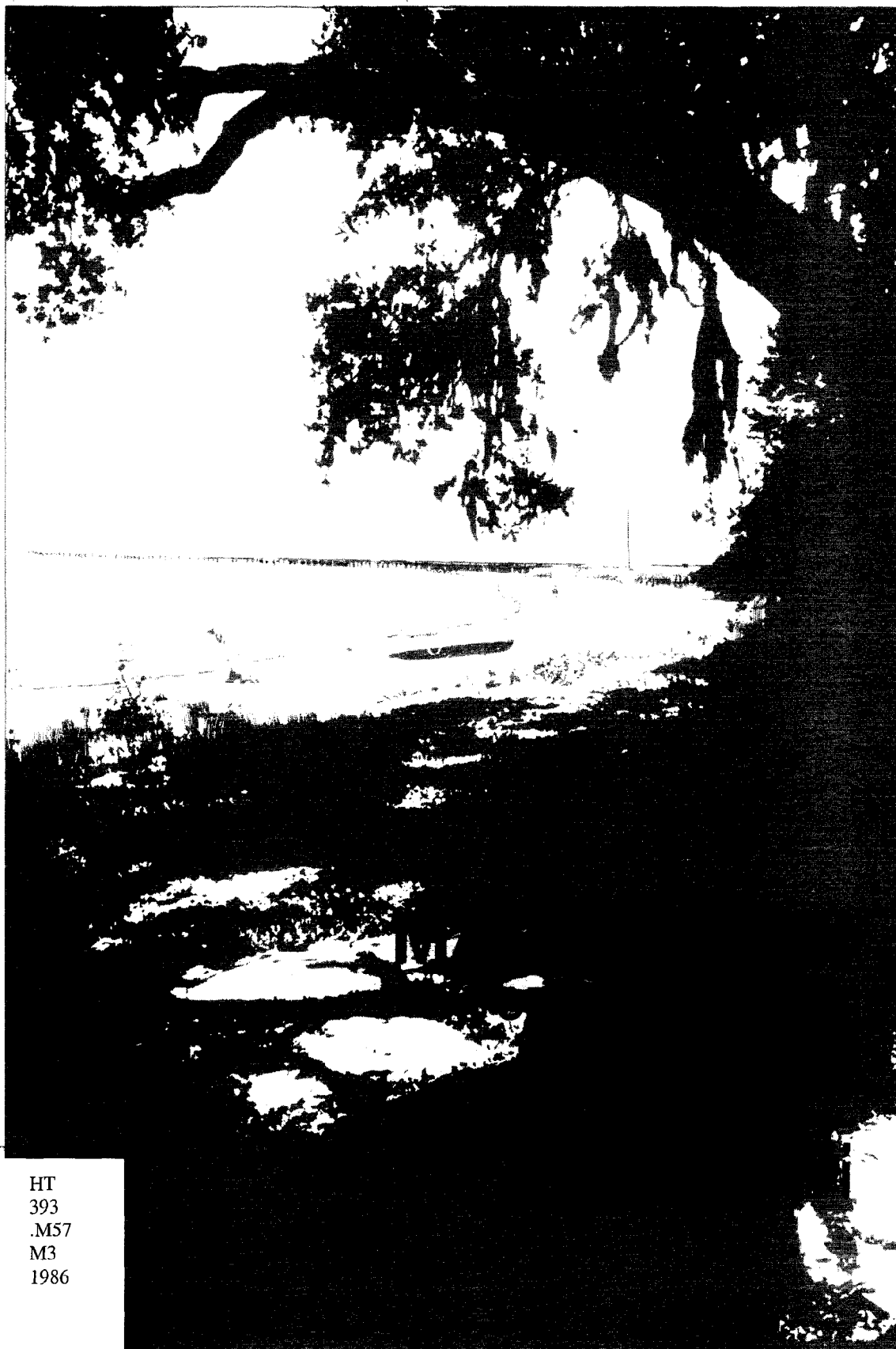


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**MASTER PLAN FOR SHOREFRONT PROTECTION AND UTILIZATION
HANCOCK COUNTY, MISSISSIPPI**

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Mississippi Department of Wildlife Conservation
Bureau of Marine Resources

1986

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Bureau Director

To: Members of the Sand Beach Executive Council, Advisory
Councils and Other Interested Parties

From: Richard L. Leard, Director
Bureau of Marine Resources

During the past eighteen months, I have had the distinct pleasure of serving as the ex officio chairman of the Executive Council for the Sand Beach Master Plan. I am delighted that the Plan has now been completed and that we can direct our attention to its implementation.

During the planning period we investigated many problems, proposed solutions and learned to compromise. We considered existing public and private concerns, and remembering that progress entails change, boldly sought out the best ways to create new economic opportunities while preserving present and traditional uses.

The Plan would never have been developed without the tremendous enthusiasm brought to the work table by the Technical Advisory Council and each of its members. Public officials, private groups and individuals contributed their best efforts and exercised outstanding leadership to bring this Master Plan to completion.

I believe this Plan is an excellent instrument for the successful implementation of beachfront improvement and carefully planned development. It expresses the genuine desire of our communities to utilize this valuable resource without damaging it, and at the same time promote it as an economic asset.

The Bureau of Marine Resources is proud to have played a role in the beachfront planning process, and I appreciate the role you have allowed me to play in this endeavor.

EXECUTIVE SUMMARY

The Hancock County sand beach master planning process was initiated in 1984 when the Hancock County Board of supervisors requested assistance from the Mississippi Department of Wildlife Conservation, Bureau of Marine Resources (BMR) for the preparation of a long-range plan for managing the sand beach. Funding was obtained from the Federal Office of Ocean and Coastal Resources Management.

Key Participants

The Board of Supervisors established an Executive Policy Council (comprised of elected public officials) and a Technical Advisory Council (TAC) to address the planning issues, and to provide guidance to a planning team of consultants retained to assist in preparing the Plan. Input from the public was obtained through several rounds of public hearings and a public opinion survey.

Formal adoption of the Master Plan by the Board of Supervisors and by the cities of Bay St. Louis and Waveland will facilitate long-term coordination of beach-related maintenance and recreational development activities and help local officials establish future funding priorities and prepare long-range capital improvement programs.

Goals of the Planning Process

The basic goals of the sand beach master planning process were:

- To develop policies and recommendations for the sound and orderly growth, development, and conservation/preservation of the shorefront for the future benefit of the general public.
- To incorporate those policies and strategies into a Master Plan to be adopted by public officials and used to guide all public decisions concerning the long-range, coordinated development and conservation/preservation of the shoreline.

The Master Plan is also intended to complement the U.S. Army Corps of Engineers' ongoing feasibility study for implementing a federal shore protection project in the County.

Planning Area

The 9-mile Hancock County shoreline is divided into 14 "planning units" established for the purposes of focusing attention on discrete geographic areas for which specific policies and management objectives are set forth.

General Recommendations

General recommendations respond to each of several identified categories of problems and issues and are intended to guide erosion control, facility development, and other beach-related activities throughout the planning areas. (See Chapter One.)

General recommendations are included for:

- Shore Protection and Erosion Control

1. Replenishment of the sand beach should be designed to meet both shore protection and recreational development objectives in selected areas.
2. Shore protection objectives should be met through a combination of measures, including beach replenishment in areas marked for expanded recreational use, and other measures as appropriate.
3. Sand dunes, beach vegetation, sand fencing and other stabilizing measures should be established in coordination with beach replenishment to reduce beach erosion and maximize the effective life of replenished beach areas.
4. The County should closely monitor the progress of the Corps of Engineers' study for evaluating the feasibility of a federal shore protection project.

- Maintenance

1. Maintenance of an expanded recreational beach and new user facilities should be a shared responsibility between the Board of Supervisors and the appropriate municipalities. The State Park Commission should also assist with beach maintenance operations in the Buccaneer Park area.
2. Measures to reduce wind-caused erosion should be supplemented by maintenance procedures to relocate sand on the beach profile.
3. Appropriate procedures should be established for maintenance of erosion control measures such as dunes, sand fencing, vegetation, and groins.
4. The current level of funding allocated for sand beach maintenance should be expanded to support recommended development of erosion control measures and enhanced maintenance operations on a county-wide basis.
5. A specific County budget for sand beach maintenance operations should be established to support recommended development of erosion control measures and improvements in maintenance operations.

● Recreational Facilities

1. Sand beach recreational opportunities should be enhanced by the beautification of existing beach areas and facilities, by the improvement and addition of public piers, and by the addition of facilities such as restrooms, showers, and pavilions/concession areas providing basic services and conveniences for beach users. Outdoor lighting of new facilities in certain areas should be provided for security purposes.
2. New facilities should be suitable for providing basic services, such as restrooms and showers, and also special services such as food concessions, water sports concessions (jet skis, sailboats, etc.), and expendable supplies concessions (novelties, souvenirs, suntan lotion, etc.). In the future, beach vendors should operate from the new facilities designed to provide these services.
3. A designated and continuous pathway reserved solely for the use of pedestrian and bicycle traffic should be provided between the beach and Beach Boulevard along the entire length of the shoreline.
4. Plans to provide increased shore protection should include replenishment of the sand beach to meet both recreational development and shore protection objectives in selected areas:
 - in areas designated for new recreational facility development, the sand beach should be renourished to an average width of 200 feet and an average crest elevation of 5 feet above Mean Sea Level; and
 - in areas not designated for new recreational facility development, the width and configuration of the beach should be determined by shore protection requirements.
5. Selective placement of new facilities should be used to establish, delineate, and control beach use areas including recreational activity centers, as well as shoreline "preservation/conservation" areas.
6. New facilities should be located on the beach or near existing public pier structures, seaward of the seawall:
 - all new facilities located seaward of Beach Boulevard should be confined to segments of shoreline currently fronted by commercial property or to areas in which some recreational development already exists; and
 - in shoreline segments fronting exclusively residential areas, only shore protection and beach stabilization measures should be established on the beach.
7. Development of new recreational facilities recommended in the Master Plan should complement, and be consistent with, local development projects currently underway in the County.
8. Recreational facilities should be designed to meet or exceed local standards controlling construction in coastal high hazard areas.
9. New recreational facilities should be designed to create a unified beachfront environment consisting of a County-wide series of linked activity centers providing a variety of recreational opportunities. The new facilities should be designed to promote the image of the sand beach as a County-wide as well as municipal resource.

10. A Hancock County "Beach and Shoreline Logo" should be designed, and a series of informational signs employing this logo established along the beach to point out facilities, points of interest, etc.
11. To the extent possible, recreational facilities should be designed to resist vandalism, and new security and law enforcement procedures should be developed to further protect public investment in recreational facilities.

- Traffic and Parking

1. Planning for improved beach access and parking should be coordinated with planning efforts for new recreational facilities and repair of Beach Boulevard. New parking areas should be concentrated near areas designated for expanded recreational use and new facility development.
2. To the extent possible, and in accordance with highway safety standards, new parking areas should be located within the existing public rights-of-way. Where necessary, and in conjunction with renourishment of the sand beach and the development of new recreational facilities, parking areas may be located seaward of the seawall.
3. Increased use of the public right-of-way landward of the Beach Boulevard for parking should be discouraged where parking currently occurs in exclusively residential areas.
4. In some areas where parking for beach use has traditionally taken place alongside Beach Boulevard, minimal parking improvements should be made to the extent possible.
5. The imposition of fees should be considered for parking in designated areas.

- Public Access and Littoral Rights

1. All new development areas should be confined to segments of shoreline currently fronted by commercial property, to areas in which some recreational activity already takes place, or to areas within public right-of-ways.
2. Shoreline segments in exclusively residential areas should be designated only for the establishment of shore protection or beach stabilization measures.

- Administration and Financing

1. A new administrative body should be established by the Hancock County Board of Supervisors to oversee the day-to-day maintenance of the beach and related areas, and to exercise primary responsibility for implementing the Master Plan.
2. A long-range capital improvement program should be prepared to guide implementation of the Master Plan. The financial base for this program should rest primarily with local funding sources:
 - increased allocations from current seawall tax revenues and revenues from the 1 1/2 cent per gallon road protection tax should be used to fund recommended improvements for shore protection and erosion control;
 - the Board of Supervisors should consider levying an additional tax in accordance with County recreation laws to support public recreational development on the sand beach;

- the Board of Supervisors should consider adding a special sales tax on food, beverages, and lodging to help finance beach improvements, user facilities, and tourism promotions; and
- the Board of Supervisors should consider applying user fees where practical to support beach improvements.

Specific Recommendations

Each of the 14 shorefront planning units is designated according to one or more "management categories" (see Chapter Two), which indicate different intensities of beach use and levels of new facility development.

- Category I: New Facility Development; High Use Activity Center
- Category II: New Facility Development; Activity Center
- Category III: Beach Conservation

Chapters Three and Four set forth (1) area-specific management policies for recreational facility development, and erosion control and beach stabilization, and (2) development concepts for each of the 14 planning units.

Recommended Administrative Structure

Five recommendations are directed towards the establishment of an administrative structure for implementing the Master Plan and administering beach-related affairs:

1. Establish Memorandum of Agreement Between Board of Supervisors, Municipalities, and the State Parks Commission Regarding Participation in Implementing Beach Improvements.
2. Establish a Hancock County Sand Beach Commission.
3. Establish a County Beach Maintenance Department.
4. Assign Beach Replenishment Responsibilities to the New Beach Commission.
5. Establish an Erosion Control Task Force.

Implementation Priorities

Two Plan implementation phases are recommended, based on the identification of projects for (1) Immediate Action; and (2) Longer-Term Action. (See Chapter Five.)

Phase One activities, to be initiated as soon as possible following adoption of the Master Plan, include:

- o Emergency roadway repairs to Beach Boulevard
- o Beach replenishment (with erosion control and shore protection measures) in Category II and III areas requiring emergency shore protection.

- Beach replenishment (with erosion control) for enhanced recreation in Category I areas.
- Recreational facility development in Category I areas in coordination with selected plans pending implementation by municipalities.
- Recreational facility planning and development in the Buccaheer Park area in coordination with the Mississippi State Parks Commission.

Phase Two activities should be initiated as soon as funds are available, and in accordance with public attitudes following implementation of the Immediate Action Program. Longer-term activities should address the desired long-term future of the sand beach in a manner which optimizes the economic and recreational opportunities of the beach.

Potential funding sources for financing the implementation of the Master Plan, in accordance with the recommendations for Administration and Financing, are also set forth in Chapter Five.

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ACKNOWLEDGMENTS

Many individuals have contributed to the preparation of this Plan, including private citizens and public officials in Hancock County and representatives of state and federal agencies.

The Plan could not have been prepared without the leadership efforts of the Hancock County Sand Beach Technical Advisory Council (TAC), which from the outset guided preparation of the Plan, helped develop Plan policies and area-specific proposals, and carried out numerous other tasks necessary for completion of the Plan. The support of the Sand Beach Executive Policy Council was also essential for successful completion of the Plan. The resolution of Plan adoption signed by the Executive Council represents the first step in Plan implementation.

A vital leadership and coordination role was provided by the Mississippi Department of Wildlife Conservation, Bureau of Marine Resources, which provided administrative and technical assistance as well as major funding. Photographs in the Plan document were provided by Gordon Larson of the Bureau of Marine Resources.

The Planning Team consisted of the following consultants:

Ralph M. Field Associates, Inc.
Design Consortium, Ltd.
Gulf Coast Research Laboratory
Robert G. Dean, Sc. D.
Mississippi Law Research Institute
Southern Mississippi Planning and Development District

The following agencies and departments are just several among the many that provided additional support and input to preparation of the Plan:

Mayor's Office, City of Bay St. Louis
Mayor's Office, City of Waveland
Gulf Regional Planning Commission
Mississippi State Parks Commission
U.S. Army Corps of Engineers, Mobile District

Finally, the citizens of Bay St. Louis, Waveland, and other sections of Hancock County who attended several rounds of public meetings and demonstrated their concern for the future use and protection of the Hancock County shoreline must be given special thanks for their interest, input, and support.

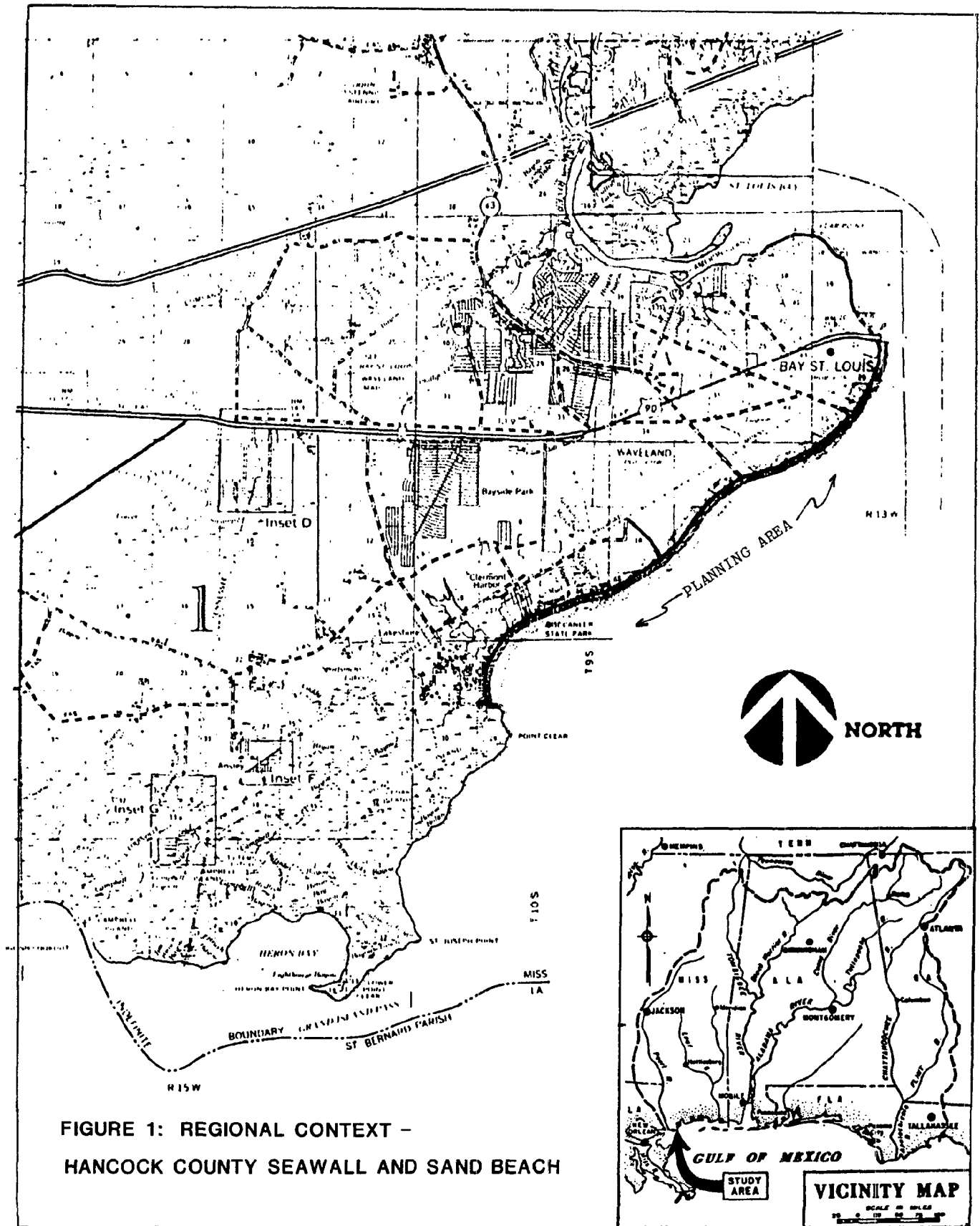
INTRODUCTION

Environmental Setting

That portion of the Hancock County shoreline bounded on the north by Highway 90 and on the south by Bayou Caddy gives rise to a unique coastal environment exerting a major impact on the County's heritage, character, and quality of life. The protective seawall that runs along this roughly nine mile stretch of shoreline is fronted in various segments by recreational beaches, public and private piers, and tidal marshes. In some places the waters of St. Louis Bay and the Mississippi Sound lap directly against the seawall. Beach Boulevard connects Highway 90 and Bayou Caddy, and runs immediately alongside the seawall, providing an unbroken view of the Bay and Sound. This local roadway connects the various shoreline communities in the cities of Bay St. Louis and Waveland, and in the unincorporated area south of Waveland. (See Figure 1.)



Hancock County Shoreline at Bay St. Louis





Eroded Sand Beach; Waveland

Unlike the Harrison County shoreline to the east, where the uninterrupted sand beach is the most prominent feature, there is no one distinguishing aspect of the diverse, curving shoreline between Highway 90 and Bayou Caddy. Traveling south on Beach Boulevard, a visitor encounters a variety of coastal environments as he or she passes through the business district of the City of Bay St. Louis, and then alongside narrow sand beaches and quiet residential neighborhoods. Numerous private wooden piers, some still showing the effects of past exposure to coastal storms, jut out into the water. Closer to Bayou Caddy, residential development is sparse, and large expanses of coastal wetlands are found on the inland side of the road. Before Beach Boulevard ends at the Bayou Caddy commercial fishing harbor, it passes by Buccaneer State Park which provides picnic and camping facilities near the shoreline as well as a freshwater swimming pool.

