designed and aligned so as to avoid adverse impacts on critical wildlife and vegetation areas to the maximum extent practicable.

Guideline 10.6 Drilling and production sites shall be prepared, constructed, and operated using the best practical techniques to prevent the release of pollutants or toxic substances into the environment.

Guideline 10.7 All drilling activities, supplies, and equipment shall be kept on barges, on drilling rigs, within ring levees, or on the well site.

Guideline 10.8 Drilling ring levees shall to the maximum extent practicable be replaced with smaller production levees or removed entirely.

Guideline 10.9 All drilling and production equipment, structures, and storage facilities shall be designed and constructed utilizing best practical techniques to withstand all expectable adverse conditions without releasing pollutants.

Guideline 10.10 Mineral exploration, production and refining facilities shall be designed and constructed using best practical techniques to minimize adverse environmental impacts.

Guideline 10.11 Effective environmental protection and emergency or contingency plans shall be developed and complied with for all mineral operations.

Guideline 10.12 The use of dispersants, emulsifiers and other similar chemical agents on oil spills is prohibited without the prior approval of the Coast Guard or Environmental Protection Agency On-Scene Coordinator, in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan.

Guideline 10.13 Mineral exploration and production sites shall be cleared, revegetated, detoxified and otherwise restored as near as practicable to their original condition upon termination of operations to the maximum extent practicable.

Guideline 10.14 The creation of underwater obstructions which adversely affect fishing or navigation shall be avoided to the maximum extent practicable.

Section 70-29 Conditions of Permit

- (1) By accepting the permit, the applicant agrees to:
 - (a) Carry out or perform the use in accordance with the plans and specifications approved by the Director.
 - (b) Comply with any permit conditions imposed by the Director.
 - (c) Adjust, alter, or remove any structure or other physical evidence of the permitted use if, in the opinion of the Director, it proves to be beyond the scope of the use as approved or is abandoned.
 - (d) Provide, if required by the Director, an acceptable surety bond in an appropriate amount to ensure adjustment, alteration, or removal should the Director determine it necessary.
 - (e) Hold and save the State of Louisiana, the City of New Orleans, the Department, and their

officers and employees harmless from any damage to persons or property which might result from the work, activity, or structure permitted.

(f) Certify that any permitted construction has been completed in an acceptable and satisfactory manner and in accordance with the plans and specifications approved by the Director. The Director may, when appropriate, require such certification be given by a registered professional engineer.

(2) The Director shall place such other conditions on the permit as are appropriate to ensure compliance with the coastal management program.

Section 70-30 Appeals

Within 30 days after public notice of the decision, the applicant, the Secretary of DNR, any affected local government or affected local, state or federal agency, an "aggrieved person" or any person adversely affected by a decision may petition for reconsideration to the Secretary in writing. The Secretary will render a decision upon the reconsideration within fifteen days of its receipt. As final recourse, proceedings for review may be instituted by filling a petition in the district court of the parish in which the proposed use is to be situated within thirty days after mailing of notice of the final decision by the Secretary or, if a reconsideration is requested, within thirty days after the decision thereof. The courts must give the case "preference and priority" and allow trial de novo at the request of the party.

ARTICLE VII Modification, Suspension or Revocation of Permits

Section 70-31 Modifications and Variances

- (1) The terms and conditions of a permit may be modified to allow changes in the permitted use, in the plans and specifications for that use, in the methods by which the use is being implemented, or to assure that the permitted use will be in conformity with the coastal management program. Changes which would significantly increase the impacts of a permitted activity shall be processed as new applications for permits pursuant to Article VI, not as a modification.
- (2) A permit may be modified upon request of the permittee:
 - (a) if mutual agreement can be reached on a modification, written notice of the modification will be given to the permittee.
 - (b) if mutual agreement cannot be reached, a permittee's request for a modification shall be considered denied.

Section 70-32 Suspensions

- (1) The Director may suspend a permit upon finding that:
 - (a) the permittee has failed or refuses to comply with the terms and conditions of the permit or any modifications thereof, or

- (b) the permittee has submitted false or incomplete information in his application or otherwise, or
 - (c) The permittee has failed or refused to comply with any lawful order or request of the Director.
- (2) The Director shall notify the permittee in writing that the permit will be suspended and the reasons therefore and order the permittee to cease immediately all previously authorized activities. The notice shall also advise the permittee that he will be given, upon request made within ten (10) days of receipt of the notice, an opportunity to respond to the reasons given for the suspension.
- (3) After consideration of the permittee's response, or, if none, within 30 days after issuance of the notice, the Director shall take action to reinstate, modify or revoke the permit and shall notify the permittee of the action taken.