There are no hotels, motels or beach-related commercial establishments along the Hancock County shoreline, but on summer weekends the beaches are filled with local residents and visitors from outside the County, particularly from Louisiana. The recreational beaches, however, are relatively narrow, having eroded considerably from their original widths. The sand beach areas are, in fact, remnants of an originally six-mile long beach pumped into place along Mississippi Sound in 1967 as an emergency measure to protect the seawall and Beach Boulevard from waves and high water.

Problems and Issues

Despite the overall positive effect of the diverse shoreline and aquatic environment on local character and quality of life, there are significant problems associated with the current condition and use of the Hancock County shoreline and sand beach areas. These problems have been raised and discussed by many local residents. (See page 8.) Some of the more prominent problems and issues concern:

- shorefront erosion which has resulted in deterioration of the seawall, Beach Boulevard (Beach Boulevard is in need of emergency repair, and much of the beach originally intended as a protective buffer against waves and high water has eroded), and the sand beach areas;
- lack of recreational facilities such as restrooms, showers, concession areas, walkways, etc. which is seen to adversely affect the enjoyment of current recreational activities;
- traffic and parking problems caused by the lack of organized parking areas and resulting in conflicts between beach users and shorefront property owners;
- public access questions regarding the relationship between the littoral rights of shorefront property owners and public rights of beach access;
- maintenance problems associated with cleaning and maintaining the existing beach areas;
- public attitudes regarding beach-related problems (including litter, noise, and other nuisance problems) and opportunities for enhancing the beaches for overall community benefit; and
- administration and financing problems associated with coordinating the existing public roles and responsibilities affecting the shoreline, and with the search for sources of funds to finance shoreline improvements.

Prior to initiation of the shorefront master planning process, no efforts had been undertaken to prepare a single, long range plan for guiding recreational development and shore protection along the Hancock County shoreline. No public or private agency had ever attempted to completely assess the problems, the potentials and the methods for achieving a reasonable balance between recreational use and shoreline protection.

Background to the Planning Effort

Over the course of many years, local citizens and officials have offered and discussed numerous proposals for improving the recreational potential of the shoreline. These proposals have ranged from elaborate marinas to small cabanas and have addressed almost every other possible user enhancement. Unfortunately, most of these ideas were never properly evaluated. In the past several years, however, the Hancock County Board of Supervisors (which is responsible for funding and administering overall maintenance of the beach areas) has been under increasing pressure from the general public, the municipalities, and the business community to improve the shoreline. In response to this pressure, the Board of Supervisors in 1983 established a study committee to examine various shorefront problems. The study committee prepared a brief report citing major problems and offering several basic recommendations. Perhaps the most important recommendation was that a comprehensive master plan addressing the entire shoreline between Highway 90 and Bayou Caddy was needed. The lack of such a master plan containing specific recommendations for beach development, recreation and shore protection was seen to have a negative effect on government decision-making capabilities regarding the shoreline.

In the summer of 1984, the Board of Supervisors requested assistance from the Mississippi Department of Wildlife Conservation, Bureau of Marine Resources (BMR) in the preparation of a long range master plan for managing the County's shorefront and sand beach areas between Highway 90 and Bayou Caddy. BMR concurred with local officials as to the need for such a planning effort, and funding was obtained from the Federal Office of Ocean and Coastal Resource Management.¹

Basic Goals and Objectives of the Planning Effort

The master planning effort adopted a basic goal of establishing policies and strategies to address long-standing beach-related problems in such a manner that the full potential of the Hancock County shorefront might be realized. The policies and strategies would

1. At the same time as the Hancock County shoreline master planning effort was initiated, BMR began a similar planning effort in Harrison County Mississippi with the cooperation of the Harrison County Board of Supervisors. (See "Sand Beach Master Plan; Harrison County, Mississippi", June 1986.)

be based on considerations of the natural coastal environment, as well as public preferences and needs. A major goal of the planning effort was to achieve balance — balance between the benefits of shorefront utilization and conservation; and balance between development of beach-related recreational and economic opportunities on the one hand, and protection of the existing character and quality of life in the County's shorefront area on the other. The Master Plan for Shorefront Protection and Utilization is also intended to complement the U.S. Army Corps of Engineers' ongoing feasibility study for implementing a federal shore protection project in the county; effectively tying the results of the Corps' study into one long range strategy for recreation and shore protection.

No doubt, the time frame for implementing all of the recommendations contained in the Master Plan and in future plans for a federal shore protection project will be rather lengthy. Formal adoption of the Master Plan by the Hancock County Board of Supervisors and by the cities of Bay St. Louis and Waveland, however, will facilitate long-term coordination of beach-related maintenance and recreational development activities, and also help local officials establish future funding priorities and prepare long-range capital improvements programs. The Master Plan will establish early action priorities for implementation as well as recommendations intended to shape the long-term future of the shoreline.

In summary, the basic goals of the planning process have been:

- To develop policies and recommendations for the sound and orderly growth, development, and conservation/preservation of the shorefront for the future benefit of the general public.
- To incorporate those policies and strategies into a Master Plan to be adopted by public officials and used to guide all public decisions concerning the long-range, coordinated development and conservation/preservation of the shoreline.

More specific planning objectives are:

- To promote public awareness of shorefront management and operational problems and to solicit and incorporate public input in the formulation of Plan strategies and recommendations.
- To promote public involvement in the solution of litter, noise, and other nuisance problems affecting beach areas.

- To identify specific shoreline areas suitable for higher intensity recreational use and to identify other areas suitable for low intensity use, or for conservation/preservation as natural areas.
- To prepare appropriate maintenance strategies to coincide with identified high use, low use, and conservation/preservation areas.
- To establish measures for reducing erosion of existing and/or renourished beach areas.
- To prepare a beach parking and access strategy to reduce traffic and parking problems.
- To recommend strategies for the efficient administration and management of the shorefront area by city, County, and state jurisdictions.
- To identify potential local, state, federal, and private sources of funding to implement Plan strategies and recommendations.
- To assist local officials in establishing a capital improvements program to construct public recreational and shore protection facilities.

The Planning Process

In the summer of 1984, the Hancock County Board of Supervisors established an Executive Policy Council (comprised of elected public officials) and a Technical Advisory Council (TAC). These two groups addressed the various planning issues affecting formulation and implementation of the Master Plan, and provided guidance to consultants retained to assist in preparing the Plan. The TAC formed several committees to specifically address facilities planning, financing, public relations, environmental conditions, and legal concerns. (Executive Policy Council and Technical Advisory Council members are listed in Appendix D.) A planning team consisting of the following consultants was established:

- Ralph M. Field Associates, Inc. of Westport, Connecticut, whose role was to provide the basic framework for Plan formulation, coordinate the work of the other consultants, and prepare the Master Plan document.
- Design Consortium, Ltd. of New Orleans, Louisiana, whose role was to prepare conceptual and site specific illustrations of appropriate recreational facilities and beach stabilization measures, along with cost analyses of proposed facilities.

- Gulf Coast Research Laboratory of Biloxi, Mississippi, whose role was to assemble and analyze available historical information with regard to shorefront erosion conditions.
- Robert G. Dean, Sc.D., Consultant in Coastal and Ocean Engineering, of Gainesville, Florida, whose role was also to analyze shorefront erosion conditions, as well as propose and analyze potential beach protection and stabilization measures.
- The Mississippi Law Research Institute of the University of Mississippi, whose role was to identify and assess key legal issues and to assess the legal implications of proposals for recreational facility development and beach stabilization.
- The Southern Mississippi Planning and Development District of Gulfport, Mississippi, whose role was to facilitate public coordination in the preparation of the Plan, to identify potential sources of funding for beach improvements, and to work toward the development of a capital improvements plan for financing new facility construction.

Throughout the planning process, direct input to the Plan was sought from the general public, local units of government, and the numerous governmental agencies with roles and responsibilities in the planning area. The key participants in the planning process are listed in Figure 2, and Figure 3 presents an overview of the process.

During all stages of the Plan's development, special emphasis was placed on public input. During the course of the planning process, a lengthy citizen participation program was developed and carried out. The program was highlighted by several rounds of public meetings and a public opinion survey. The first round of meetings, organized by the Bureau of Marine Resources, was held in November 1984. The purpose of those meetings was to introduce the public to the planning process and to solicit public opinion regarding existing shorefront problems. An extensive public opinion survey was then developed and carried out to further clarify public concerns and attitudes. (The results of this survey are contained in Appendix C.)

The second round of public meetings was held one year later, in November, 1985. The primary purpose of the second round of meetings was to present a preliminary, conceptual Plan as prepared by the Consultant Planning Team and the Technical Advisory Council, and to receive public response to the preliminary elements of this Plan, which included recommended planning units, proposed management categories, possible new facilities and erosion control measures. (Public response to the preliminary Plan is summarized in Appendix C.) The basic concepts contained in the Preliminary Plan received overwhelming public support, and the planning team proceeded to expand those concepts

FIGURE 2: KEY PARTICIPANTS IN THE PLANNING PROCESS

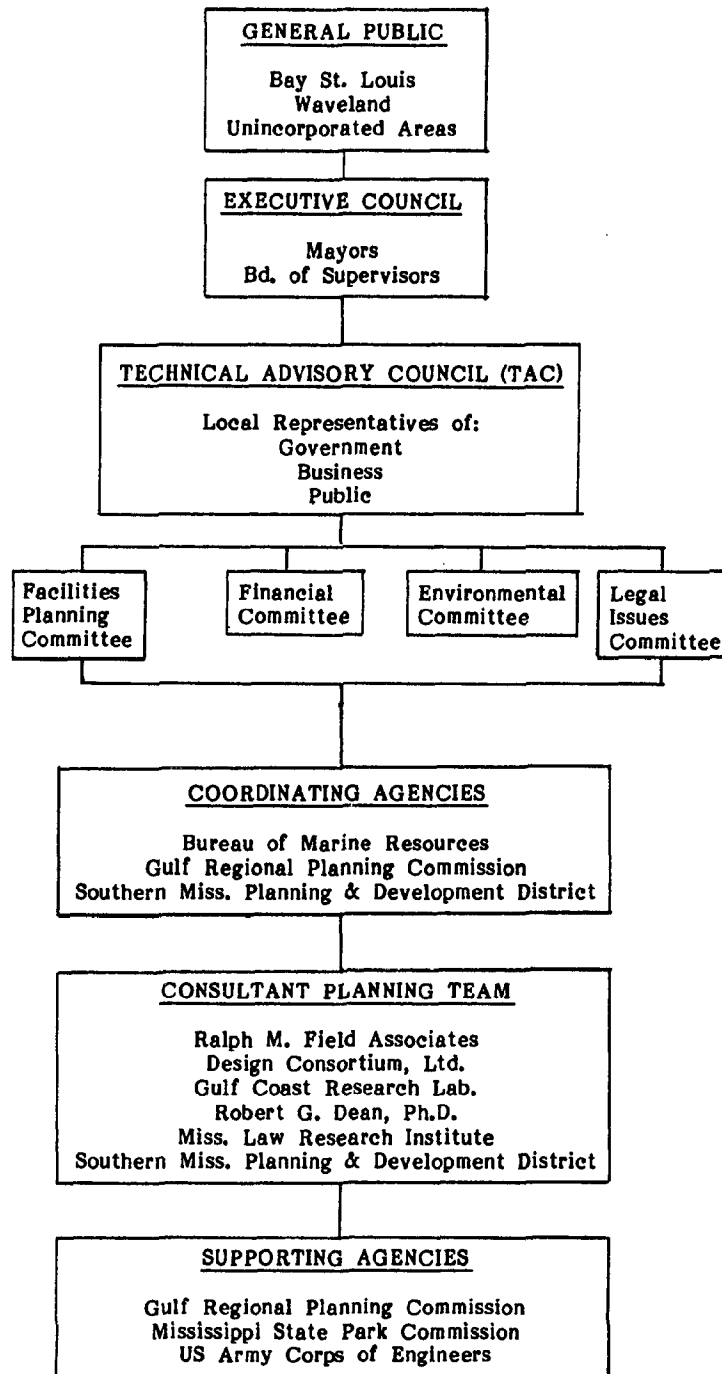
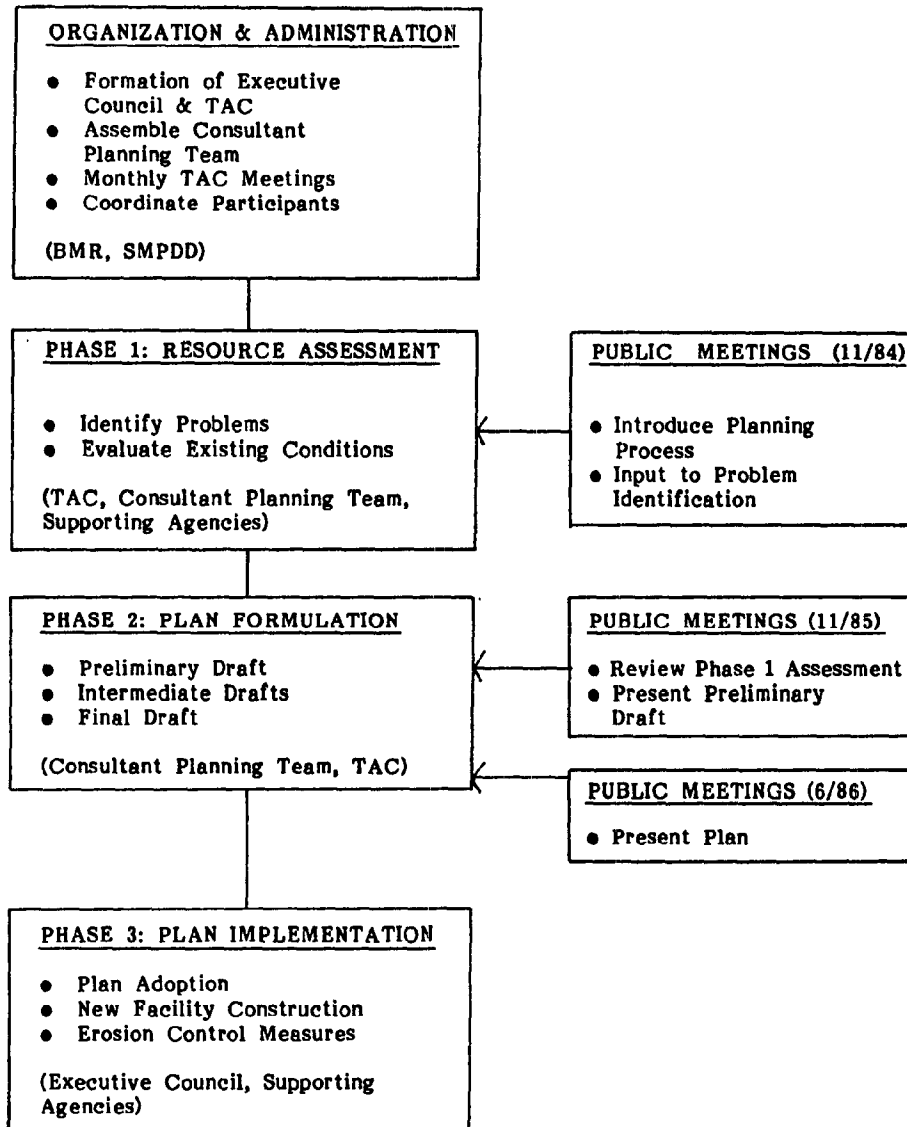


FIGURE 3: OVERVIEW OF THE PLANNING PROCESS



in order to prepare several subsequent drafts of the Shorefront Master Plan document. The final draft of the Plan was formally adopted by the Sand Beach Executive Policy Council on June 6, 1986. (See Appendix E.) A third round of public meetings was held in June of 1986 to present the Master Plan to the public.

Organization of the Plan Document

The Hancock County Master Plan for Shorefront Protection and Utilization is organized as follows:

- **Part One.** Summarizes the principal problems and issues associated with the current condition and use of the shorefront, sand beaches and related areas, and contains recommendations for responding to these problems and guiding recreational development and shore protection throughout the planning area.
- **Part Two.** Contains descriptions of existing conditions in 14 shorefront planning units, area-specific recommendations to guide development, conservation and shore protection in each planning unit, and conceptual illustrations of shoreline enhancement projects.
- **Part Three.** Addresses Plan implementation requirements and implications, including: recommended administrative organization and responsibilities; implementation priorities; and potential sources of funds for financing shoreline improvements.
- **Appendices.** Contain background information pertinent to Plan formulation including: a history of beach and seawall construction; a description of shorefront erosion conditions and beach stabilization measures; results of public opinion surveys; and a list of Executive Council and Technical Advisory Council members. Appendix E contains the formal resolution signifying the Executive Council's adoption of the Plan.



Curving Seawall Near Buccaneer Park

PART I:

**FOUNDATIONS
FOR
PLANNING**

CHAPTER ONE: PROBLEMS, ISSUES AND PLAN RECOMMENDATIONS

The problems and issues described in this chapter are associated with the current condition and use of the Hancock County shoreline between Highway 90 and Bayou Caddy. Some of the problems are more immediate than others, and some will require longer-term approaches to their solutions than others. The problems and issues addressed in the Master Plan have been grouped into the following categories:

- Shore Protection and Erosion Control
- Maintenance
- Recreational Facilities
- Traffic and Parking
- Public Access and Littoral Rights
- Administration and Financing

This chapter also contains general recommendations which have been established to respond to each of the identified problems and issues. These recommendations are not tied to specific geographic areas, but have been formulated to guide facility development, erosion control, and other shoreline activities throughout the planning area. (Area-specific recommendations and management policies are contained in Chapters Three and Four.)

SHORE PROTECTION AND EROSION CONTROL

The most immediate problems in the planning area are caused by inadequate shore protection and the deterioration of Beach Boulevard. The existing seawall was built between 1915 and 1928 (see Appendix A) and large sections have deteriorated, most visibly in the Ulman Avenue area and south to the downtown Bay St. Louis area. In the Ulman Avenue area, land shoreward of the seawall is being eroded and washed out through the seawall, threatening the integrity of Beach Boulevard.

Further south, much of the six mile-long artificial beach originally constructed between Clermont Harbor and downtown Bay St. Louis to provide a protective buffer against waves and high water (see Appendix A) has eroded. The sand that remains is held in place largely by the numerous drainage outfalls which extend into the Mississippi Sound, and by the several rock pier structures which function as groynes. The remaining beach continues to recede as a result of coastal storms and normal littoral processes, and as a result of heavy rainfall running over and off Beach Boulevard and across the sand.

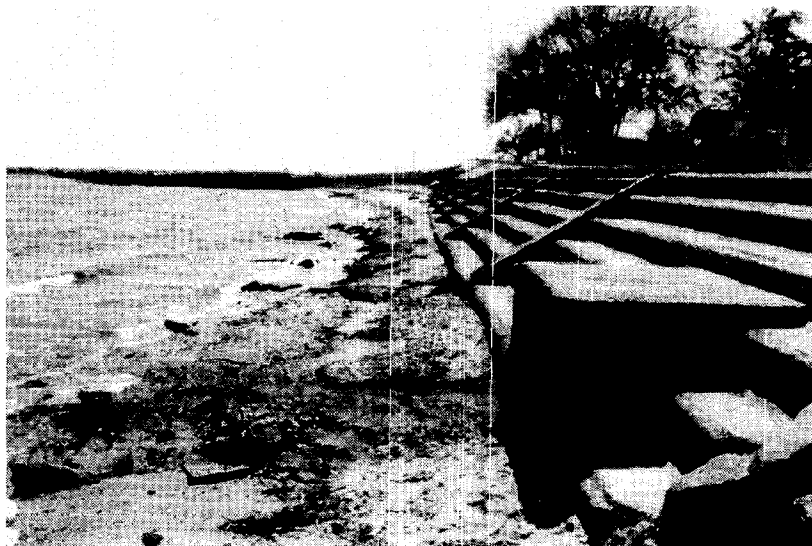


Damaged Seawall Next to Beach Boulevard

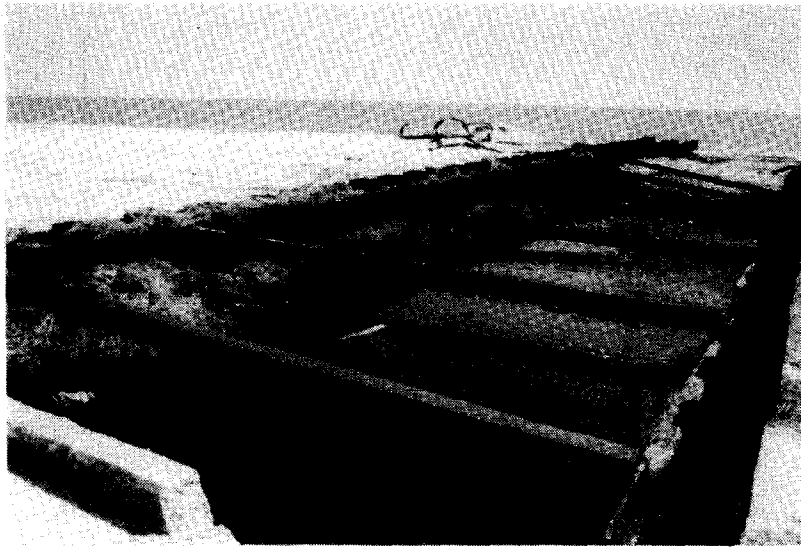
Sections of Beach Boulevard currently protected by only the seawall are often under water during even moderate storms, and sections of the roadway throughout the entire study area are in need of immediate, emergency repair. (Historical trends in shoreline erosion and the factors causing erosion are described in more detail in Appendix B.) Hurricanes Elena and Juan in the fall of 1985 inflicted considerable damage on the shoreline.

Since 1965, the County's efforts to secure federal assistance for shore protection have been unsuccessful. The Corps of Engineers, Mobile District, however, is currently studying the feasibility of providing federal assistance for erosion control and beach replenishment. (See Appendix A.) In carrying out this study, the Corps will coordinate its work (including the formulation of shore protection recommendations) with the policies and recommendations contained in this Master Plan.

Assuming early allocation of local matching funds, the draft feasibility study should be completed by December 1986, the final draft by April 1987, and final Corps of Engineers' recommendations regarding a federal shore protection project could be issued in October 1987. If a positive recommendation is issued, then the proposed shore protection project



Stepped Seawall with No Protective Beach



Drainage Outfall Extending into Mississippi Sound

will be sent to the sponsoring Congressional Committee for authorization and appropriation. Congressional action could require one legislative session or several depending on such factors as the total cost of the project compared to its benefits, and Hancock County's commitment of matching funds for construction.

Key Planning Considerations

- The amount (extent, volume) of beach replenishment necessary for shore protection purposes.
- The types of beach stabilization measures most suitable for preventing erosion of a renourished beach.
- The most effective locations for beach stabilization measures.
- The impacts of stabilization measures on recreational activities, beach image and appearance, maintenance, etc.
- The cost and most optimistic timetable for constructing a federal shore protection project.

Plan Recommendations

- 1. Replenishment of the sand beach should be designed to meet both shore protection and recreational development objectives in selected areas.**

The Corps of Engineers' study to determine the feasibility of a federal shore protection project for Hancock County will evaluate the cost-effectiveness of a variety of methods for shore protection including a strengthened seawall, rip-rap, revetments, as well as a renourished sand beach. The Corps, however, has agreed to give added consideration to beach replenishment for shore protection purposes in areas designated for expanded recreational use in the Master Plan.

In areas designated for expanded recreational use and new recreational facility development, shore protection objectives should be achieved through beach replenishment. The design width of the renourished beach should be at least 200 feet and the crest elevation should be five feet above Mean Sea Level. Replenishment to a width of 200 feet will be necessary in areas of active recreational use in order to provide space for facilities, activity areas, and erosion control measures.

- 2. Shore protection objectives should be met through a combination of measures, including beach replenishment in areas marked for expanded recreational use, and other measures as appropriate.**

In areas not designated for expanded recreational use and new facility development, the extent of beach replenishment should be based on cost-effectiveness criteria and shore protection needs. In certain areas it may be possible and desirable to meet shore protection needs through the use of measures other than a new or expanded sand berm.

In addition to beach replenishment and other protective measures established to act as buffers against waves and high water, the Hancock County seawall should be repaired where necessary. The foundation and backfill integrity of the seawall should be evaluated and, where found to be lacking, repaired. Also, the seawall should be rendered "sand-tight" to ensure that minor storms, rainfall and groundwater seepage will not cause the long-term loss of backfill through the seawall, thereby jeopardizing the integrity of Beach Boulevard.

- 3. Sand dunes, beach vegetation, sand fencing and other stabilizing measures should be established, in coordination with beach replenishment, to reduce beach erosion and maximize the effective life of replenished beach areas.**

As described in Appendix B, present sand losses from the Hancock County beaches result from a combination of longshore, offshore and onshore (by wind) losses. The current loss rates are fairly small because the existing beaches are relatively narrow and lacking in sediment. Following substantial replenishment and resulting wider beaches, the tendency for greater longshore, offshore and onshore losses will increase substantially. Thus, in conjunction with beach replenishment efforts, it will be necessary to implement erosion control measures to stabilize and thereby prolong the life of an expanded beach.

Beach stabilization to control longshore losses will require lengthening and upgrading of several existing shore-perpendicular structures (e.g., drainage outfalls, rock piers) and the construction of several new shore-perpendicular structures such as groins or the equivalent. In addition, sand dunes, stabilizing vegetation, and sand fencing should be established where appropriate to reduce future wind-caused erosion from widened beaches.

Recommended beach stabilization and erosion control measures in specific areas are set forth in Part II of this document. (Erosion control measures are illustrated and described in more detail in Appendix B.)

The public must be guided away from certain erosion control areas if the beach stabilization measures established in those areas are to be effective. The success of efforts to keep the public away from erosion control structures will depend on beach regulations and adequate enforcement as well as an educational campaign to influence public attitudes.

Erosion control measures in conjunction with expansion of the sand berm will result in significant changes in beach appearance, and these changes are likely to raise objections on the part of some persons. Nevertheless, 99% of those responding to the preliminary Master Plan concepts presented at public meetings in November 1985 supported the introduction of beach vegetation and other erosion control measures as necessary to stabilize expanded beach areas. (See Appendix C.) Because of the changes in beach appearance that will result from the establishment

of erosion control measures, an educational campaign will assume additional importance in maintaining public support for those measures.

- 4. The County should closely monitor the progress of the Corps of Engineers' study for evaluating the feasibility of a federal shore protection project.**

In carrying out the feasibility study, the Corps has agreed to work closely with the County and to coordinate the formulation of federal shore protection recommendations with the recommendations for recreational development contained in the Master Plan. The County should work closely with the Corps to ensure the Corps' full understanding and consideration of County recreational and shore protection objectives.

MAINTENANCE

Although the Hancock County sand beach has eroded considerably since its construction, and in some areas is quite narrow, the remaining beach areas receive intense use, particularly on summer weekends. Litter and debris on the beach and alongside Beach Boulevard are a constant problem. Beach clean-up and maintenance is the responsibility of the County Supervisor within whose district the particular beach area falls. Lack of funding, however, limits the effectiveness of current maintenance efforts. As a result, these efforts (which are currently not supported by a specific beach maintenance budget) are not able to consistently meet generally desired levels of condition and appearance, and the overall environmental quality of the shoreline suffers.



Litter and Debris on the Beach

Key Planning Considerations

- The improvement of current maintenance strategies and procedures.
- The establishment of an ongoing beach maintenance program.
- The extent to which development of new recreational facilities and beach stabilization measures will affect future maintenance operations.
- The availability of new sources of funding to improve current maintenance operations as well as support future operations that may be required as a result of beach enhancement.

Plan Recommendations

- 1. Maintenance of an expanded recreational beach and new user facilities should be a shared responsibility between the Board of Supervisors and the appropriate municipalities. The State Park Commission should also assist with beach maintenance operations in the Buccaneer Park area.**

Maintenance of the existing sand beach areas is currently the responsibility of the County Supervisor within whose district the particular beach area falls. Replenishment and expansion of the existing sand berm to 200 feet in areas designated for expanded recreational use will require increased maintenance efforts on a County-wide scale and a new County-wide organizational structure specifically responsible for beach maintenance. Since beach renourishment will provide shore protection and recreational benefits for the municipalities as well as for the County, the cities of Bay St. Louis and Waveland should contribute to maintenance efforts within their corporate limits. Similarly, the State Park Commission should contribute to beach maintenance efforts directed toward expanded beach areas near Buccaneer Park.

- 2. Measures to reduce wind-caused erosion should be supplemented by maintenance procedures to relocate sand on the beach profile.**

Plan Recommendations for Shore Protection and Erosion Control address the future need for establishing stabilizing dunes, sand fencing and vegetation in order to reduce future wind-caused erosion on certain sections of a renourished sand beach.

These measures should be supplemented by maintenance efforts to relocate sand on the beach profile. One way to reduce future airborne sediment losses from a widened beach, especially in areas where intensive recreational use may, in the future, preclude the use of dunes and stabilizing vegetation, is simply to remove sand blown toward the base of the seawall and place the material back toward the Mississippi Sound before there is adequate opportunity for the sand to be transported over the seawall and onto Beach Boulevard. In certain areas, a shallow veneer of sand should be removed from the vicinity of the seawall and transported and deposited near the waterline of the beach. A fairly shallow depression should then be maintained at the base of the seawall in these areas to trap sand before it reaches the seawall. Such operations to recontour the beach profile should be carried out on at least a biennial basis.

3. Appropriate procedures should be established for maintenance of erosion control measures such as dunes, sand fencing, vegetation, and groins.

The reduction of future wind-caused erosion by removing sand accumulations from near the base of the seawall and placing this sand nearer the water requires no ongoing maintenance efforts other than the biennial movement of the sand. Sand dunes stabilized by sand fencing and/or vegetation will, however, require limited transferral of sand from the landward to the water side of the dunes to prevent continuing migration of the dunes landward. It is estimated that the amount of relocation, on a biennial basis (excluding relocation required as a result of severe storms), will be less than 0.25 cubic yard per front foot of beach per year. If a severe hurricane should occur, the dunes and/or sand fencing would be severely impacted and there is the potential for complete loss of these erosion control measures.

In addition to efforts to transfer sand, periodic clean-up of dunes and beach vegetation to remove litter will be required. Minimum initial and annual maintenance costs for vegetated dunes are estimated at \$3.00 and \$1.00 per linear foot, respectively. These costs are estimates only, and should be further refined based on the experience of the test plantings currently being evaluated on the Harrison County beaches.

Any stabilization measures employed to reduce longshore sediment transport will require minimal maintenance, except following severe storms. As a result of such

storms, shore-perpendicular structures (e.g., groins) are expected to experience somewhat less damage than shore-parallel structures (e.g., offshore breakwaters and artificial headlands as described in Appendix B).

- 4. The current level of funding allocated for sand beach maintenance should be expanded to support recommended development of erosion control measures and enhanced maintenance operations on a County-wide basis.**
- 5. A specific County budget for sand beach maintenance operations should be established to support recommended development of erosion control measures and improvements in maintenance operations.**

There is currently no specific budget for sand beach maintenance activities, and the current level of funding for beach maintenance is not sufficient to allow equal and systematic maintenance attention to be given to the entire sand beach, seawall and Beach Boulevard area. As a result, litter on the beach and alongside the seawall and roadway near popular recreation areas is a constant problem. Public opinion surveys show widespread concern regarding the existing appearance of the beaches and related areas.

Constructing and maintaining recreational facilities, replenishing the beach, establishing and maintaining erosion control measures, and carrying out enhanced day-to-day maintenance operations will require increased and centralized administration of sand beach affairs. (Potential sources of revenue for increasing existing funding levels and a recommended administrative structure are addressed in the Administration and Financing Recommendations and in Part III.)

RECREATIONAL FACILITIES

Although the sand beaches of Hancock County are relatively small and narrow, the beaches are popular not only with local residents but also with day trip visitors from outside the County. No studies have been carried out to assess the number of beach users and where their trips to Hancock County originate from, but a visual inspection of the registration plates of parked cars seems to indicate that the majority of beach users on summer weekends are from Louisiana.

With the exception of the Ulman Avenue pier, the American Legion pier, the Garfield Ladner pier, and the facilities at Buccaneer State Park, there are no public recreational facilities along the Hancock County shoreline between Highway 90 and Bayou Caddy. (The existing public recreational facilities are discussed in more detail in the planning unit descriptions contained in Chapters 3 and 4.) The lack of such facilities as restrooms, showers, pavilions, outdoor lighting in key locations, and organized concession areas

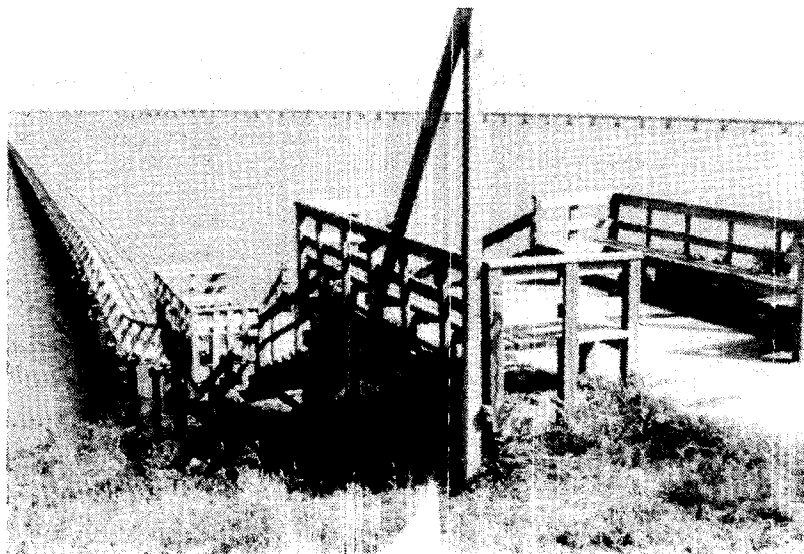


American Legion Pier and Sand Beach

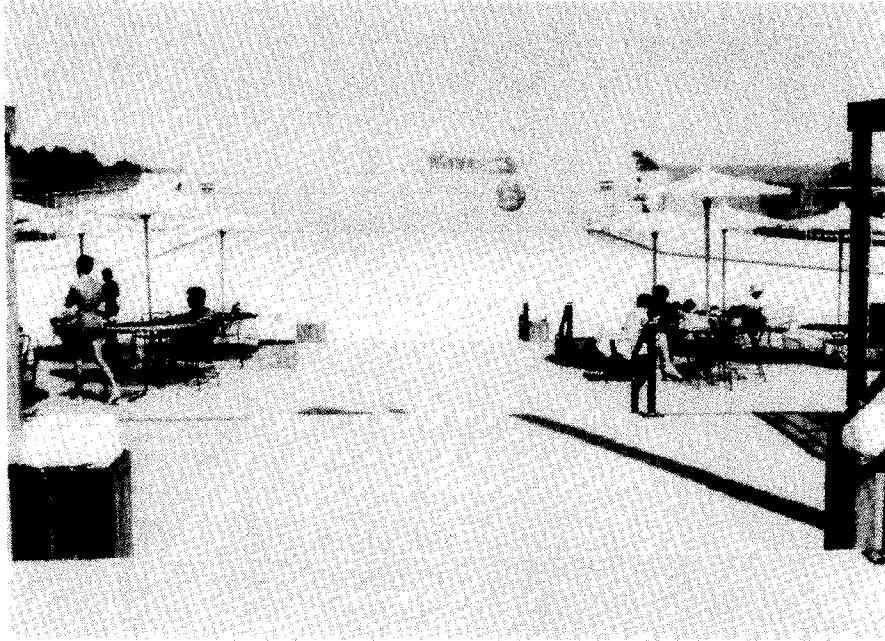
creates certain hardships for beach users and is seen by many to diminish the recreational experience and potential of the existing shorefront. (The term "recreational facilities" encompasses a wide range of facilities which can enhance the use and enjoyment of the beach by the general public. These facilities commonly include marinas, piers, picnic areas, cabanas, boardwalks, pavilions, restrooms, showers, and boat launches, as well as concessions for refreshments, supplies and water sports rental equipment.)

Adding to the difficulties caused by the lack of public recreational facilities along the shoreline is the extent to which the original sand beach has eroded, thereby limiting the space available for recreational activities.

Expressed public preferences with regard to specific recreational facilities most needed and appropriate for development on the Hancock County shoreline have been documented. These preferences were indicated at public meetings held in November of 1984 and 1985 and in the results of a public opinion survey undertaken in the summer of 1985. (See Appendix C.) (Improved beach parking facilities are also needed, and this need is addressed in the Traffic and Parking section.)



Ulman Avenue Pier



Wave Pool in Buccaneer State Park

Key Planning Considerations

- The kinds of recreational facilities most needed.
- New facilities for implementation in the short term, in the event that extensive beach replenishment does not become a reality for several years.
- The width and configuration of a re-established sand beach necessary for optimizing recreational opportunities.
- The scale of new facilities.
- The locations of new facilities.
- The design of new facilities to minimize risk to natural hazards such as high winds, waves, and flooding.
- The design of new facilities to achieve esthetic objectives, discourage vandalism and facilitate maintenance.

Plan Recommendations

- 1. Sand beach recreational opportunities should be enhanced by the beautification of existing beach areas and facilities, by the improvement and addition of public piers, and by the addition of facilities such as restrooms, showers, and pavilions/concession areas providing basic services and conveniences for beach users. Outdoor lighting of new facilities in certain areas should be provided for security purposes.**
- 2. New facilities should be suitable for providing basic services such as restrooms and showers, and also special services such as food concessions, water sports concessions (jet skis, sailboats, etc.) and expendible supplies concessions (novelties, souvenirs, suntan lotion, etc.). In the future, beach vendors should operate from the new facilities designed to provide these services.**
- 3. A designated and continuous pathway reserved solely for the use of pedestrian and bicycle traffic should be provided between the beach and Beach Boulevard along the entire length of the shoreline.**

Throughout the years, local residents and officials have discussed the need for a variety of recreational facilities including restrooms, showers, cabanas, pavilions, picnic areas, outdoor lighting, boatramps, fishing piers, pedestrian walkways, and other facilities. As part of the master planning process, a public opinion survey was carried out in the summer of 1985 in order to better understand and document public preferences regarding beach improvements and recreational facilities. (The results of this survey are included in Appendix C.) Most respondents (over 90%) in Bay St. Louis and Waveland indicated support for efforts to beautify and improve the existing appearance of the sand beach and related areas, and approximately 70% indicated support for public restrooms. The majority of respondents also indicated support for improved litter control and new and/or enhanced public piers.

Additional public input regarding the types of facilities needed to improve beach recreational opportunities was gathered during the public meetings held in November 1984 and November 1985. Comments offered during those meetings supported the addition of bathrooms, pavilions, and piers, and the creation of distinct recreational activity areas. In addition to identifying desirable facilities, the public also indicated facilities to be discouraged. For example, the construction of boardwalks (i.e. wood structures resembling piers attached to the seawall) was generally discouraged. Boardwalks should therefore be considered as specialty structures for possibly limited use in specific locations. The pedestrian-bikeway should be constructed as a simple,

paved pathway which will be less expensive than a boardwalk and less vulnerable to vandals and natural hazards.

4. **Plans to provide increased shore protection should include replenishment of the sand beach to meet both recreational development and shore protection objectives in selected areas:**
 - **in areas designated for new recreational facility development, the sand beach should be renourished to an average width of 200 feet and an average crest elevation of 5 feet above Mean Sea Level; and**
 - **in areas not designated for new recreational facility development, the width and configuration of the beach should be determined by shore protection requirements.**

Opportunities for enhanced recreational use of the sand beach are closely tied to beach replenishment for shore protection purposes. While the primary purpose of sand beach replenishment should be to meet shore protection objectives, beach replenishment in selected areas should also be utilized to meet recreational objectives. With appropriate beach stabilization measures, the minimum controlling width of the beach for shore protection and recreational purposes should be 200 feet. In areas not designated for new recreational facility development, sand renourishment to widths of less than 200 feet may be suitable for meeting shore protection objectives when undertaken in conjunction with the establishment of other shore protection measures (e.g., strengthened seawall, revetments).

5. **Selective placement of new facilities should be used to establish, delineate, and control beach use areas including recreational activity centers, as well as shoreline "preservation/conservation" areas.**

The intensity of recreational activities currently varies along the shoreline. The locations of active recreational use are primarily limited to the existing sand beach areas. Plans to provide for increased shore protection will result in expansion of the existing beaches and, in some areas, re-establishment of beaches in areas where no sand currently exists. New facilities, however, should be sited in a manner that does not encourage the dispersal of recreational activities throughout the planning area, but rather serves to focus activities in specific areas. By focusing recreational activities in selected areas, future beach maintenance requirements should be centralized and existing conflicts between recreational activities and residential use reduced.

A basic objective of the master planning process is the identification of areas suitable and appropriate for higher intensity or expanded beach use, areas suitable for a more moderate intensity of recreational use, and areas suitable for designation as "preservation/conservation" areas in which shore protection measures should receive highest priority. The designation of a mix of different types of shoreline use areas - ranging from recreational activity centers to shoreline "preservation/conservation" areas - will create a variety of beach environments throughout the overall 9-mile planning area. (Area-specific management policies and recommendations for new facility development and erosion control measures are contained in Chapters 3 and 4.)

6. New facilities should be located on the beach or near existing public pier structures seaward of the seawall:

- **all new facilities located seaward of Beach Boulevard should be confined to segments of shoreline currently fronted by commercial property or to areas in which some recreational development already exists; and**
- **in shoreline segments fronting exclusively residential areas, only shore protection and beach stabilization measures should be established.**

In identifying areas for different types and intensities of recreational use, and for new facility development and erosion control and beach stabilization measures, five principal factors should be considered: 1) current intensities of beach use; 2) type of adjacent shorefront development (i.e. residential or commercial); 3) current shorefront zoning; 4) ongoing County or municipal development plans; and 5) the location of existing public right-of-ways.

Consideration of these factors represents not only a logical approach to facility siting from a physical planning perspective, but is also intended to minimize potential future conflicts between the littoral rights of adjacent upland property owners and the public's rights of beach access. (See Plan Recommendations for Public Access and Littoral Rights.)