Section 70-33 Revocations

If, after compliance with the suspension procedures in Section 70-32, above, the Director determines that revocation or modification of the permit is warranted, written notice of the revocation or modification shall be given to the permittee.

regulations provided by the Comprehensive Zoning Ordinance, No. 4264 M.C.S., as amended, the Orleans Parish Building Code, Ordinance 17,525 C.C.S., or by other sections of the City Code of the City of New Orleans, Ordinance No. 828 M.C.S., as amended.

The regulations herein shall be construed as being requirements in addition to those required by existing ordinances.

Section 70-40 Invalidity of Any Provisions

If any provision or item of this Ordinance, or the application thereof, is held invalid, such invalidity shall not affect other provisions, items or applications of this Ordinance which can be given effect without the invalidated provisions, items or applications. To this end the provisions of this Ordinance are hereby declared severable.

Section 70-41 Status of Conflicting Ordinances

All ordinances or parts of ordinances in conflict herewith are hereby repealed, except as set forth in Section 70-39.

Section 70-34 Enforcement

If the permittee fails to comply with a cease and desist order or the suspension or revocation of a permit, the Director shall seek appropriate civil and criminal relief as provided by §213.17 of the Act.

ARTICLE VIII. General Permits

Section 70-35 General

- (1) The Director may, after compliance with the procedures set forth in Sections 70-23 and 70-24, issue general permits for certain clearly described categories of uses requiring coastal use permits. After a general permit has been issued, individual uses falling within those categories will not require full individual permit processing unless the Director determines, on a case-by-case basis, that the public interest requires full review.
- (2) General permits may be issued only for those uses that are substantially similar in nature, that cause only minimal adverse impacts when performed separately, that will have only minimal adverse cumulative impacts and that otherwise do not impair the fulfillment of the objectives and policies of the coastal management program.

Section 70-36 Reporting

- (1) Each person desiring to commence work on a use subject to a general permit must give notice to the

Director and receive written authorization prior to commencing work. Such authorization shall be issued within 30 days of receipt of the notice.

(2) Such notice shall include:

- (a) The name and address of the person conducting the use.
- (b) Such descriptive material, maps and plans as may be required by the Director for that general permit.

Section 70-37 Conditions of General Permits

- (1) The Director shall prescribe such conditions for each general permit as may be appropriate.
- (2) A general permit may be revoked if the Director determines that such revocation is in the public interest and consistent with the coastal management program.

Section 70-38 Appeals

See Section 70-30 P. 0-49 .

ARTICLE IX. Conflict of Coastal Zone Ordinance with Other Ordinances

Section 70-39 Priority of Coastal Zone Regulations

All regulations described in the foregoing Chapter represent minimum standards, and supersede all existing ordinances with less restrictive standards.

Nothing herein shall be construed as abrogating any

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4. Ibid.
5. Ibid.
6. Saucier, Roger T. Recent Geomorphic History of the Pontchartrain Basin. Louisiana State University Studies, 1963.
7. Ibid.
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10. Burk and Associates, Inc. Coastal Zone Management Plan, St. Bernard Parish, Louisiana. 1979.
11. U.S. Army Engineer District, New Orleans. Environmental Analysis of Lake Pontchartrain, Its Surrounding Wetlands, and Selected Land Uses. 1980.
12. Pontchartrain Land Corporation. Application For Pontchartrain New Town-in-Town. 1972.
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16. Mumphy, Anthony J. Jr., Jane Brooks, and John Miller. Urban Development in the Louisiana Coastal Zone: Problems and Guidelines. Urban Studies Institute, University of New Orleans. 1976.

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18. Louisiana Coastal Resources Program. Final Environmental Impact Statement. Department of Natural Resources. Baton Rouge, 1980.

19. Ibid.

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APPENDIX I

Wetland Vegetation Habitats in Orleans Parish

The U.S. Fish and Wildlife Services has produced vegetation maps of southern Louisiana wetlands as part of a national characterization survey. Acreages have been calculated for certain areas of Orleans Parish, separated by predominant characteristic vegetation types. The following list, supplied by the U.S. Fish and Wildlife Service, Slidell Computer Center, summarizes those habitats that have received particular attention to date:

Code: PEM (Palustrine Emergent Vegetation)

Description: A freshwater marsh dominated by such species as maidencane (Panicum hemitomon), pennywort (Hydrocotyle sp.), pickerelweed (Pontederia cordata), alligatorweed (Alternanthera philoxeroides), and bulltongue (Sagittaria sp.) (Chabreck and Linscombe 1978). Because the coastal marshes contain a mixture of broad-leaved and narrow-leaved persistent vegetation no subclass was assigned to this marsh type on the habitat maps.

Distribution:	<u>ACREAGE</u>	<u>TOPOMAP</u>	<u>DECADE</u>
	50	LITTLE WOODS, LA.	1978
	64	CHALMETTE, LA.	1978
	191	SPANISH FORT SE, LA.	1978
	1139	LITTLE WOODS, LA.	1978
	<u>1,444</u>	TOTAL ACRES	

* * *

Code: PFO1 (Palustrine Forested Broad-leaved Deciduous)

Description: A broad-leaved, deciduous forest in a freshwater wetland environment. This includes battures containing willows and cottonwood and bottomland hardwood forest habitats subject to frequent flooding. In Louisiana, these habitats are usually below the 5 ft. contour. Exceptions are the bottomland hardwoods on the upper Pearl River floodplain

and small areas of the upper Pascagoula River floodplain in Mississippi, which are often above 5 ft. in elevation but are wetlands because of poor drainage.

Distribution:	<u>ACREAGE</u>	<u>TOPOMAP</u>	<u>DECADE</u>
	16	CHALMETTE, LA.	1978
	32	NEW ORLEANS WEST, LA.	1978
	39	NEW ORLEANS EAST, LA.	1978
	64	BELLE CHASSE, LA.	1978
	98	SPANISH FORT SE, LA.	1978
	325	CHALMETTE, LA.	1978
	3498	LITTLE WOODS, LA.	1978
	<u>4072</u>	TOTAL ACRES	

* * *

Code: PF01/2 (Palustrine Forested Broad-leaved Deciduous/
Needle-leaved Deciduous)

Description: A deep-water swamp containing mostly broad-leaved deciduous and needle-leaved deciduous trees. Most areas so labeled on the habitat maps contain cypress (Taxodium distichum) and tupelogram (Nyssa aquatica). Swamps in the interdistributary basins of the Mississippi River and the Pearl, Pascagoula, and Escatawpa rivers of Mississippi are dominated by these species. Aquatic beds and emergents may characterize the understory.

Distribution:	<u>ACREAGE</u>	<u>TOPOMAP</u>	<u>DECADE</u>
	15	ALLIGATOR POINT, LA.	1978
	18	NEW ORLEANS EAST, LA.	1978
	93	SPANISH FORT SE, LA.	1978
	<u>126</u>	TOTAL ACRES	

* * *

Code: PFO 1/3 Palustrine Forested Broad-Leaved Deciduous/
Broad-leaved Evergreen

Description: Wetland forests dominated by broad-leaved deciduous and broad-leaved evergreen trees. These areas, while below 5 ft. in elevation, are better drained than backswamps and are commonly found on subsiding natural levees and between wetter bottomland hardwoods and drier mixed levee and upland forests. Common species in such environments include live oak (Quercus virginiana), sweetgum (Liquidambar styraciflua), magnolia (Magnolia sp.), and hackberry (Celtis laevigata). Large cut-over areas of Devil's Swamp, Mississippi, which contain maple (Acer rubrum) and swamp bay (Persea palustris) are labeled PF01/3.

Distribution:	<u>ACREAGE</u>	<u>TOPOMAP</u>	<u>DECADE</u>
	169	CHEF MENTEUR, LA.	1978
	232	LITTLE WOODS, LA.	1978
	318	NEW ORLEANS EAST, LA.	1978
	3051	CHALMETTE, LA.	
	<u>3770</u>	ACRES TOTAL	

* * *

Code: E2EM (Estuarine Intertidal Emergent Vegetation)

Description: A wet grassland vegetated by salt-tolerant species. This label is used on the 1950s habitat maps to designate all non-fresh marshes (saline, brackish, and intermediate) because there are no adequate data to designate individual marsh types. This category is sometimes interspersed with open water bodies that are too small, discontinuous, and numerous to be individually delineated.