7. Development of new recreational facilities recommended in the Master Plan should complement, and be consistent with, local development projects currently being planned.

In several locations, the cities of Bay St. Louis and Waveland have initiated planning for recreational development projects. The County is also considering recreational

improvements in areas under its jurisdiction. In these locations, the area-specific policies of the Master Plan (see Part II) will be based on, and guided by, these proposals. The areas where already-developed local proposals have been formulated and/or initiated are:

- The Ulman Avenue area where the City of Bay St. Louis is formulating plans to develop a public neighborhood park and beach;
 - Downtown Bay St. Louis where the City of Bay St. Louis is preparing to conduct an urban waterfront study to identify redevelopment and reutilization options which would link the downtown area with the waterfront;
 - The Coleman Avenue area where the City of Waveland is considering the addition of a public marina, recreation area and public pier; and
 - The American Legion Pier in Bay St. Louis where the County is considering beautification plans and the addition of facilities to provide basic recreational services.
- 8. Recreational facilities should be designed to meet or exceed local standards controlling construction in coastal high hazard areas.**

Any new facility established seaward of the seawall will be located in a Coastal High Hazard Area or "V-Zone" as delineated on Flood Insurance Rate Maps prepared for the cities of Bay St. Louis and Waveland. The area seaward of the seawall has been judged potentially subject to high velocity waters from wave action (the most destructive element of coastal storms) associated with a "100-year" flood. As Hurricanes Juan and Elena proved in the fall of 1985, however, storms less severe than 100-year events can also cause significant damage to coastal structures. As a result, the potential effects of wind, waves, and high water on new recreational facilities should be an important design consideration. Construction of certain facilities so that finished floor elevations are above projected flood levels will add to construction costs but will be necessary in order to protect public and private investment, meet local regulations, and satisfy federal flood insurance requirements.

9. **New recreational facilities should be designed to create a unified beachfront environment consisting of a County-wide series of linked activity centers providing a variety of recreational opportunities. The new facilities should be designed to promote the image of the sand beach as a County-wide as well as municipal resource.**
10. **A Hancock County "Beach and Shoreline Logo" should be designed, and a series of informational signs employing this logo established along the beach to point out facilities, points of interest, etc.**

New recreational activity areas and facilities should be designed, constructed, and promoted as linked, component parts of a County-wide recreational resource system. Linkage should be promoted through coordinated design, the development of an informational sign system, and the construction of the pedestrian/bikeway. Consistent with recommendations for a new administrative structure for beach affairs (see Chapter 5) the County should consider establishing a Design Review Panel to evaluate facility designs. New facilities in each municipality can incorporate common elements such as awnings, roofliners, and plantings, as well as common colors. Temporary structures can also be "dressed up" to relate to common themes.

The beach and shoreline logo should be designed as a tool to focus public attention on the sand beach. Employment of the logo along with informational signs should be utilized to help promote the image of the beach as a County-wide resource with a variety of linked component parts. To further stimulate public involvement, a design contest could be held in local schools to select the beach and shoreline logo.

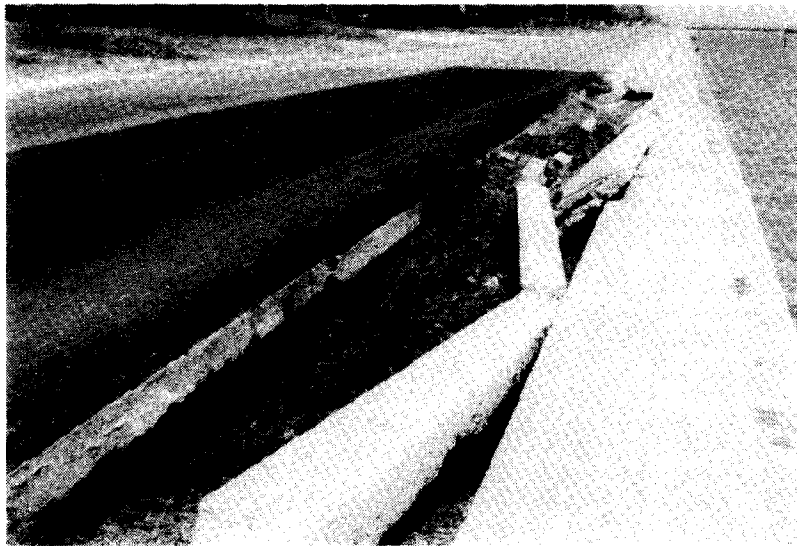
11. **To the extent possible, recreational facilities should be designed to resist vandalism, and new security and law enforcement procedures should be developed to further protect public investment in recreational facilities.**

New facilities can not be designed as "vandal proof" but can be designed and constructed to withstand or resist damage inflicted by vandals. For example, stainless steel fixtures and concrete block construction can be employed in permanent structures. Measures to increase vandal resistance, however, will add to construction costs, and increased police patrols and area lighting in certain locations will also be necessary.

TRAFFIC AND PARKING

Beach Boulevard follows the County shoreline from Highway 90 to Bayou Caddy and functions as a low speed beach access road providing physical and visual access to the shorefront and sand beach areas. Existing traffic and parking conditions along Beach Boulevard, however, are much less than ideal. These conditions create hardships and safety problems for beach and shorefront users, result in conflicts between beach users and property owners, and diminish the overall quality of the recreational experience and potential of the shorefront.

Many sections of Beach Boulevard are threatened by shorefront erosion (due in large part to the absence of a protective beach) and many sections are currently in an advanced state of disrepair. Although at one time this road was part of the state highway system and its maintenance was a state responsibility, it is now designated as a local road and the County is responsible for its repair and maintenance. (The City of Bay St. Louis is, however, planning to widen a section of the roadway within the city's central business area.) Hurricanes Elena and Juan in September and November



Damaged Seawall; Emergency Repair Work on Beach Boulevard

of 1985 caused considerable damage to the roadway. Most of the culverts providing drainage under the road have deteriorated almost to the point of collapse, and in November of 1985 the Board of Supervisors imposed a weight restriction limiting use of the road to automobiles and light pick-up trucks.

While access to the shoreline is almost totally open along the length of Beach Boulevard, there are only a few formal (paved) parking areas. Between Ulman Avenue and downtown Bay St. Louis, for example, there is limited parking space on the shoulder of the roadway next to the seawall. There is also room for parking on and adjacent to the shoulder of Beach Boulevard in the Washington Street area and on the American Legion Pier. In addition to the main parking lots at the Buccaneer State Park there is a small paved lot adjacent to Beach Boulevard near the park entrance. With the exception of these several areas, however, parking for beach access takes place primarily wherever there is space on the western or landward side of Beach Boulevard. This space used for parking between the paved road surface and the utility line is approximately 20 feet wide and is within the public right-of-way. The use of this right-of-way for parking, however, creates several problems. First, since the surface is sandy in most places, it is often easy for vehicles to get stuck. Second, parking along the beach road creates conflicts (caused by litter, noise, etc.) between beach users and shorefront property owners, especially in the Nicholson Avenue and Coleman Avenue areas.



Parking in the Right-of-Way Inland of Beach Boulevard

Key Planning Considerations

- The optimum location of new parking areas.
- The number of new parking spaces to be provided.
- The planning and placement of new parking areas in order to reduce existing conflicts between beach users and shorefront homeowners caused by current parking methods.
- Appropriate measures for regulating parking (by charging a fee, for example).

Plan Recommendations

1. **Planning for improved beach access and parking should be coordinated with planning efforts for new recreational facilities and repair of Beach Boulevard. New parking areas should be concentrated near areas designated for expanded recreational use and new facility development.**
2. **To the extent possible, and in accordance with highway safety standards, new parking areas should be located within existing public right-of-ways. Where necessary, and in conjunction with renourishment of the sand beach and the development of new recreational facilities, parking areas may be located seaward of the seawall.**

The siting of new parking areas should contribute to the establishment, delineation, promotion and control of different types of beach use areas including high-use recreational activity centers, as well as lower-use activity areas and shoreline conservation areas. (See Plan Recommendations for Recreational Facilities.) For example, parking should be prohibited or discouraged and new parking areas should not be added near areas designated for shoreline conservation. On the other hand, efforts to centralize beach activities in areas designated for new or expanded recreational facilities will not be successful unless adequate parking space is provided in those areas.

While new parking should be located wherever possible within the existing public right-of-way, the opportunities for adding new and safe parking areas in the right-of-way are limited and should be identified by the application of basic standards for the design and location of off-road parking areas.

Opportunities for adding new, safe parking areas in the right-of-way between the roadway and seawall, however, are insufficient for meeting current peak demands for parking space near areas designated for expanded recreational use and new facility development. In order to provide adequate parking for beach users, it may therefore be necessary to construct some new parking areas seaward of the seawall near areas designated as recreational activity centers. Such parking areas should be developed in coordination with the development of new recreational facilities following replenishment of the sand beach.

- 3. Increased use of the public right-of-way landward of the Beach Boulevard for parking should be discouraged where parking currently occurs in exclusively residential areas.**
- 4. In some areas where parking for beach use has traditionally taken place alongside Beach Boulevard, minimal parking improvements should be made to the extent possible.**

The major portion of beach parking currently occurs at random - taking place between Beach Boulevard and private property boundaries landward of the roadway. This method of parking creates litter, noise and other nuisance problems affecting shorefront residents and also results in public safety problems. Therefore, increased use of the right-of-way landward of Beach Boulevard for parking should be discouraged in exclusively residential areas. The planning and placement of new parking areas in locations designated for expanded recreational use and new facility development should reduce the demand for continued parking use of the landward right-of-way in residential areas.

- 5. The imposition of fees should be considered for parking in designated areas.**

Consistent with recommendations directed toward imposing user fees to help defray the costs of beach improvements (see Chapter 5), the imposition of parking fees as a source of revenue for funding beach improvements should be considered. Currently, no fee is charged for beach parking by the County or the municipalities. In evaluating the feasibility of adding a charge for parking in or near beach areas designated for expanded recreational activities, a variety of factors should be considered, including: enforcement requirements; potential revenue to be generated; and available measures and approaches for imposing a fee (for example, use of parking meters, sale of vehicle parking decals, excluding County residents from fee requirements, imposing fees only on summer weekends, etc.).

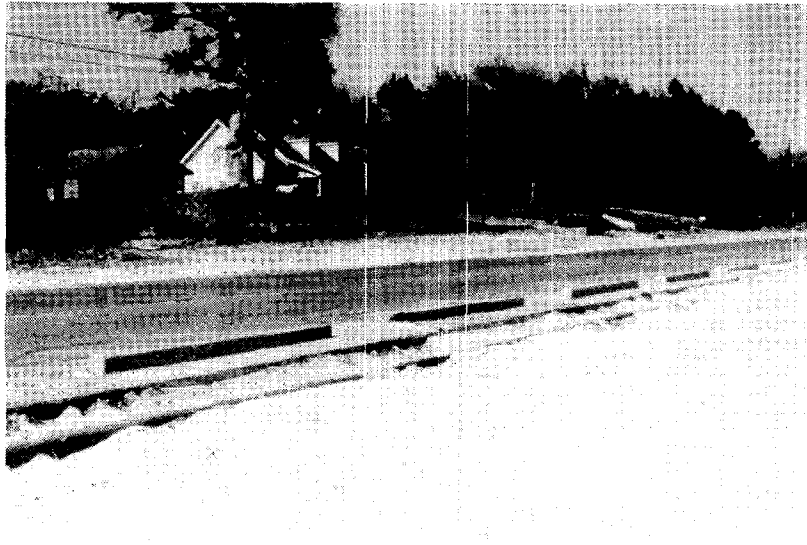
PUBLIC ACCESS AND LITTORAL RIGHTS

Legal questions regarding beach ownership in Hancock County have received relatively little public attention to date. Such questions, however, particularly with regard to the relationship between the littoral rights of beachfront property owners and the public's rights of beach access, will most likely be the subject of increased public attention as development and implementation of the Master Plan proceeds.¹

In Harrison County, Mississippi, legal questions regarding public access and ownership of the sand beach have been addressed through lengthy litigation and are the subject of a federal court order. Public access to the Harrison County beaches is currently guaranteed by a court order which arose out of the decision of the Federal Court of Appeals in U.S. v. Harrison County. That court order guarantees that a contract entered into between the United States and Harrison County dedicating the beach to the public will be enforced, and prevents the private littoral property owners from interfering with the public's use of the beaches. The order also recognizes that the private littoral owners retain certain important water and beach-related rights. (See "Sand Beach Master Plan; Harrison County, Mississippi".)

The legal relationship between the littoral rights of beachfront property owners and the public's rights of beach access obviously has important implications for the planning of new recreational facilities and the implementation of beach improvements. However, Hancock County was not included in the Harrison County court order, and the Federal Court of Appeals' ruling in U.S. v. Harrison County should therefore not be considered as a precedent for resolving future littoral rights and public access questions that may arise in Hancock County.

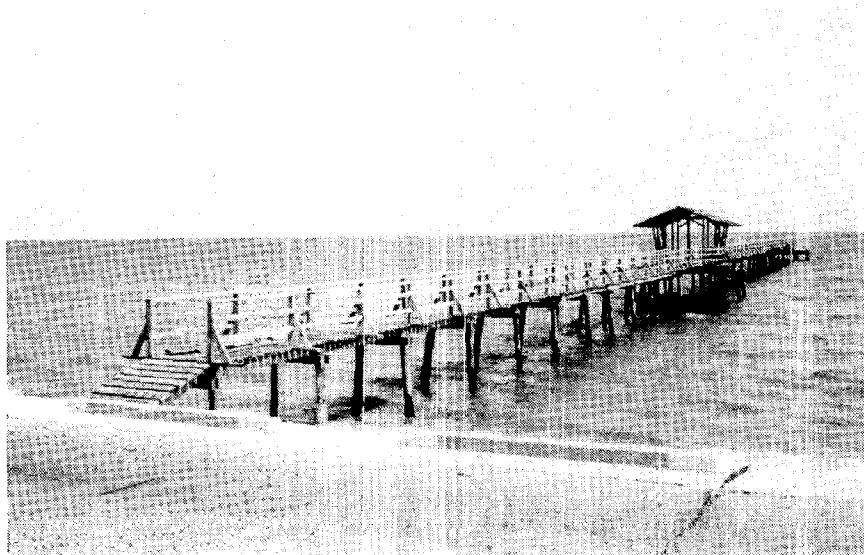
1. With regard to water rights law, water rights arise when property either abuts or contains water. If the water in question is a navigable river or stream, the rights are said to be riparian. If the water is subject to the ebb and flow of the tides, the rights are said to be littoral rights.



Private Shorefront Property Inland of Beach Boulevard

Key Planning Consideration

- Balancing littoral rights of private shorefront property owners with the public's rights of beach access.



Private Pier Extending into Mississippi Sound

Plan Recommendations

- 1. All new development areas should be confined to segments of shoreline currently fronted by commercial property, to areas in which some recreational activity already takes place, or to areas within public right-of-ways.**
- 2. Shoreline segments in exclusively residential areas should be designated only for the establishment of shore protection or beach stabilization measures.**

The siting of new recreational facilities should be designed to minimize conflicts between the littoral rights of beachfront property owners and public rights of beach access. Accordingly, new facility development should be confined to stretches of shorefront near already developed or commercial areas, to beach areas where some recreational activity currently takes place, or to areas within the public right-of-way. (The public right-of-way includes extensions of public street right-of-ways across the sand beach. Where such street right-of-ways cross the Hancock County seawall and intersect the existing or future sand beach, the control of the property from the point of the seawall to the edge of the water is traditionally vested in the County Board of Supervisors.)

While the development of beach recreational facilities should be limited to several specific areas based on private littoral rights considerations, the establishment of erosion control measures to stabilize and extend the life of a renourished sand beach need not be limited to specific areas. Such measures may be justified as shore protection measures necessary for protecting the seawall, Beach Boulevard, and adjacent upland areas from coastal erosion and flooding.

ADMINISTRATION AND FINANCING

There are currently several governmental jurisdictions - County, city, state, and federal - with roles and responsibilities affecting the shoreline. For example, maintenance of the sand beaches in Bay St. Louis and Waveland is a County responsibility, and the County is responsible for maintenance of the Ulman Avenue Pier and the American Legion Pier in Bay St. Louis. The cities are also involved: The City of Bay St. Louis has plans for recreational improvements in the area of the Ulman Avenue pier and also along the shorefront adjacent to the downtown, and the City of Waveland installed the Ladner Pier and is considering improvements and new recreational facility development in this area.

State agencies involved in shorefront activities include the Mississippi State Parks Commission which operates the Buccaneer State Park in Waveland, and the Mississippi Commission on Wildlife Conservation, Bureau of Marine Resources. The Bureau of Marine Resources reviews permit applications and issues (where appropriate) permits for activities affecting wetlands and Mississippi Sound waterbottoms, conducts coastal planning activities, and can issue grants for constructing certain types of beach improvements.

In addition to County, city, and state involvement, the U.S. Army Corps of Engineers is also actively involved in planning activities affecting the shoreline through its feasibility planning study for a federal shore protection project. In addition, the Corps reviews permit applications for beach replenishment and can provide technical assistance with regard to shore protection and erosion control.

Among the different governmental jurisdictions concerned with the Hancock County shoreline, sand beach and related areas, there has generally been a lack of uniform and comprehensive policies regarding administration, authority and operations. The lack of such policies has been seen to negatively affect overall shorefront management, development, and maintenance capabilities.

The effectiveness of beach-related operations and the existing appearance and condition of the shoreline are significantly influenced by County and municipal budget allocations. For example, current maintenance difficulties relative to providing a consistently high level of shoreline condition and appearance throughout the planning area are due in

large part to lack of funds for maintenance operations and the lack of a specific budget for beach maintenance activities.

Under Chapter 33 (the Seawall Chapter) of the Mississippi Code, the Hancock County Board of Supervisors has broad powers to erect, improve, and maintain all necessary shore and road protection structures. Several local revenue sources are potentially available for funding a variety of shore protection activities. These revenue sources include the County's special tax on gasoline. This tax, authorized by State statute, was enacted about 1928 when the Board of Supervisors added a 3 cents per gallon tax on gasoline to pay for the construction of the Hancock County seawall. In addition, the Hancock County allocation from the state road protection tax was designated as a supplementary revenue source (secondary to the seawall tax) for retiring seawall and road protection bonds. After retirement of the original seawall construction bonds, seawall tax revenues began to be applied for purposes not related to the sand beach or seawall. Incoming seawall tax funds as well as surplus County funds were used for debt service on the County's Port Bienville Industrial Park and Stennis Industrial Airport. As a result, only a relatively small percentage of the total available seawall tax revenues are currently applied for shore protection and maintenance purposes.

The seawall tax, road protection tax, and other local revenue sources potentially available for funding beach-related activities and improvements are discussed in more detail in Chapter 5.

Key Planning Considerations

- Opportunities for improving current administrative procedures affecting the shoreline.
- The availability of new sources of local, state, and federal funding to support beach improvements.
- Possibilities for reallocating funds from existing local funding sources (e.g., seawall tax) that are currently not directed toward beach-related programs, and using these funds to support beach improvements.

Plan Recommendations

- 1. A new administrative body should be established by the Hancock County Board of Supervisors to oversee the day-to-day maintenance of the beach and related areas, and to exercise primary responsibility for implementing the Master Plan.**

Due to the extent of the Hancock County shoreline between Highway 90 and Bayou Caddy, the complexity and diversity of beach-related problems and issues, and the number of governmental entities with beach-related roles and responsibilities, a more streamlined and coordinated administrative structure for sand beach affairs should be established. A Hancock County Beach Commission should be established and given responsibility for overseeing and coordinating the actions of all agencies engaged in beach activities. The Commission should also have primary responsibility for implementing the Master Plan. (See Chapter 5 for more detailed recommendations regarding establishment of the Beach Commission and the creation of a more streamlined administrative structure.)

- 2. A long-range capital improvement program should be prepared to guide implementation of the Master Plan. The financial base for this program should rest primarily with local funding sources:**
 - increased allocations from current seawall tax revenues and revenues from the 1 1/2 cent per gallon road protection tax should be used to fund recommended improvements for shore protection and erosion control;**
 - the Board of Supervisors should consider levying an additional tax in accordance with County recreation laws to support public recreational development on the sand beach;**
 - the Board of Supervisors should consider adding a special sales tax on food, beverages, and lodging to help finance beach improvements, user facilities, and tourism promotions; and**
 - the Board of Supervisors should consider applying user fees where practical to support beach improvements.**

Constructing new facilities, replenishing the beach, and establishing erosion control measures in accordance with Master Plan recommendations will require taking public revenues currently applied elsewhere and redirecting some of those revenues to the sand beach, and/or obtaining additional capital and operating funds from new sources.

Public opinion surveys carried out in the course of the master planning process (see Appendix C) indicate support for the use of local funding sources in implementing

the Master Plan. The Hancock County TAC conducted a review of state laws governing the financial resources available to local governments for funding beach improvements and maintenance. Special attention was given to the legislation authorizing the seawall and road protection taxes and to other state laws enabling the transfer of seawall tax revenues for the support of activities and projects not related to seawall or road protection functions. Based on this review, the TAC recommended that seawall tax revenues serve as the principal means of financing shore protection, erosion control, and beach maintenance activities along with revenues generated from the 1 1/2 cents per gallon gasoline tax for road protection. The TAC also recommended that the Board of Supervisors discontinue the traditional practice of using seawall tax revenues to support projects elsewhere in the County or projects not related to shore protection purposes. (See Chapter 5 for a listing of potential funding sources and more detailed recommendations regarding the development of a capital improvements program.)

PART II:

**AREA-SPECIFIC PROPOSALS
AND
RECOMMENDATIONS**

CHAPTER TWO: PLANNING UNITS AND MANAGEMENT CATEGORIES

This chapter sets forth 14 shoreline "planning units" established for the purpose of guiding the formulation of area-specific Plan proposals, and also introduces three basic "management categories" designating different intensities of beach use and levels of new facility development.

- **Category I: New Facility Development; Activity Center**
- **Category II: New Facility Development; Beach Park**
- **Category III: Conservation - Neighborhood Recreation**

PLANNING UNITS AND MANAGEMENT CATEGORIES

For planning purposes, the study area has been divided into 14 shoreline planning units: six in Bay St. Louis; and eight in Waveland and the unincorporated area south of Waveland. Each planning unit represents a separate segment of the shoreline. Collectively, these individual segments form Hancock County's unique and diverse coastal environment. Efforts to solve shorefront problems and optimize recreational potentials should also aim to protect those coastal environmental characteristics which are so much a part of the County's heritage, character and quality of life.

The 14 planning units cover the entire Hancock County shoreline between Highway 90 and Bayou Caddy. The Master Plan addresses this entire length of shoreline including those areas where there is currently no sand beach but where beach replenishment could take place in the future. The Plan also addresses those areas where shore protection and other planning objectives might be accomplished without the need for beach replenishment in the near future.

The purpose of designating individual planning units is to focus attention on discrete geographic areas for which specific policies and management objectives may be established. These area-specific policies and management objectives are intended to guide planning and development for beach recreation and shore protection purposes. (The shorefront planning units are listed in Figure 8, shown in Figures 9-11, and described in some detail in Chapters 3 and 4.)

For each planning unit, a management category (or categories) and specific management policies have been formulated. The management categories designate different types and intensities of recreational use and, where appropriate, indicate where new facilities for beach users should be located. The management policies address the type, location and design of new facilities as well as the type of shoreline protection and beach stabilization measures appropriate for use in the planning unit. Where possible, recreational facilities, erosion control measures and parking areas are proposed for construction seaward of the existing seawall in coordination with replenishment of the sand beach. (See Figure 4.)

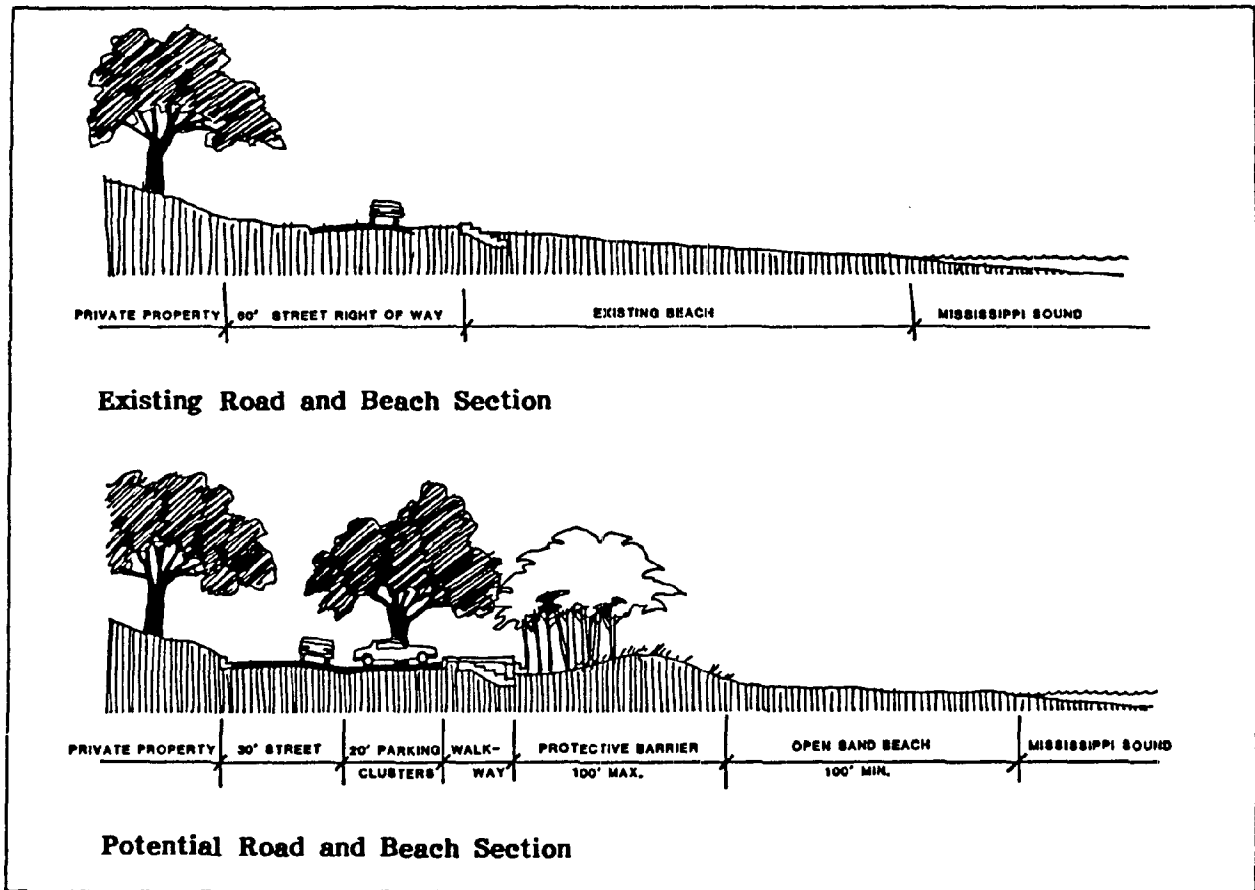


FIGURE 4: EXISTING AND POTENTIAL ROAD AND BEACH SECTIONS

Three basic management categories designating different intensities of beach use and levels of new facility development are applied throughout the planning area:

- **Category I:** This category is applied to selected areas judged suitable for recreational use supported by new or expanded beach areas and new facilities (pavilions, restrooms, showers, concession areas, picnic areas, piers, and boat ramps for example). To the extent possible, the development of new or expanded parking facilities should also take place in these areas. The new facilities developed should support a relatively high intensity of beach use by the general public, including visitors from outside the County, and should serve to concentrate or focus beach facilities and services in specific areas, thus creating recreational activity centers. In areas designated as activity centers, public/private cooperation in the development and operation of new user facilities should be pursued.

- Category II: This category is also applied to selected areas judged suitable for new or expanded beach use, but on a smaller scale and more moderate intensity than in the Category I areas. New development in these areas should be limited primarily to beach expansion and the establishment of new or expanded parking facilities, and should not include permanent structures such as pavilions, bathrooms, concession areas, etc. Beach expansion should be designed to create a beach park environment that serves community recreation needs and may also act as a buffer between Category I and III areas.
- Category III: This category is intended to preserve the existing character of residential neighborhoods and certain undeveloped shoreline areas. In Category III areas, existing low intensity, neighborhood recreational uses should continue, but no new user facilities should be developed. In certain areas where parking for beach use has traditionally taken place, minimal parking improvements (to the extent possible) should be made. These parking improvements should not expand the existing parking capacity, however, nor be intended to attract additional users to the area.

Five principal factors have been considered in applying these categories to the individual planning units: 1) current intensities of beach use; 2) type of adjacent shorefront development (i.e., residential or commercial); 3) current shorefront zoning; 4) ongoing County or municipal development plans; and 5) location of existing public right-of-ways.

Implicit in each of the three basic management categories is the establishment of appropriate shore protection and/or beach stabilization measures. The type of measure and the amount of beach area covered by these measures will vary depending on the particular management category in which they are applied. Generally, in Category II and III areas where beach replenishment is recommended for recreational and shore protection purposes, planted dunes should be used to control sand. (See Figure 5.) These dunes will tend to migrate landward, and a limited amount of maintenance will be required to stabilize them in desired locations. In Category I areas, where higher-density recreational activities could interfere with the survivability of stabilizing vegetation, sand should be relocated at least biennially to reduce wind-caused erosion. This will involve recontouring of the beach profile by removing accumulated sand from near the base of the seawall and relocating the sand closer to the water. (See Figure 6.) The movement of sand to prevent a "ramp" being formed at the base of the seawall

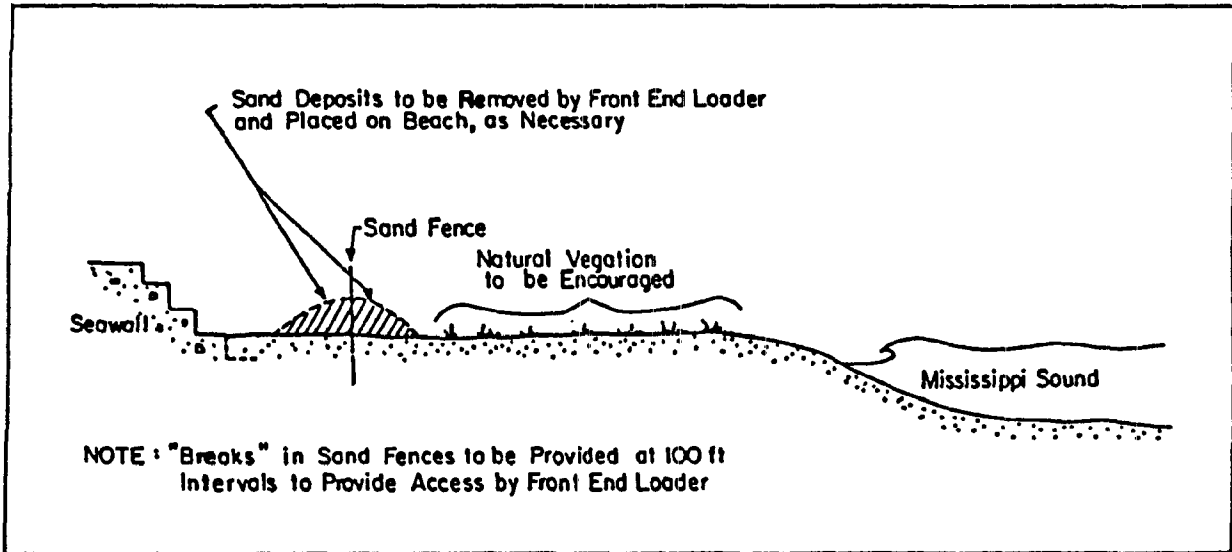


FIGURE 5: BEACH DUNE AND VEGETATION SYSTEM (CATEGORY III AREA)

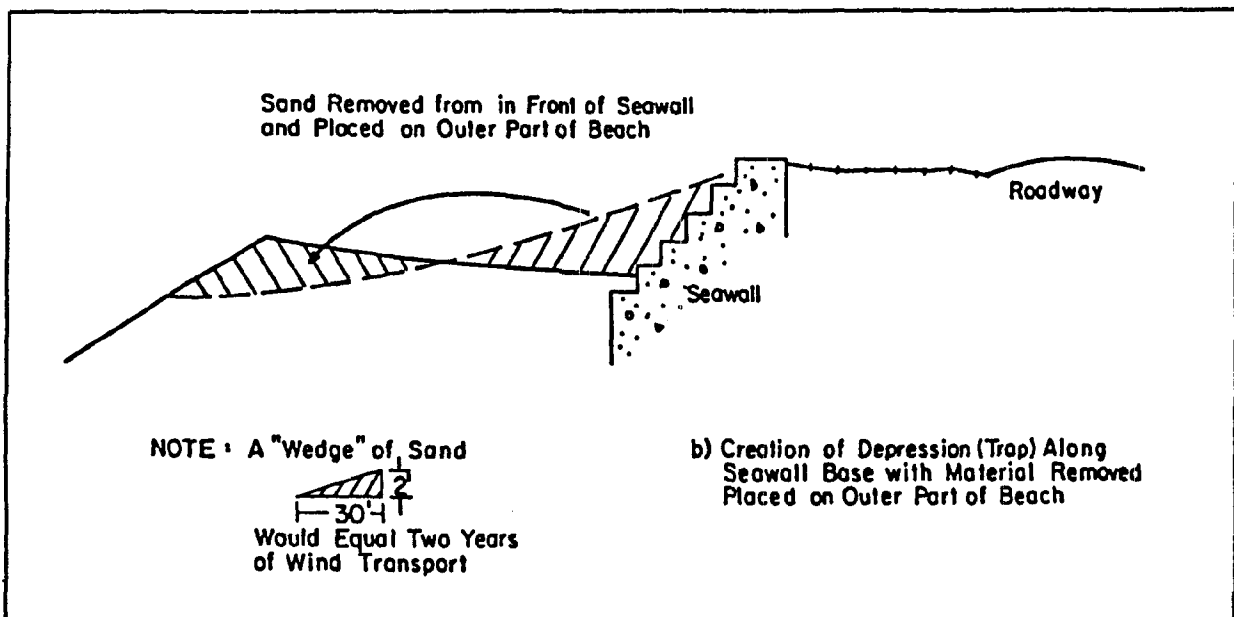


FIGURE 6: BEACH RECONTOURING TO REDUCE SAND TRANSPORT ONTO ROADWAY

will be a relatively low cost measure not subject to vandalism. To reduce longshore sand losses, some of the existing shore-perpendicular structures should be lengthened and possibly increased in elevation, and additional shore-perpendicular structures should be added in some locations. (Specific beach stabilization measures are described in more detail in Part II and Appendix B.) In Category III areas where there is currently no sand beach and where future beach development is not proposed for shore protection or recreational purposes, shore protection might be accomplished through seawall reinforcement, revetments, rip-rap or other measures.

In some planning units, more than one management category has been designated, and the interspersing of different types of beach use areas - ranging from higher intensity activity areas to shoreline conservation areas - will create a variety of beach environments throughout the overall planning area.

In Chapters 3 and 4, each planning unit is addressed separately. A general description of existing conditions within each planning unit is included, along with a recommended management category or categories. (The recommended categories are listed in Figure 8 and shown in Figures 9-11.) Specific management objectives and policies are also recommended. The planning units are listed in geographic order from north to south, and organized by municipality.

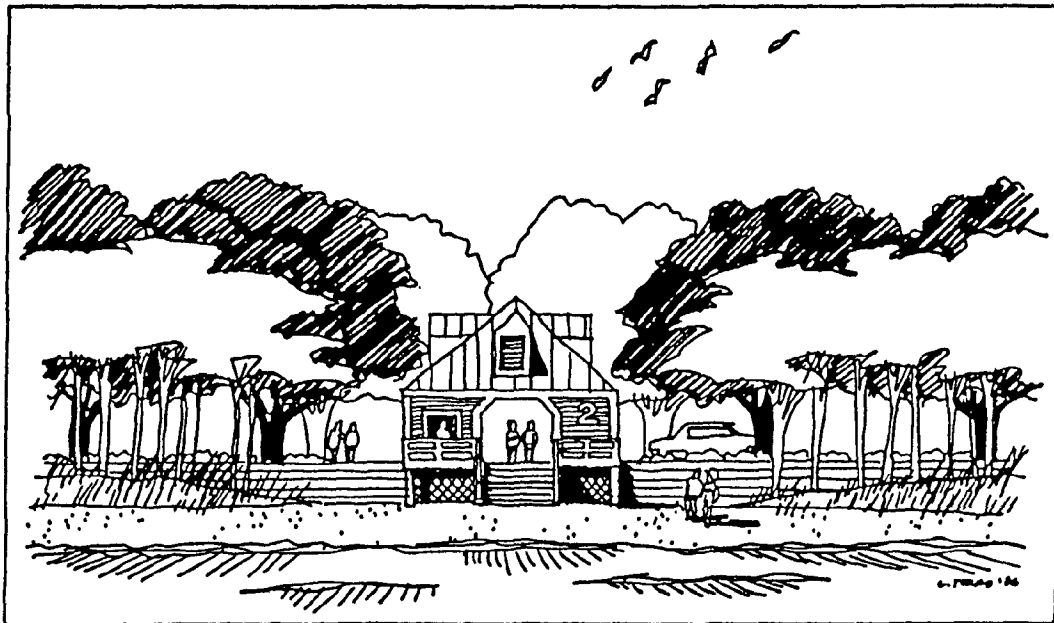


FIGURE 7: TYPICAL RESTROOM AND SHOWER STRUCTURE

**FIGURE 8:
SHOREFRONT PLANNING UNITS AND MANAGEMENT CATEGORIES**

<u>Bay St. Louis</u>	
North Beach Blvd.	Category III
Ulman Ave.	Category II
Downtown Bay St. Louis	Category I
St. Stanislaus	Category III
American Legion Pier	Category I and II
Ramaneda/Bay Oaks	Category III
<u>Waveland</u>	
Bay Oaks/Whispering Pines	Category III
Nicholson Ave.	Category III
Coleman Ave.	Category I and II
St. Clair/Waveland Blvd.	Category III
Gulfside Assembly	Category III
Buccaneer Park	Category I and II
<u>Unincorporated Area</u>	
Clermont Harbor	Category III
Bayou Caddy	Category III