Distribution:	<u>ACREAGE</u>	<u>TOPOMAP</u>	<u>DECADE</u>
	1	CHALMETTE, LA.	1978
	4	SPANISH FORT SE, LA.	1978
	6	SOUTH POINT, LA.	1978
	63	CHALMETTE, LA.	1978
	232	MARTELLO CASTLE, LA.	1978
	328	NEW ORLEANS EAST, LA.	1978
	625	SOUTH POINT, LA.	1978
	802	NORTH SHORE, LA.	1978
	1617	CHALMETTE, LA.	1978
	3165	CHEF MENTEUR, LA.	1978
	5503	RIGOLETS, LA.	1978
	6864	LITTLE WOODS, LA.	1978
	9224	ALLIGATOR POINT, LA.	1978
	14646	CHEF MENTEUR, LA.	1978
	<u>43,080</u>	ACRES TOTAL	

Source:

U.S. Department of the Interior, Fish and Wildlife Service, National Coastal Ecosystems Team
NASA/Slidell Computer Complex, Slidell, Louisiana.
70358

APPENDIX II

Summary of Archaeological Sites

The following descriptions of archaeological sites in Orleans Parish are intended to complement Figure 18, which maps them, and the accompanying summary discussion. This report, prepared in 1978 by Dr. Richard Shenkel of the Department of Anthropology and Geography at the University of New Orleans, is the most recent comprehensive summary of the locations. Further information and newer sites have been added subsequently. This is available on a site-by-site basis through the State Division of Archaeology, under the Historic Preservation Officer, Louisiana State Department of Culture, Recreation and Tourism.

In Louisiana, archaeological sites are designed and identified by a site number given in accordance with the Smithsonian River Basin Survey system. Under this system each state is given an initial number, Louisiana is 16. Thence, each county (parish) is given a letter designation, Orleans is OR. Thence each site is numbered in the order of its discovery or recording. Thus 16 OR 6 is the sixth site recorded for Orleans Parish, Louisiana. In addition, sites are generally named for a prominent characteristic, a nearby geographic feature or the property owner. The primary function of site naming is the attempt to keep romantic humanism in archaeology. When a site becomes important because of what it may contain or signify, it is generally referred to by its name and not its number. The recording procedure of the State Office of Archaeology and Historic Preservation combines into a single system both historic as well as prehistoric sites. The criteria for site recognition is that materials have to be recovered from an archaeological context and recorded with the State Office.

The following site list includes a few historic sites that have received archaeological attention and therefore have been assigned site numbers. It should be reemphasized that all of the areas of New Orleans settled prior to 1900 are archaeologically important for they contain a record of neighborhood development and cultural character that is not preserved in books, archives and manuscripts. As additional sites, either historic or prehistoric, receive archaeological attention, they will be given numbers in sequence.

Some of the sites have the designation NRPH indicating that they have been placed on the National Register of Historic Places.

16 OR 1 Little Woods

A destroyed Rangia cuneata shell midden excavated in the 1930's located to the northwest of the intersection of Benson and Morrison Roads in eastern New Orleans about 1/2 mile south of the present shore of Lake Pontchartrain. The cultural association of this site is Tchefuncte and it probably dates between 400 B.C. and 200 B.C.

16 OR 2 Little Woods

A destroyed Rangia cuneata shell midden excavated in the 1930's located to the northwest of the intersection of Benson and Morrison Roads in eastern New Orleans about 1/2 mile south of the present shore of Lake Pontchartrain about 150 feet northwest of 16 OR 1. The cultural association of this site is Tchefuncte and it probably dates between 400 B.C. and 200 B.C.

16 OR 3 Little Woods

A destroyed Rangia cuneata shell midden excavated in the 1930's located west of Vanderkloot at the corner of Adele and Fulton in eastern New Orleans. Cultural association of this site is Tchefuncte and it probably dates between 400 B.C. and 200 B.C.

16 OR 4 Little Woods

An excavated but otherwise intact Rangia cuneata shell midden located between the Citrus Canal, Bundy Road, Morrison Road and I-10 in eastern New Orleans. Another Tchefuncte site originally excavated in the 1930's that probably dates between 400 B.C. and 200 B.C.