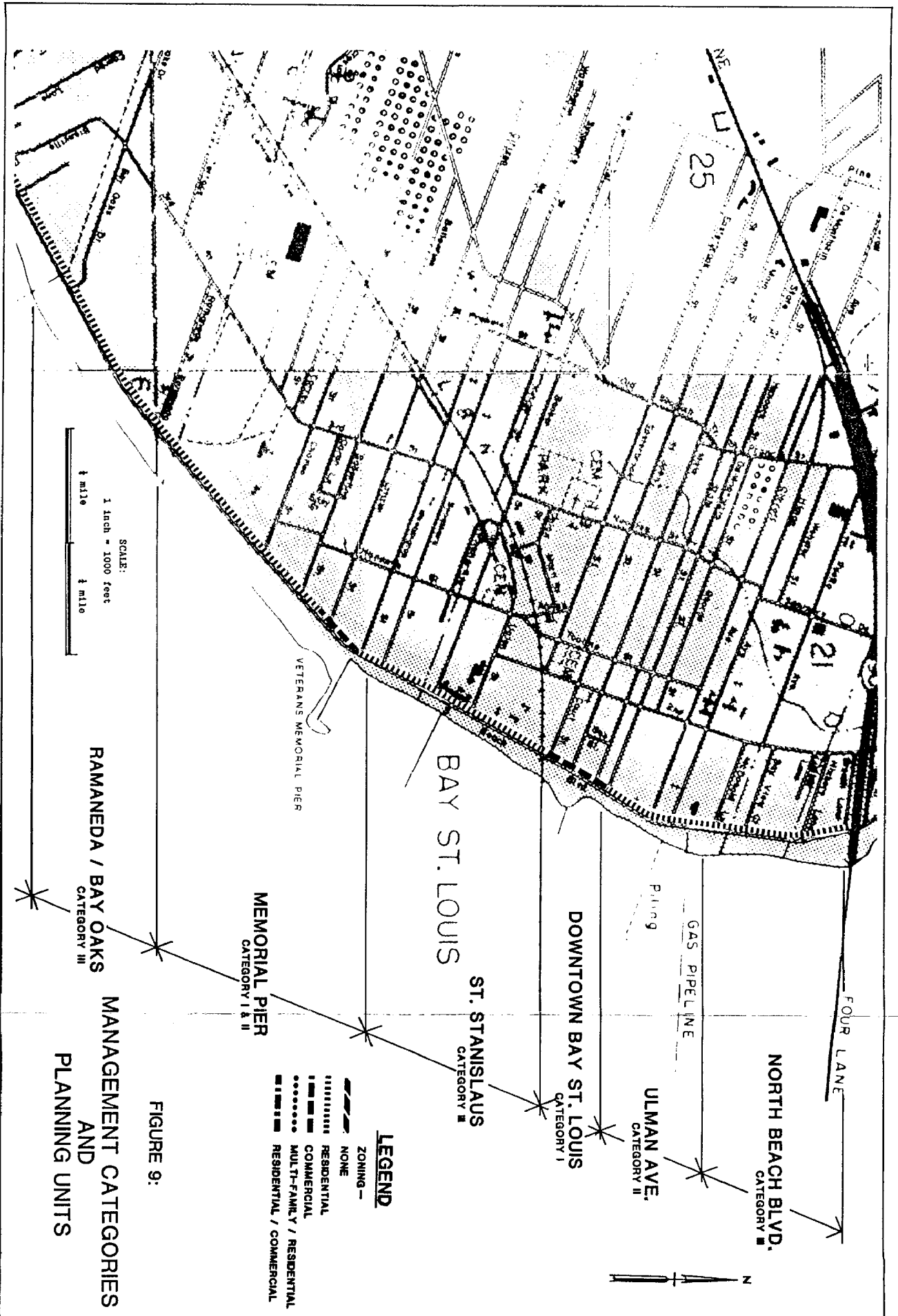
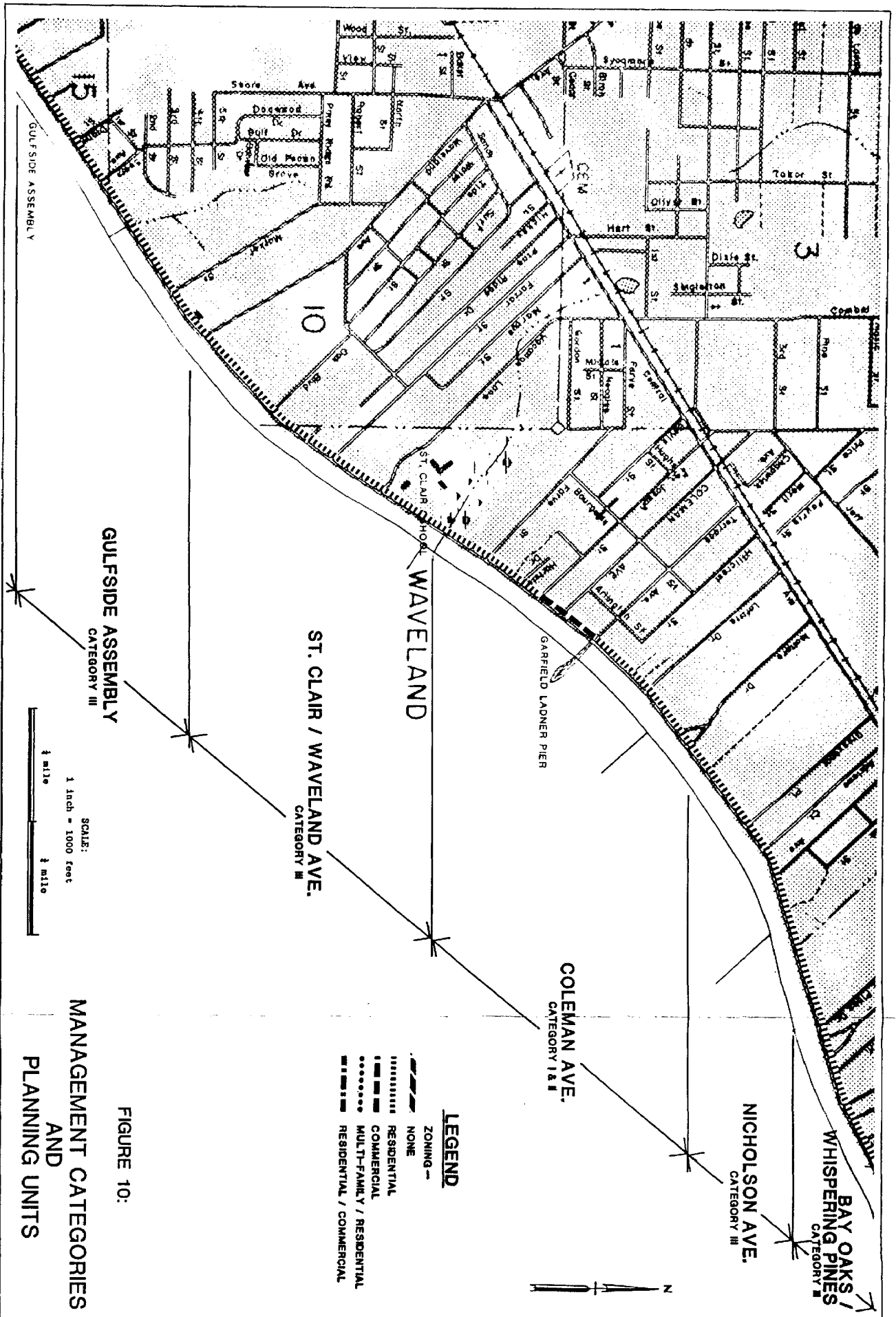


FIGURE 9:

RAMANEDA / BAY OAKS
CATEGORY III

MANAGEMENT CATEGORIES
AND
PLANNING UNITS



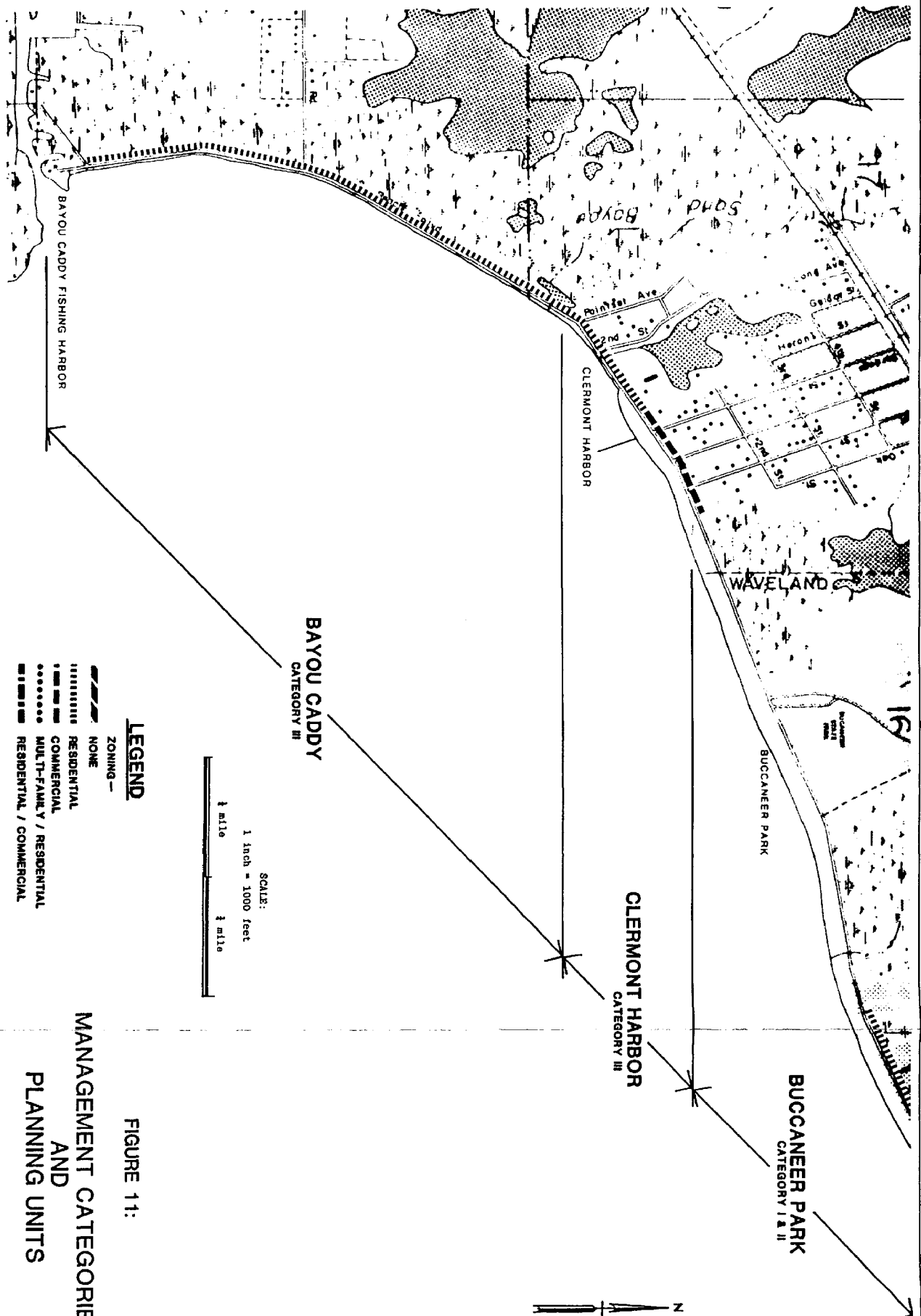


FIGURE 11:

MANAGEMENT CATEGORIES
AND
PLANNING UNITS

CHAPTER THREE: BAY ST. LOUIS

This chapter includes recommended management policies and development concepts for each of the following planning units in the City of Bay St. Louis:

- **North Beach Boulevard Planning Unit**
- **Ulman Avenue Planning Unit**
- **Downtown Bay St. Louis Planning Unit**
- **St. Stanislaus Plannning Unit**
- **American Legion Pier Planning Unit**
- **Ramaneda / Bay Oaks Planning Unit**

New facility development designed to create recreational activity centers is recommended adjacent to the downtown area and on and adjacent to the American Legion Pier. Beach park areas are proposed for the Ulman Avenue area and for the beach south of the American Legion Pier. Pedestrian linkages are recommended to connect the Ulman Avenue, downtown, and pier areas.

NORTH BEACH BOULEVARD PLANNING UNIT

Management Category:
Conservation - Neighborhood Recreation

This exclusively residential planning unit extends from the Highway 90 bridge over St. Louis Bay to just south of McDonald Avenue. Older, single family homes inland of Beach Boulevard lend character and atmosphere to this portion of the shoreline in the City of Bay St. Louis. While a small portion of the shorefront immediately south of Highway 90 is zoned "Commercial Highway", the remainder of the planning unit is zoned for residential development. There is a relatively wide stretch of undeveloped and landscaped shorefront between Beach Boulevard and St. Louis Bay; the several parcels of land which make up this undeveloped shorefront are in private ownership.



Undeveloped Shorefront Between Beach Blvd. and St. Louis Bay

Management Policies

The shoreline in this planning unit is not designated for beach renourishment or for recreational facility development. The existing private and undeveloped character of the shorefront between Beach Boulevard and St. Louis Bay should be maintained.

ULMAN AVENUE PLANNING UNIT

Management Category:
New Facility Development (Beach Park)

Extending from just south of McDonald Avenue to Demontluzin Street and the beginning of the commercial area of the City of Bay St. Louis, this planning unit includes the public pier extending into St. Louis Bay at the foot of Ulman Avenue. It was in this area that a popular municipal beach was constructed in 1967 with material excavated from the bay bottom during construction of the L & N railroad bridge just to the south. Hurricane Camille completely eroded this beach in 1969 and also did considerable damage to Beach Boulevard in this area.

There is currently no beach in this planning unit, and the original seawall, buckled by Camille, has further deteriorated. Also, land shoreward of the seawall is being eroded and washed out through the seawall, threatening the integrity of Beach Boulevard. The elevation of Beach Boulevard in this area, along with the top of the seawall, is greater than 10 feet above the level of the Bay. Existing parking space for pier users is limited to the wide shoulder of the beach road at the foot of the Ulman Avenue pier.



Beach Blvd. and Entrance to Ulman Ave. Pier

The existing development inland of Beach Boulevard is residential with the exception of the Reed Nursing Home at the corner of Ulman Avenue. The shorefront zoning is exclusively residential.

Management Policies

Consistent with plans currently being formulated by the City of Bay St. Louis, the shorefront in this planning unit should be redeveloped as a municipal neighborhood park. (See Figure 12.) Fill material could be placed over the existing crumbled seawall in order to create a new land area which would extend toward the bay. This fill would be held in place by a new shore protection structure (either a seawall or rip rap structure). A landscaped park area might then be created on top of the fill at a level below that of Beach Boulevard. At a still lower level, a small new beach might also be constructed on both sides of the Ulman Avenue pier. The park area and new beach so created would provide primarily passive (as opposed to active water sports) recreational opportunities for people living nearby, and might be linked (via a pedestrian walkway along Beach Boulevard or a narrow sand beach) to new recreational development adjacent to the downtown area. (See Downtown Bay St. Louis Planning Unit and Figure 13).

Re-establishment of a narrow sand beach extending south from this planning unit to the downtown area will require the construction of a new groin in the Ulman Avenue area extending approximately 200 feet from the shoreline. This groin will serve to stabilize the replenished beach.

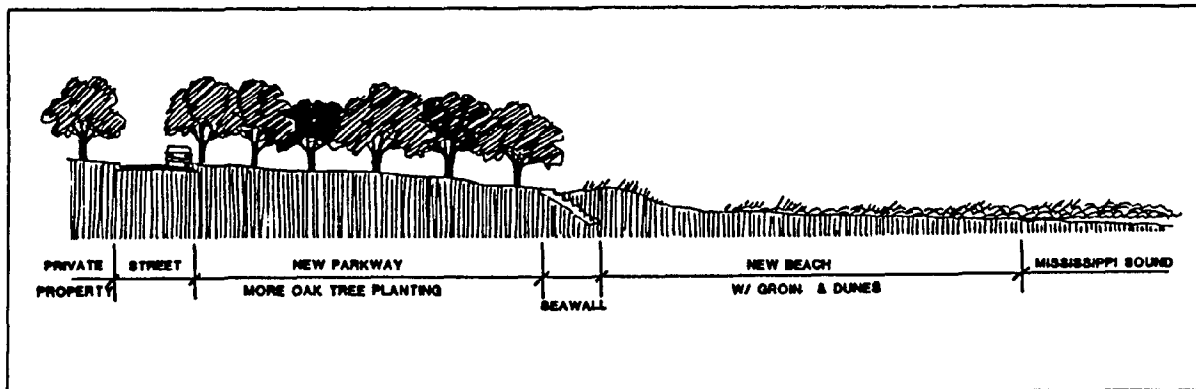


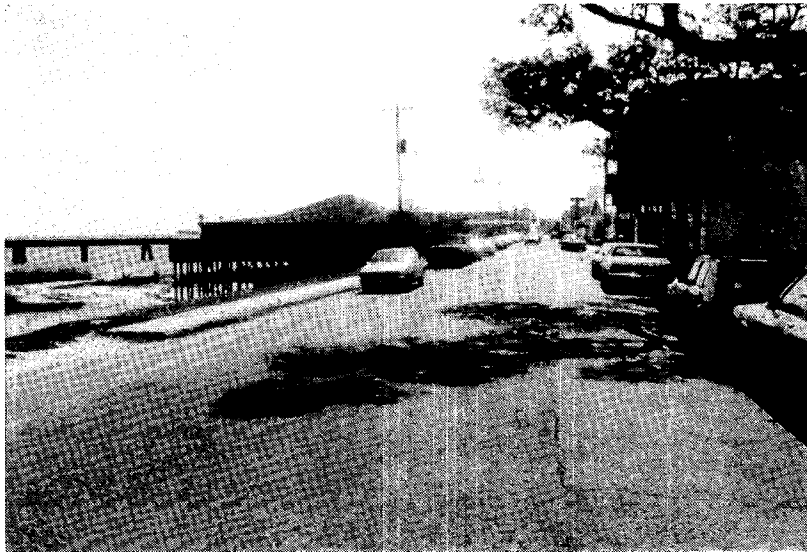
FIGURE 12: POSSIBLE FUTURE SHORELINE SECTION

DOWNTOWN BAY ST. LOUIS PLANNING UNIT

Management Category:
New Facility Development (Activity Center)

The Downtown planning unit extends from Demontluzin Street on the north to the L&N railroad tracks and includes the shorefront portion of the central business district of the City of Bay St. Louis. (With the help of the Mississippi Bureau of Marine Resources, the City of Bay St. Louis intends to carry out an "Urban Waterfront Study" of the larger downtown area; the purpose of the study being to stimulate economic revitalization of the downtown based on the creation of waterfront themes and linkages.)

The planning unit falls within the city's "Central Business District" zoning category and includes some commercial development seaward of Beach Boulevard just north of the railroad tracks. (This is the only shoreline location where buildings are located between Beach Boulevard and the seawall.) On the shoreline just north of the railroad bridge is a tidal wetland and a small sand beach currently not used for recreational purposes. The seawall throughout the planning unit is in need of repair.



Beach Blvd. and Downtown Bay St. Louis
(Looking South)

Management Policies

New shorefront recreational facilities should be developed to contribute to downtown revitalization efforts and the establishment of an "Urban Waterfront" district. A new beach should be established in this area with linkages to the downtown commercial center of the city and to the community park/beach area recommended for development in the Ulman Avenue planning unit. A public boat launching facility could be sited just north of the RR bridge with access provided by a new roadway passing under the bridge and connecting with Beach Boulevard just south of the RR tracks. The feasibility of developing a large (e.g., 400 slip) municipal marina facility north of the RR bridge along with an extended breakwater and new parking and commercial facilities should also be evaluated. Development of a large marina in this planning unit should be considered a long-range development option. (See Figure 13.)



Unused Beach Near
Downtown Bay St. Louis
(Looking North Toward
Ulman Ave. Area)

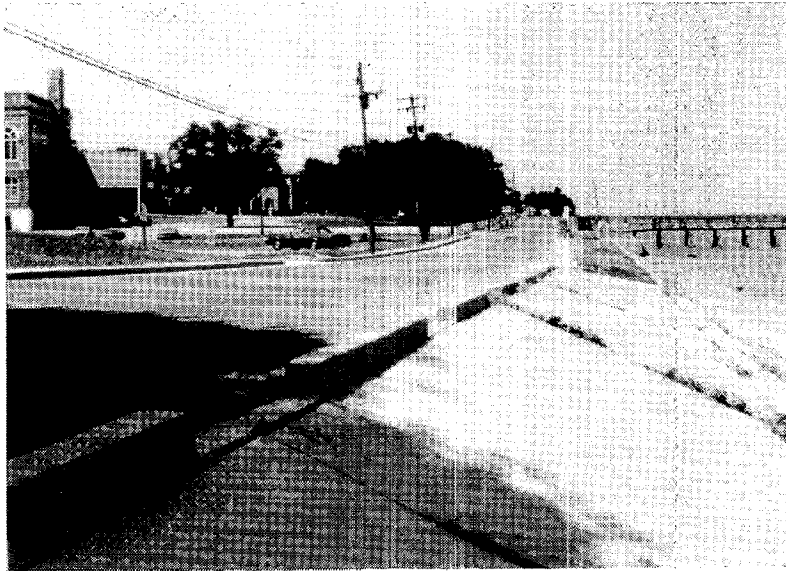


Unused Beach Near
Downtown Bay St. Louis
(Looking South Toward
RR Bridge)

ST. STANISLAUS PLANNING UNIT

Management Category:
Conservation - Neighborhood Recreation

There is currently no beach in this planning unit which is located between the railroad tracks and Sycamore Street. On the Mississippi Sound side of Beach Boulevard, the planning unit contains a relatively wide grass area (just south of the railroad tracks) between the roadway and the seawall, the private St. Stanislaus pier, and a tidal wetland just north of the American Legion Pier. On the inland or west side of Beach Boulevard, the Lady of the Gulf Church, St. Stanislaus College (actually a private Jr. and Sr. High School) and some private homes are found.

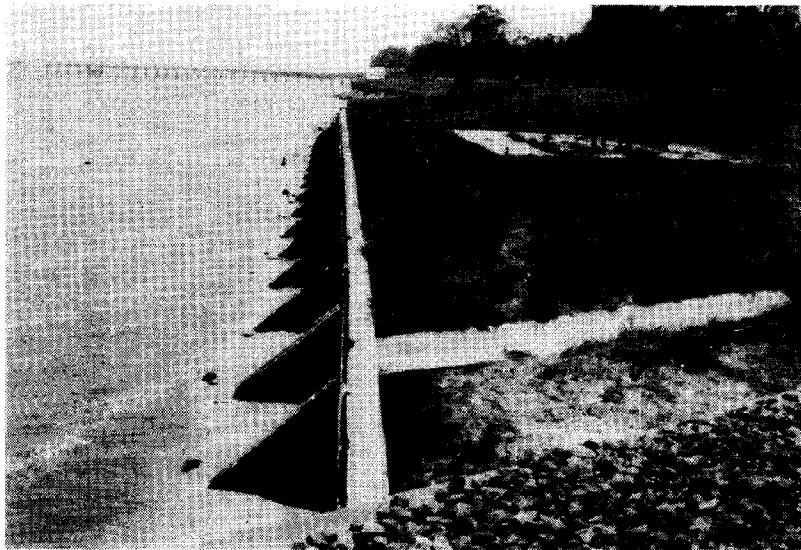


Beach Blvd. and St. Stanislaus College

Management Policies

The shoreline of this planning unit is not designated for large scale beach renourishment for recreational purposes. On the Mississippi Sound side of Beach Boulevard, however, a pedestrian linkage should be created to connect the Downtown planning unit with recreational opportunities provided in the American Legion Pier planning unit. This linkage could include a landscaped, linear park between the roadway and seawall south of the RR tracks, and a pedestrian walkway along the seawall adjacent to the wetland north of the American Legion Pier. (See Figure 13.)

If it is decided to establish a sand beach for shore protection purposes in this area, a new groin or equivalent structure (extending approximately 200 feet from the shoreline near the base of Union Street) should be constructed to help retain the sand.