16 OR 5 Little Woods

An excavated and destroyed Rangia cuneata shell midden investigated in the 1930's located near the intersection of Benson Road and Dinkins Street in eastern New Orleans. This is a Tchefuncte site dating between 400 B.C. and 200 B.C.

16 OR 6 Big Oak Island NRHP

A large multi-component Rangia cuneata shell midden located about 2,000 feet north of Lake Marseille and 1/2 mile southeast of I-10 in eastern New Orleans. This site was excavated in the 1930's. Radiocarbon dates range from 520 B.C. to 95 B.C. and the cultural associations include both Tchefuncte and Marksville.

16 OR 7 Little Oak Island NRHP

An intensively occupied Tchefuncte village site dating about 200 B.C. excavated in the 1970's. This site is located about 2,500 feet due east of Big Oak Island site in eastern New Orleans.

16 OR 8 Downman Road

A destroyed Rangia cuneata shell midden located about 900 feet southwest of the intersection of Downman Road and Hayne Boulevard. This was probably a Tchefuncte site dating between 400 B.C. and 200 B.C.

16 OR 9 St. Charles Canal

A destroyed shell midden excavated in the 1970's that once stretched from St. Charles Canal to Mayo Boulevard between Curran Road and Wales Street in eastern New Orleans. Site might have been transitional between Proverty Point and Tchefuncte dating around 700 B.C.

16 OR 10 Little Woods

A destroyed Rangia cuneata shell midden located near Weaver Road and Wheaton Circle in eastern New Orleans. This was probably a Tchefuncte site dating between 400 B.C. and 200 B.C.

16 OR 11 Dwyer Canal

A dredged and mostly destroyed shell midden at the intersection of Dwyer Canal and Rogers Lagoon east of Paris Road in eastern New Orleans. A Tchefuncte period site dredged for road fill before investigation.

16 OR 12 South Point

A multi-component shell site dating from about 1,000 A.D. to historic times located on the southeastern shore of Lake Pontchartrain at South Point near Cane Bayou.

16 OR 13 Little Rigolets

An eroding beach deposit on the east bank of the mouth of Little Rigolets on an old beach line having a Coles Creek cultural association dating to about 1,000 A.D.

16 OR 14 Lake St. Catherine

Eroding shell midden on southshore of Lake St. Catherine about 500 feet southwest of Miller Bayou. This is a multi-component site ranging from Coles Creek through the historic period.

16 OR 15 Hayne Blvd. and Paris Road

This site is largely destroyed by house and road construction in the village of Little Woods. A few large oak and hackberry trees and remnant ridges of shell can be seen on both Hayne Boulevard and Paris Road.

16 OR 16 Rabbit Island

Partially destroyed dredged Rangia shell midden on the south bank of the Rigolets directly opposite the mouth of the West Pearl River. Collections from various times indicate occupation from Tchefuncte through the historic period.

16 OR 17 Bayou Platte

A conical earthmound of unknown cultural affiliation located about 2 1/2 miles northwest of Alligator Point on the east bank of Bayou Platte. This is the only earthmound ever reported for Orleans Parish.

16 OR 18 Alligator Point

An eroded midden or beach deposit located about 1 1/3 miles northwest of Alligator Point on the shore of Lake Borgne or about 1/4 of the distance around Alligator Bend. Artifacts indicate that this is a multi-component camp site with materials from Coles Creek through Mississippian.

16 OR 19 Spanish Fort

A multi-component site with a late prehistoric Indian encampment and a succession of historic structures including a French fort, a Spanish fort, an American fort and a 19th century hotel and amusement park.

16 OR 20 Citrus Canal

A destroyed extensive shell midden located at the Citrus Canal Pump Station. This was one of the Little Woods Tchefuncte sites. The shell from the midden was removed for road fill.

16 OR 21 Truloix Bayou

A dredge and mostly destroyed Rangia shell midden located in the marsh about 1/2 mile south of the mouth of Truloix Bayou near the southeastern shore of Lake St. Catherine. Some in situ materials might remain on dredged periphery. Collected materials indicate probable Coles Creek cultural affiliation.

16 OR 22 Ideal Camp

A linear shell midden located about 1000 ft. from the south east shore of Lake St. Catherine between Miller Bayou and Frederics Bayou with both Tchefuncte and Coles Creek ceramics recovered.

16 OR 23 Bayou Bienvenue

A small Coles Creek shell midden located about one-half mile from Lake Borgne on the North shore of Bayou Bienvenue. This site is reported to be in a fair state of preservation.

16 OR 24 Seabrook

A series of continuous lenticular shell middens paralleling Hayne Blvd. along an old shore line of Lake Pontchartrain now destroyed by house construction and the New Orleans Lake Front Airport. These sites were probably Tchefuncte.

16 OR 25 Bayou St. John

A reported historic Indian camp site on the banks of Bayou St. John near the Dumaine St. Bridge. This site is now either buried or destroyed.

16 OR 26 Little Woods

A small Tchefuncte shell midden located about 800 ft. Southeast of the Citrus Canal Pumping Station. This site has been destroyed by the urban expansion in eastern New Orleans.

16 OR 27 Prentis Avenue

A Rangia and oyster reef also called the Frenchman St. Mound that was probably located near the intersection of Prentis Street and St. Roch Avenue in Gentilly.

16 OR 28 Little Woods - Houghs Canal

A wave washed shell midden mostly covered by levee located about 300 yds. east of the junction of Paris Road and Hayne Blvd.

16 OR 29 Chef Menteur West

A subsided but reasonably intact Tchefuncte shell midden on the south shore of Lake Pontchartrain on the west bank of the mouth of Chef Menteur Pass.

16 OR 30 Chef Menteur East

A subsided, submerged shell midden on the east bank of Chef Menteur Pass at Lake Pontchartrain.

16 OR 31 Lake St. Catherine, Bay Jaune

A small Coles Creek midden about 3/4 mile Northwest of Bay Jaune Point on the shore of Lake St. Catherine. The site is heavily eroded and mostly submerged.

16 OR 32 Ft. Macomb

An historic 19th Century masonry fort on the west bank of Chef Menteur Pass at U.S. Highway 90. It is reported to have been built on an Indian site.

16 OR 33 Alligator Point

A circular shell midden on the north bank of an old stream channel about 1/3 mile north of Alligator Point and about midway between the east and west sides of the point.

16 OR 34 Garcia Site, Hospital Foundation

An eroded beach and offshore site about 3/4 mile west of Fort Pike on the east shore of Lake Pontchartrain. The brick remains of a military hospital are 300 ft. offshore associated with the early 19th Century Fort Pike. Paleoindian and Archaic projectile points have been found in abundance making this the oldest known site in Orleans Parish.

16 OR 35 Front Ridge - Little Woods

A small thin shell midden located on an old beach ridge about 0.9 mi. ENE of the Citrus Canal and about 1/3 mile from the present shore of Lake Pontchartrain of about the intersection of Mackenzie St. and Curran Road in eastern New Orleans. This site was destroyed in the process of house building. It was probably of Tchefuncte age.

16 OR 36 Milneberg

A destroyed or buried midden reported to have existed prior to the dredging and filling of the present lake-shore located just east of Frenchman (Vermillion) St. and 0.4 mile south of the Milneberg Lighthouse.

16 OR 37 de Montluzin Camp

Mostly destroyed midden on the south bank of Bayou Sauvage about 1.8 mile west of Ft. Macomb. Site has been altered by the construction of U.S. Hwy. 90 and several camps.

16 OR 38 Orleans Protection Levee

A site of unknown nature. Artifacts found on spoil bank on the north bank of Bayou Sauvage just east of the Orleans Protection Levee.

16 OR 39 Turtle Bayou

A small shell midden of unknown cultural context reported on or near the natural levee of Turtle Bayou about 500 ft. west of U.S. Hwy. 11 and 0.9 mi. north of the junction of U.S. Hwy. 90 and U.S. Hwy. 11.

16 OR 40 Linsley Site

This is a totally submerged midden discovered during the dredging of the Gulf Intercoastal Waterway. Carbon 14 dates range from 1400 B.C. and 2100 B.C. and the artifact assemblage includes numerous Poverty Point Objects. It is located about 700 ft. south of the Gulf Intercoastal Canal and about 1600 feet east of Paris Road.

16 OR 41 Paris Road

A buried Tchefuncte midden exposed by dragline operations during the construction of the Paris Road Bridge over the Gulf Intercoastal Waterway located about 500 feet south of the GIWW on the east side of Paris Road.

16 OR 42 No Name

A multi-component beach deposit intermittently exposed along Alligator Point at the shore of Lake Borgne. Artifacts include historic and prehistoric materials.