Open Space Between Roadway and Seawall South of RR Tracks

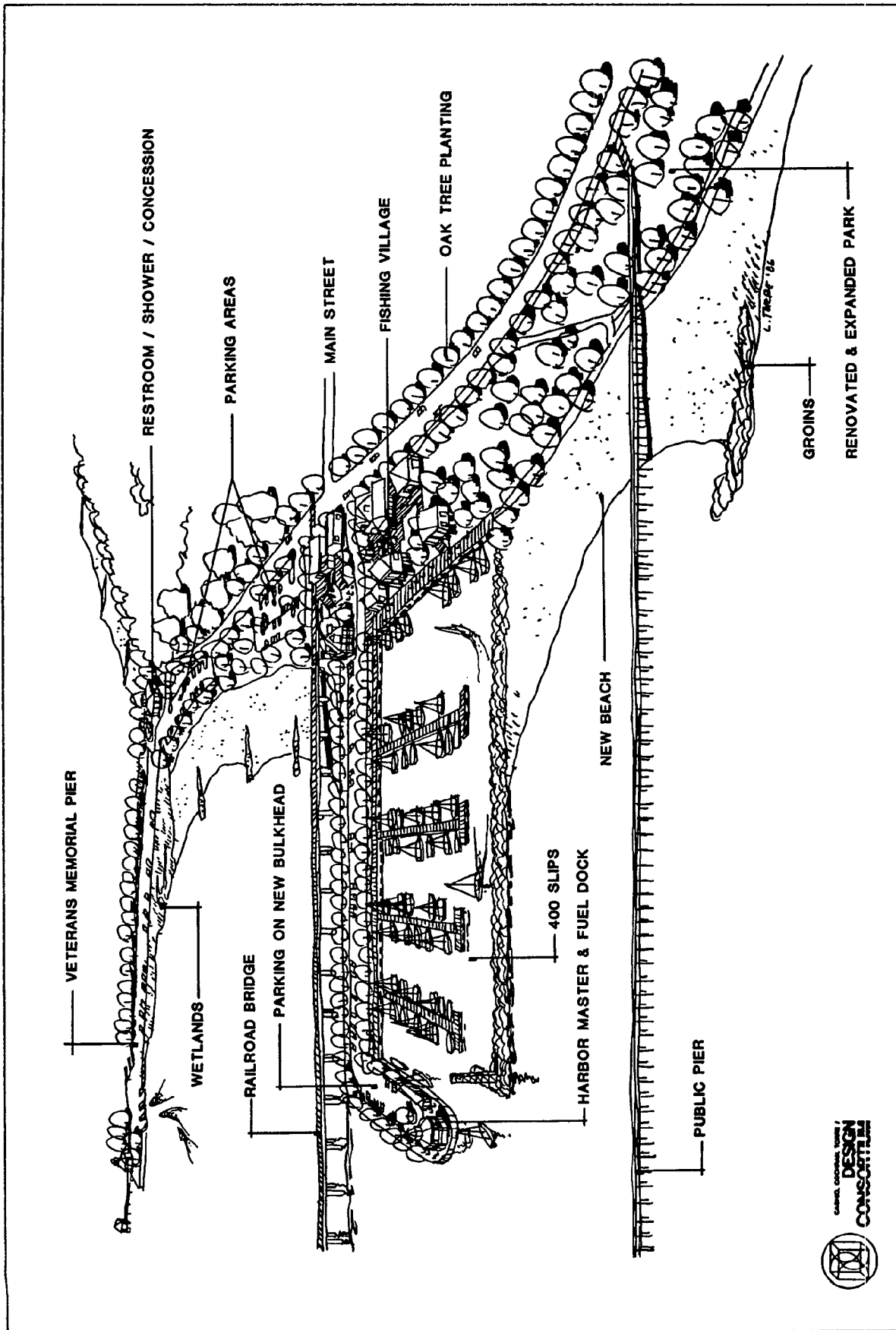


FIGURE 13: DOWNTOWN WATERFRONT & LINKED SHORELINE RECREATION AREAS; BAY ST. LOUIS

AMERICAN LEGION PIER PLANNING UNIT

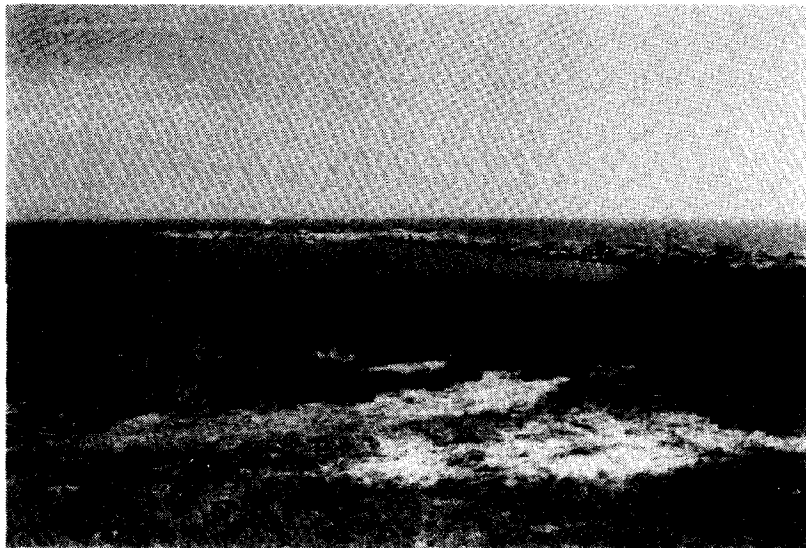
Management Categories:

New Facility Development (Activity Center)

New Facility Development (Beach Park)

This planning unit contains the only recreational beach area currently found south of Highway 90 in the City of Bay St. Louis. The planning unit is bounded on the north by Washington Street and extends southward to the drainage outfall which marks the southern boundary of the existing sand beach. A small commercial area is located at Washington Street across Beach Boulevard from the American Legion Pier. With the exception of this commercial area, the shorefront west of Beach Boulevard is exclusively residential. All of the shorefront in this planning unit, however, including the commercial area, is zoned "Residential (Beach)".

The sand beach located south of the American Legion Pier is a popular recreation area. However, with the exception of the convenience store on the corner of Washington Street where beach users can buy cold drinks and ice cream, there are no facilities for beach users.



American Legion Pier

There is space available on the Mississippi Sound side of Beach Boulevard for new facility development — both in the area where the old American Legion building was once located, and also on the pier which is a large rock structure with an unpaved roadway on its surface.

The pier, which provides a public boat launch and fishing platform, is technically not a city facility. It was constructed by the American Legion, and the County is now responsible for its maintenance. There is room for parking on the pier and on the seawall side of Beach Boulevard in the Washington Street area. Beach users also park on the public right-of-way in front of the homes on the west side of Beach Boulevard south of Ballintine Street.

The County District Supervisor maintains the pier and also the beach south of the pier. Existing maintenance operations, however, are primarily limited to litter and debris collection. The beach is stabilized somewhat on each end by the American Legion pier and by the drainage outfall just north of Ramaneda Street.



Sand Beach South of American Legion Pier

Management Policies

This planning unit should be considered a priority area for new recreational facility development and the construction of an expanded sand beach. (See Figure 14.) Two separate management categories are designated. The pier itself, and the beach area immediately south of Washington Street including the former site of the American Legion building, are designated for Category I new facility development. New facilities to be considered include a pavilion, restrooms, showers, and a concession and picnic area designed to support expanded recreational activities for local residents and also visitors from outside the County. In addition, landscaping and other beautification measures should be applied to the pier. The new facilities to be developed should be sited so as not to interfere with the littoral rights of the residential property owners adjacent to Beach Boulevard.

The stretch of beach fronting the exclusively residential area south of the Washington Street commercial area and extending to the drainage outfall just north of Ramaneda Street is designated Category II. New development in this area should be limited to an expanded sand beach and new parking facilities on the seaward side of Beach Boulevard. Beach users should be discouraged from parking alongside Beach Boulevard in front of the homes south of Ballintine Street.

Replenishment of the sand beach in this planning unit to accomodate expanded recreational use should require extension and elevation of the drainage outfall just north of Ramaneda Street to help hold the new beach in place.

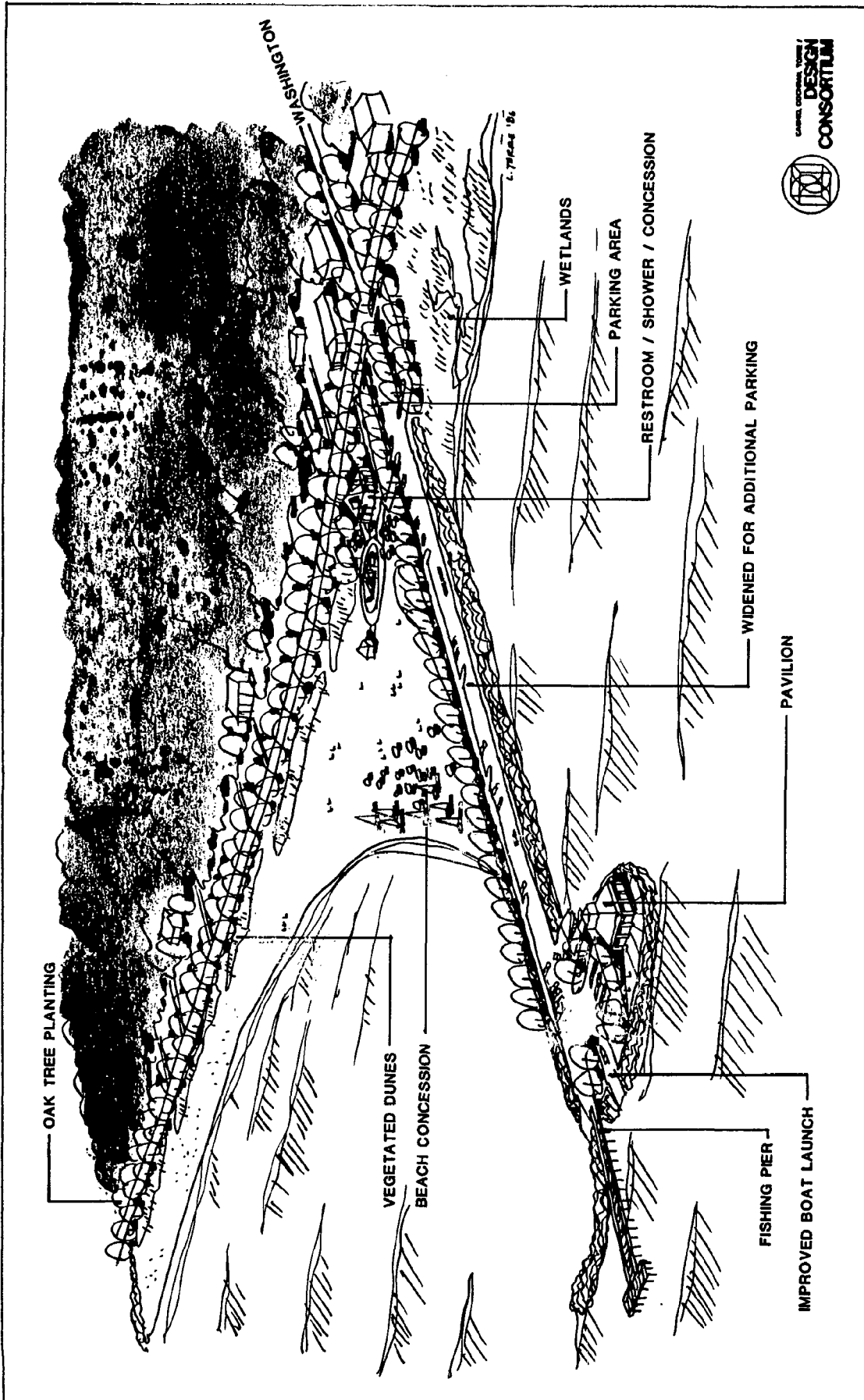


FIGURE 14: RECREATIONAL ACTIVITY CENTER AND BEACH PARK; AMERICAN LEGION PIER

RAMANEDA/BAY OAKS PLANNING UNIT

Management Category:
Conservation - Neighborhood Recreation

There is currently little or no beach against the seawall in this planning unit which extends from the drainage outfall just north of Ramaneda Street to the Bay St. Louis/Waveland corporate boundary. The existing shorefront development is exclusively residential and the shorefront properties are all zoned for residential use.

Management Policies

The shoreline in this planning unit is designated for beach replenishment only as necessary to serve shore protection needs. If a new beach is established for shore protection purposes in this area, extension and elevation of the drainage outfall near Bay Oaks Drive will be necessary to stabilize the sand. The area is not designated for new facility development or increased recreational use, and the existing residential character of the area should be maintained.



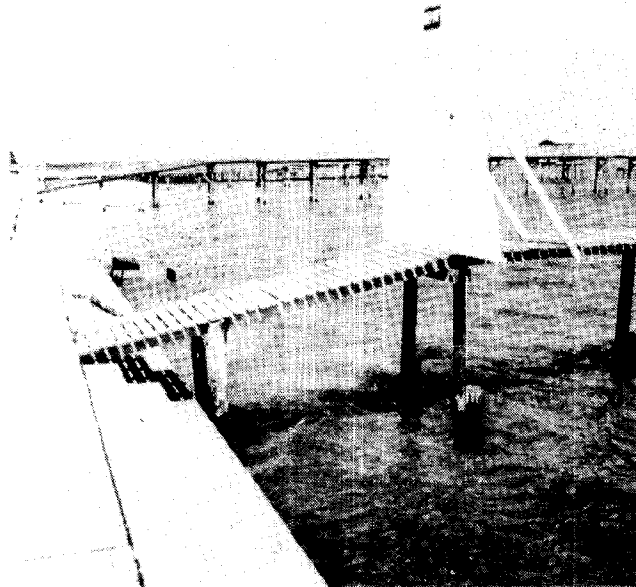
Drainage Outfall and Shoreline Near Ramaneda St.

BAY OAKS/WHISPERING PINES PLANNING UNIT

Management Category:
Conservation - Neighborhood Recreation

This planning unit extends from the Bay St. Louis/Waveland boundary on the north to the drainage outfall just south of Whispering Pines Road. The beach in this area is almost totally eroded in the northern part of the planning unit but widens toward the drainage outfall. Overall, however, the beach is considerably narrower than the beach south of the American Legion Pier, and the shoreline is marked by a number of private piers. The beach is a low intensity use area easily distinguished from the heavily used Nicholson Avenue beach just to the south.

The shorefront development and zoning in this area are exclusively residential. Although the beach area is used primarily by local residents, some parking for the nearby Nicholson Avenue beach does occur in the public right-of-way on the west side of Beach Boulevard, adjacent to the private homes in this area.



Private Piers and Narrow Sand Beach

Management Policies

This area is designated for beach replenishment only as necessary to serve shore protection needs. The area is not designated for new facility development or increased recreational use. The existing residential character of the area should be maintained. Where parking for beach use has traditionally taken place alongside Beach Boulevard, minimal parking improvements should be made to the extent possible.

CHAPTER FOUR: WAVELAND (and unincorporated area)

This chapter includes recommended management policies and development concepts for each of the following planning units in the City of Waveland and the unincorporated area to the south:

- **Bay Oaks / Whispering Pines**
- **Nicholson Avenue**
- **Coleman Avenue**
- **St. Clair / Waveland Boulevard**
- **Gulfside Assembly**
- **Buccaneer Park**
- **Clermont Harbor**
- **Bayou Caddy**

Two recreational activity centers are proposed for development: at the intersection of Coleman Avenue and Beach Boulevard; and at Buccaneer Park. Each of these proposed centers would be flanked by beach parks.

NICHOLSON AVENUE PLANNING UNIT

Management Category:
Conservation - Neighborhood Recreation

Extending from the drainage outfall just south of Whispering Pines Road to the drainage outfall between Nicholson Avenue and Mollere Drive, this planning unit contains one of the more intensively used beach areas in the County. The beach here is stabilized somewhat by two drainage outfalls which act as sand retention structures.

Nicholson Avenue, a direct access route to Highway 90 West to New Orleans, bisects the planning unit. The beach is a popular recreation area for day trip visitors from Louisiana who park on the public right-of-way between Beach Boulevard and the shorefront homes. There are, however, no facilities for beach users. Conflicts between beach users and beachfront property owners are intense in this planning unit. These conflicts are caused by litter, noise, traffic, parking and other nuisance problems associated with high intensity beach use.

The existing shorefront development is exclusively residential, as is the current zoning.



Nicholson Avenue Beach Area

Management Policies

This area is not designated for new recreational facility development or expanded beach use. Efforts should be undertaken to discourage the continued high intensity use of the beach and to redirect beach users to new beach and recreational activity centers recommended for development in the American Legion Pier, Coleman Avenue, and Buccaneer Park planning units. The existing residential character of this planning unit should be maintained. Where parking for beach use has traditionally taken place alongside Beach Boulevard, minimal parking improvements should be made to the extent possible.

Extension and elevation of the drainage outfall approximately 1,000 feet to the east of Nicholson Avenue should help to stabilize beach replenishment that may be necessary for shore protection purposes.

COLEMAN AVENUE PLANNING UNIT

Management Categories:

New Facility Development (Activity Center)

New Facility Development (Beach Park)

This planning unit extends from the drainage outfall marking the southern boundary of the Nicholson Avenue planning unit to the drainage outfall just north of St. Clare School. The shorefront development is primarily residential but commercial development and commercial zoning are found along Coleman Avenue which intersects Beach Boulevard in the center of the planning unit. At the intersection of Coleman Avenue and Beach Boulevard, multi-family residential development is currently under construction. The Garfield Ladner Memorial Fishing Pier and a smaller, unused rock/pier structure are also found in this planning unit.

There are no user-related facilities convenient to the sand beach in this area. As in the Nicholson Avenue area, beach users park alongside Beach Boulevard on the right-of-way in front of the shorefront homes. Beach maintenance operations are carried out

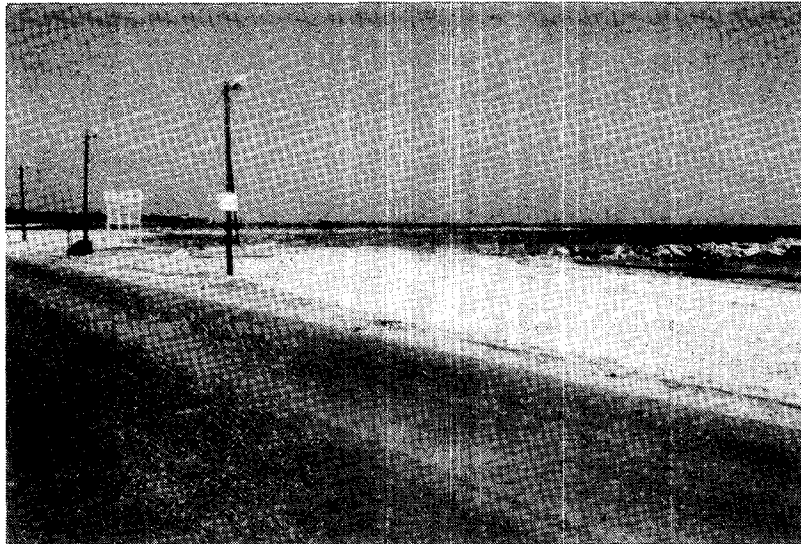


Coleman Avenue Beach Area

by the County District Supervisor while the City of Waveland is responsible for the Ladner Pier. The same sorts of conflicts (caused by noise, litter, and parking problems) between beach users and shorefront property owners exist in this planning unit as in the Nicholson Avenue area.

The drive along Coleman Avenue toward the shoreline presents a pleasing view of the Mississippi Sound in the distance, and instills the visitor with a certain sense of anticipation. Upon arriving at Beach Boulevard, however, this anticipation is not realized. There are no water-related facilities other than the underutilized Ladner pier.

City officials have recently expressed an interest in pursuing the development of a municipal marina in this area. Although the County had once promoted the development of such a marina further south at Bayou Caddy (see Bayou Caddy Planning Unit), there appear to be advantages to building a recreational marina in the Coleman Avenue area. The principal advantages are dredging and dredged material disposal-related. The Coleman Avenue site is not as near to fishing grounds and deep water as Bayou Caddy, however, and the proposed development of a marina near Coleman Avenue may raise objections on the part of some nearby waterfront property owners.

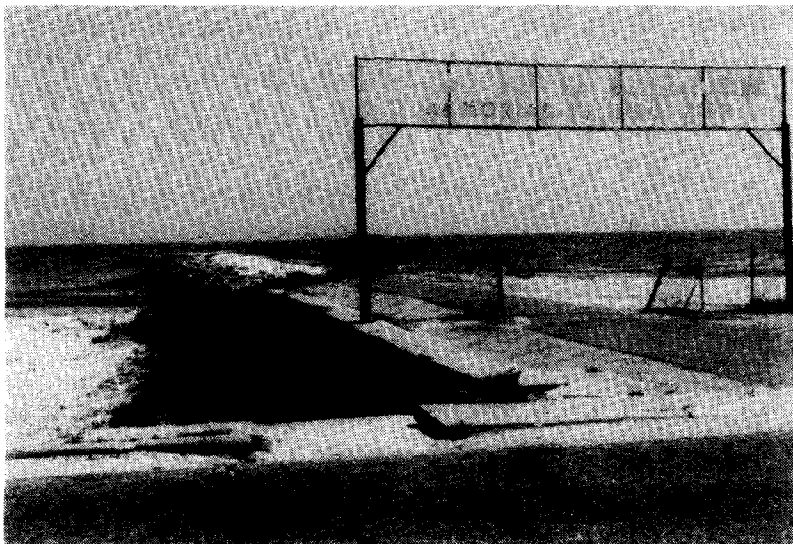


Coleman Avenue (Looking Toward Mississippi Sound)

Management Policies

This planning unit is a priority area for new recreational facility development and the construction of an expanded sand beach. To help stabilize this beach, the drainage outfall approximately 800 feet to the east of Mollere Drive should be extended and elevated. Two separate management categories are designated. The area at the foot of Coleman Avenue, including the Ladner Pier, the smaller rock/pier structure and the area between the two piers, is designated for Category I new facility development. (See Figure 15.) Consistent with plans currently being formulated by the City of Waveland, new facilities to be considered should include a public marina, pavilion, restrooms, showers, concession and picnic area. These facilities should be designed to support expanded recreational activities for local residents and visitors from outside the County, and should include appropriate linkages to the Coleman Avenue commercial area inland of Beach Boulevard. New facilities should be sited so as not to interfere with the littoral rights of the residential property owners adjacent to Beach Boulevard.