16 OR 43 No Name

A small shell midden exposed on the shore of Lake Borgne about 4500 ft. north of Alligator Point. Probable Coles Creek association.

16 OR 44 No Name

A midden accumulation and beach deposit exposed on the shore of Lake Borgne to the southeast of Little Deedie Lake. Probably Coles Creek association.

16 OR 45 Herman Grima House NRHP

A National Landmark site in the Vieux Carre' consisting of a 1830 Georgian Mansion with attendant out buildings and gardens.

16 OR 46 Gallier House

A National Landmark site in the Vieux Carre' at 1132 Royal Street. The 1840's house of the noted New Orleans Architect James Gallier.

16 OR 47 Louis Armstrong Park

The destroyed location of a portion of Fauberg Tremé' bounded by N. Rampart, St. Philip, N. Villere and St. Ann Streets. Originally built in the mid 19th century and destroyed in the 1970's in an urban renewal project.

16 OR 48 Congo Square

The original location of Fort San Fernando built in 1793 and torn down between 1803 and 1810. Since used as a public commons. Excavations uncovered a portion of the cypress revetment protecting the moat and the entrance bridge of the Fort. Site bounded by N. Rampart, St. Ann, and St. Peters Street and the New Orleans Municipal Auditorium.

16 OR 49 Ursuline Convent NRHP

The oldest building in the Mississippi Valley and a National Landmark. The compound includes the 1756 convent building, the kitchen, servants quarters, the Almonaster Chapel, and Our Lady of Victory Church. It is located in the square bounded by Chartres, Ursulines, Decatur and Gov. Nicholls Streets in the Vieux Carre'.

16 OR 50 Truloix Bayou number 2

An elongated oval Rangia midden 44m X 18m X 2m deep located 150 m south of Truloix Bayou and 750 m east of Lake St. Catherine and about 600 m east of 15 OR 21. Cultural components include Coles Creek, Plaquemine and Mississippian.

16 OR 51 Madame John's Legacy NRHP

A National Landmark historic site located at 632 Dumaine St. in the Vieux Carre'. This is a restored Creole Cottage built in 1788 and may be the oldest residence in New Orleans.

16 OR 52 U.S. Branch Mint NRHP

A National Landmark historic site in the Vieux Carre' bounded by Chartres St., Esplanade Avenue, Decatur St. and Barracks St. This 1830's Federal factory and office building is also located at the site of the 1793 Fort San Carlos.

16 OR 53 Chef Menteur

A small eroding shell midden located on the east bank of Chef Menteur pass halfway between the L&N railroad tracks and the Gulf Intercoastal Waterway. No Cultural affiliation was determined.

16 OR 54 Venetian Isles

A thin Rangia shell lens exposed on the south bank of Bayou Sauvage at the confluence of Chef Mentuer Pass. Recent fill over burden obscures most of site. No cultural affiliation was determined.

16 OR 55 Atlatl Weight

Artifacts in spoil bank of the Gulf Intercoastal Waterway located about 1/2 mile west of the Paris Road Bridge on the south side of the waterway. Poverty Point artifacts. This site probably relates to 16 OR 40.

16 OR 56 No Name

A small Rangia midden located on the east side of Chef Menteur Pass at the junction of Bayou Dupont and Bayou Catherine. No cultural affiliation cited.

16 OR 57 Fort Pike NRHP

A 1830's historic fort site located on the east bank of the Rigolets at U.S. Hwy. 90. A Louisiana State Park is in excellent state of preservation.

16 OR 58 Deedie Bayou Site

An eroded Rangia midden and beach deposit located 100m east of the mouth of Deedie Bayou on the shore of Lake Borgne. Cultural components include Tchefuncte through historic.

16 OR 59 Big Deedie Lake Site

A small, subsided, but otherwise intact Rangia midden with Oak and Hackberry measuring only 19m x 20m and 1.5m high. Tchefuncte was the only cultural component noted.

16 OR 60 Rigolets Lighthouse

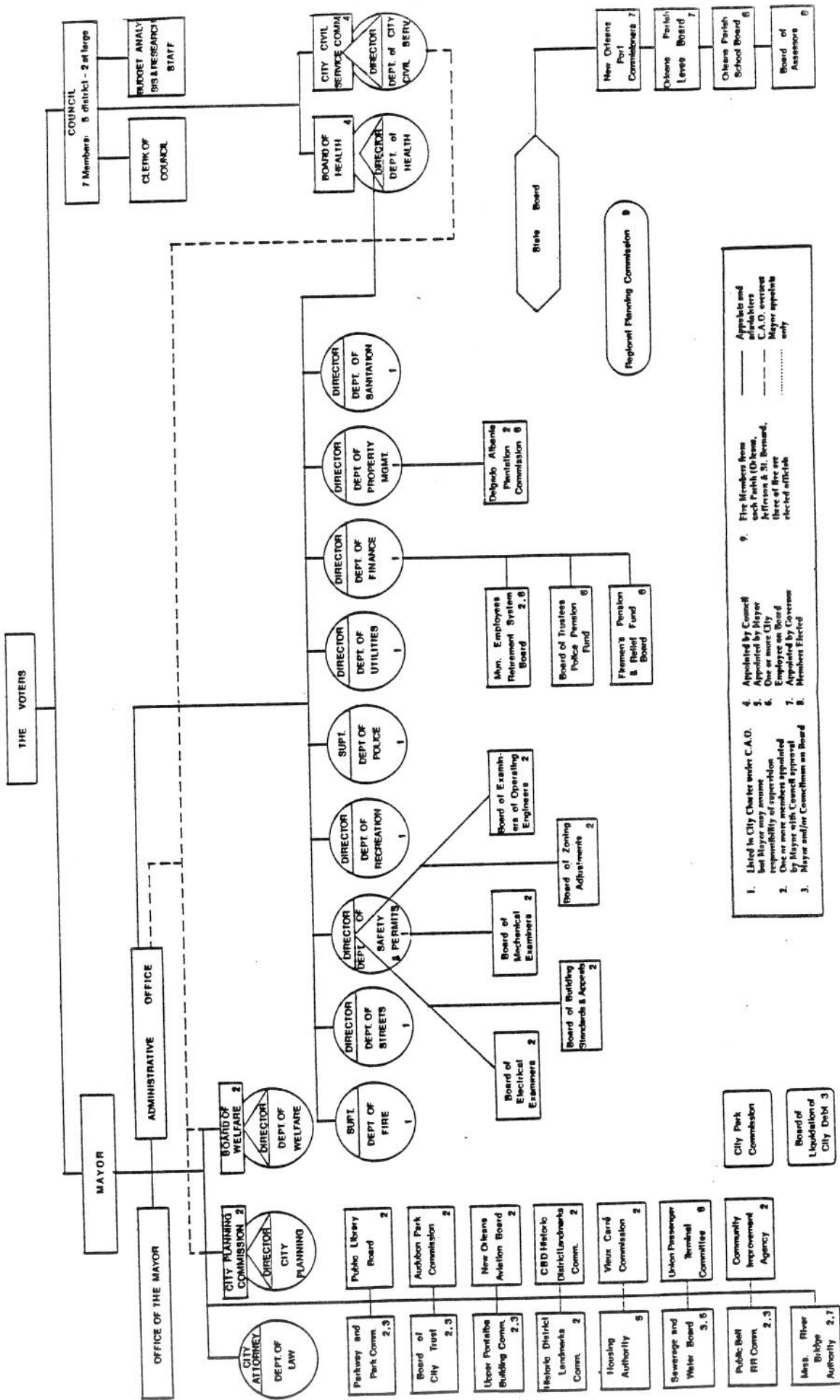
The remains of a nineteenth century lighthouse located on the south bank of the Rigolets at Lake Pontchartrain about 1000m northwest of Fort Pike.

16 OR 61 Catfish Point

An eroded Rangia midden and beach deposit located at Catfish Point on the south bank of the Rigolets at Lake Borgne. The beach measures about 5m wide by 30m long and contains materials dating from Tchefuncte through the historic period.

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NEW ORLEANS CITY GOVERNMENT ORGANIZATIONAL CHART



1. Listed in City Charter under C.A.O. but Mayor may assume responsibility of supervision
2. One or more City Employees on Board
3. Mayor and/or Commission on Board
4. Appointed by Council
5. Appointed by Mayor
6. One or more City Employees on Board
7. Appointed by Governor
8. Members Elected
9. Five Members from each Parish (D. Acme, Jefferson & St. Bernard, three of five are elected officials)

SOURCE :

League of Women Voters of New Orleans, 1978.
 What's What in New Orleans Government - A Citizen's Guide