The beach areas fronting the exclusively residential areas on each side of the proposed activity center (south of Coleman Avenue and north of Terrace Street) are designated for Category II use. New development in these areas should be limited to sand beach expansion and new parking facilities on the seaward side of Beach Boulevard. Beach users should be discouraged from parking adjacent to the residential areas alongside Beach Boulevard.



Ladner Pier

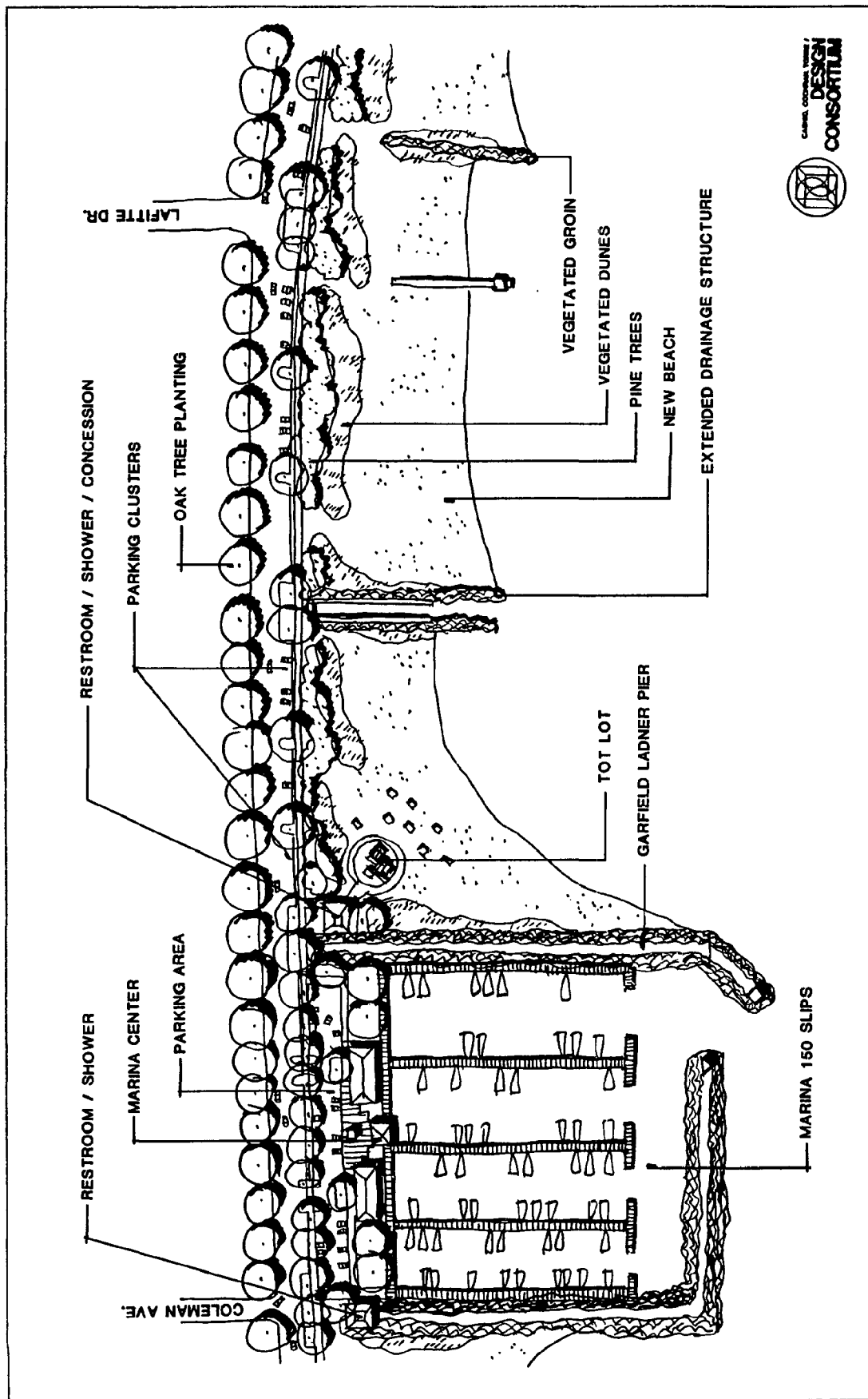


FIGURE 15: RECREATIONAL ACTIVITY CENTER, MARINA AND BEACH PARK; COLEMAN AVENUE

ST. CLARE/WAVELAND AVENUE PLANNING UNIT

Management Category:
Conservation - Neighborhood Recreation

There is currently no beach adjacent to the seawall in this planning unit which extends from the drainage outfall and private pier just north of St. Clare School to Waveland Avenue. With the exception of the school, beachfront development is exclusively residential and the zoning is also exclusively residential.



Shorefront Near St. Clare School

Management Policies

The shoreline in this planning unit is designated for beach replenishment only as necessary to serve shore protection needs. To help stabilize beach replenishment for shore protection purposes, a new groin or equivalent structure in the vicinity of Oak Boulevard should be constructed. The area is not designated for new facility development or increased recreational use. The existing residential character of the area should be maintained.

GULFSIDE ASSEMBLY PLANNING UNIT

Management Category:
Conservation - Neighborhood Recreation

This planning unit extends from Waveland Boulevard to the Gulfside Assembly entrance. There are a few private piers in this area and two small "pocket" beaches updrift of the drainage outfalls near Sears Avenue and Dane Road. The Gulfside Assembly is the only non-residential development in the planning unit. The zoning is exclusively residential and the pocket beach areas are used by local residents.



"Pocket" Beaches Near Gulfside Assembly

Management Policies

This area is designated for beach replenishment only as necessary to serve shore protection needs. Extension and elevation of the drainage outfall just east of Sears Avenue should help stabilize a replenished beach in this area. The area is not designated for new facility development or increased recreational use. The existing residential character of the area should be maintained.

BUCCANEER PARK PLANNING UNIT

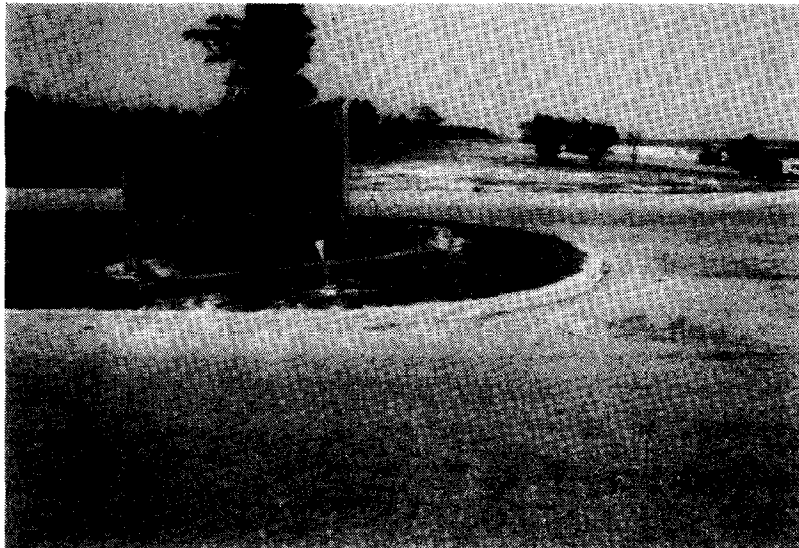
Management Categories:

New Facility Development (Activity Center)

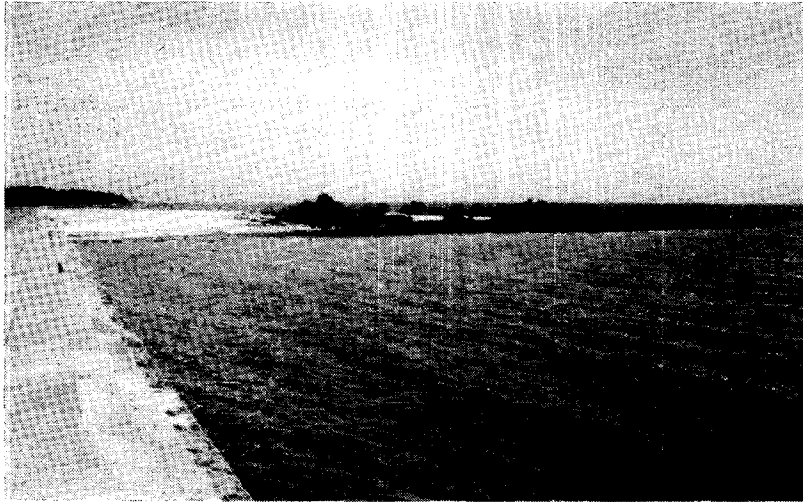
New Facility Development (Beach Park)

The Buccaneer Park planning unit is located between the Gulfside Assembly and the Clermont Harbor area. The planning unit contains four small pocket beach areas located across Beach Boulevard from the entrances to the Buccaneer State Park. Although these beaches are small, they are often crowded with park visitors. The beaches are held in place by three drainage outfalls and a rock pile which function as groynes to trap sand on their updrift sides.

The park provides picnic and camping facilities and also a wave pool which is especially popular with visitors from outside the County (particularly from New Orleans) who arrive by the busload on summer weekends. Income generated by the wave pool and associated food concession has made Buccaneer Park the largest revenue producer of all the state parks in Mississippi.



Entrance to Buccaneer State Park



Small Beach and Wetland Near Buccaneer Park

There are actually two park areas, separated by a large expanse of tidal marsh, on the inland side of Beach Boulevard. The first area, close to the Gulfside Assembly, contains a picnic pavilion and some camping facilities. The second, larger area, contains the wave pool, a large parking lot, picnic facilities and a more extensive camping area. This larger area is separated from the Clermont Harbor planning unit by another large expanse of marsh. The park is served by municipal sewer and water lines which run along Beach Boulevard.

There is no residential development in this planning unit and, with the exception of the park area, much of the land area inland of Beach Boulevard is tidal marsh.



Tidal Marsh Inland of Beach Blvd. Near Buccaneer Park

Management Policies

This planning unit should be considered a priority area for construction of an expanded and continuous sand beach which would allow the development of new recreational facilities seaward of the seawall. (See Figure 16.) Two separate management categories are designated. The beach area near the entrance to the wave pool is designated for Category I new facility development. New facilities to be considered include a pavilion, pier, restrooms, showers, and a concession area designed to create a high use activity center. This activity center should be designed to support expanded use by local residents and also visitors from outside the County. The opportunity for County/local/state cooperation in the financing, construction and management of such a facility should be pursued. For example, the feasibility of the State Parks Commission operating the activity center for both park visitors and other beach users should be evaluated.

The shoreline on both sides of the new activity center is designated Category II. New development in these areas should include sand beach expansion and new parking facilities on the seaward side of Beach Boulevard.

Concurrent with beach replenishment for recreational use in this planning unit, existing drainage outfalls in the following locations should be extended and elevated to help hold the expanded beach in place:

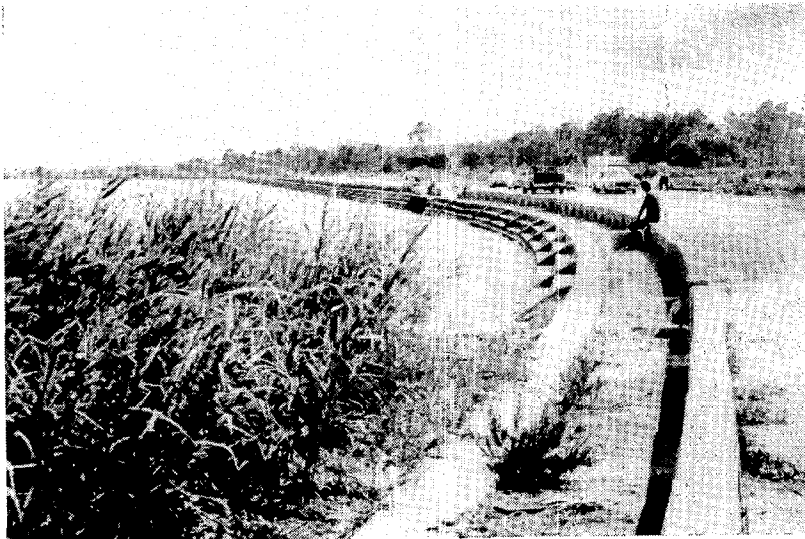
- adjacent to Buccaneer Park picnic pavilion and camping area just east of entrance to Wave Pool;
- approximately 1600 feet to the west of entrance to Wave Pool;
- approximately 2800 feet to the west of entrance to Wave Pool; and
- approximately 4000 feet to the west of entrance to Wave Pool.

**Unincorporated Area
Bayou Caddy Planning Unit**

**Management Category:
Conservation - Neighborhood Recreation**

There is currently no beach in this curving stretch of shoreline between Poinset Street and the Bayou Caddy Commercial Fishing Harbor. In this area the Hancock County seawall is lowest in elevation above sea level and serves as a platform for recreational fishing. Most of the land area shoreward of Beach Boulevard is marsh although a few small cottages are located near Lakeshore Road, and there is parking space for recreational fishermen alongside the roadway.

Plans are currently being pursued by the Mississippi Bureau of Marine Resources and Hancock County to expand and enhance the Bayou Caddy Commercial Fishing Harbor. Some of the difficulties associated with enhancement of the harbor, however, include the poor quality of material to be dredged, the lack of a nearby disposal area, and the lack of municipal utilities serving the site.



Hancock County Seawall Near Bayou Caddy

Management Policies

This area is not designated for beach replenishment or for new recreational facility development. Shore protection measures should allow continued use of the shorefront in this area for recreational fishing purposes. Accordingly, a sand beach should not be established in this area and an alternative measure (a sloping rock revetment, for example) should be employed to protect this area from waves and high water. Parking improvements along Beach Boulevard should be undertaken to serve the needs of recreational fishermen.



Bayou Caddy Commercial Fishing Harbor

PART III:

PLAN IMPLEMENTATION

CHAPTER FIVE: IMPLEMENTATION STRATEGIES

This Chapter contains recommended strategies for implementing the Sand Beach Master Plan. The recommendations address:

- **Administrative Organization and Responsibilities, including the establishment of a new Hancock County Sand Beach Commission.**
- **Implementation Priorities.**
- **Potential Funding Sources, emphasizing increased allocations of seawall and road protection tax revenues for beach maintenance and erosion control.**

ADMINISTRATIVE ORGANIZATION AND RESPONSIBILITIES

As described earlier, there are several governmental entities currently exercising administrative and operational roles and responsibilities affecting the Hancock County shoreline. By law, the Hancock County Board of Supervisors exercises primary control over beach operations, and the cities of Bay St. Louis and Waveland also conduct beach-related activities in certain areas. Implementation of the Master Plan for Shorefront Protection and Utilization will require coordinated efforts on the part of the County and the cities, as well as the involvement of the State Parks Commission and the Bureau of Marine Resources at the state level, and the Corps of Engineers at the federal level.

Recommended Administrative Structure

Implementation of the far-reaching recommendations and proposals contained in the Master Plan will require the establishment of a more streamlined and coordinated structure for administration of beach-related affairs. (See Plan Recommendations for Administration and Financing in Chapter 1.) The County should assume a lead role in Plan implementation, but the affected municipalities must also play a major role, and individual Plan components must be planned, designed, and constructed in a manner consistent with local zoning and other applicable regulations. The five Plan recommendations discussed below are directed toward the establishment of a new administrative structure under the auspices of a new Hancock County Sand Beach Commission.

1. Establish Memorandum of Agreement between the Board of Supervisors, Municipalities and the State Parks Commission Regarding Participation in Implementing Beach Improvements.

This memorandum will formalize the roles to be played by the County, the participating cities and the State Parks Commission in implementing the Plan. The document should signify adoption of the Plan as policy by the signatory bodies, should stipulate specific activities and financial commitments to be made, and should define responsibilities regarding construction within jurisdictional boundaries, manpower commitments, and maintenance responsibilities for new facilities to be built.

2. Establish a Hancock County Sand Beach Commission.

In order to effectively implement all elements of the Master Plan, a degree of inter-governmental and inter-agency coordination not previously experienced with regard to sand beach affairs will be required. An institutional mechanism to assure coordination among ongoing beach-related activities, as well as new activities envisioned by the Plan, is needed. Implementation of the Plan will require a variety of coordinating activities that can best be handled by one group with the multi-governmental representation and overall responsibility necessary for centralizing the administration of all beach operations.

A new administrative body — the Hancock County Sand Beach Commission — should therefore be established by the Hancock County Board of Supervisors to oversee day-to-day maintenance of a renourished and expanded beach and to exercise primary responsibility for implementation of the Master Plan. The Commission should consist of representatives from Bay St. Louis and Waveland; each Mayor and District Supervisor should appoint a member to the Commission, and the terms of each member should be staggered to maintain continuity. The Commission should be responsible for overseeing and coordinating all actions of local, state and federal agencies on matters pertaining to the sand beach and related areas.

Specific activities of the Commission should include, but not be limited to:

- Preparation and review of annual capital improvement plans for facilities development to ensure consistency with priorities established in the Plan.
- Coordination of local, state, federal, and private funding sources.
- Review of designs for new facilities to ensure conformance with the Plan and with local regulations.
- Coordination with the State Parks Commission, Corps of Engineers, Bureau of Marine Resources, and other governmental bodies regarding beach replenishment, erosion control, new facility development, and other aspects of Plan implementation.
- Review and approval of bids for concessions.
- Promotion of public awareness.
- Direction and coordination of sand beach and facilities maintenance operations.

- Monitoring overall progress of Plan implementation.
- Working with the private sector to develop joint public-private ventures for funding and maintenance of facilities.

3. Establish a County Beach Maintenance Department

The County should establish a new department with specific responsibilities for maintaining a renourished and expanded sand beach, as well as new recreational facilities. This department should have its own budget and report to the Sand Beach Commission. The cities of Bay St. Louis and Waveland should also contribute to beach and facility maintenance in specific areas designated as recreational activity centers. The Mississippi State Parks Commission should contribute to beach and facility maintenance efforts near Buccaneer State Park. The Beach Commission should coordinate County, city and state maintenance efforts in accordance with responsibilities established in the Memorandum of Agreement.

4. Assign Beach Replenishment Responsibilities to the New Beach Commission.

Replenishment of the sand beach is an integral part of the Master Plan and ties in closely with both erosion control and recreational facility improvement. Consequently, to insure that replenishment is accomplished in compliance with the Plan, the Beach Commission should work with the Corps of Engineers regarding beach replenishment studies and projects, and all future beach replenishment programs should be overseen by the Commission.

5. Establish Erosion Control Task Force.

Erosion control measures recommended in the Plan for stabilizing a renourished sand beach include a sophisticated arrangement of stabilizing structures, dunes, and vegetation plantings designed to hold sand. The County should establish an Erosion Control Task Force to oversee and supervise actual dune construction, placement of sand fencing, establishment of vegetation and construction of stabilizing structures. The Task Force should consist of representatives from the following

agencies which have indicated their support for an erosion control program:

Hancock County Soil & Water Conservation District

U.S. Dept. of Agriculture Soil Conservation Service, Plant Materials Center

Mississippi Department of Wildlife Conservation, Bureau of Marine Resources

Gulf Coast Research Laboratory

Mississippi/Alabama Sea Grant Advisory Service

U.S. Army Corps of Engineers, Mobile District

Hancock County Civil Defense

Southern Mississippi Planning & Development District

IMPLEMENTATION PRIORITIES

Part II outlined a number of area-specific proposals and recommendations for recreational facilities and erosion control measures in each of 14 shorefront planning units. When considered in total, these proposals and recommendations represent a long-range Plan for beach development and shore protection. This Plan will require a number of years for implementation and should ultimately result in a beach environment quite different in both appearance and function from the environment which currently exists. Given the high costs of full implementation and the major changes in beach environment envisioned, development of Plan proposals should proceed in several phases. The phased approach is necessary because of the initially limited availability of funds for implementation and because of the need for demonstrating the successful operation of basic plan concepts on a relatively small scale at first, then gradually developing a broad, solid base of public support for full implementation.

Two Plan implementation phases should be established, based on the identification of projects for: (1) Immediate Action; and (2) Longer-Term Action. Unit costs for key facility components and erosion control measures have been estimated, and sources of funds for some individual projects are recommended.

Phase One: Immediate Action

Phase One activities should be initiated as soon as possible following adoption of the Master Plan. The immediate action activities should consist of:

- Emergency roadway repairs to Beach Boulevard.
- Beach replenishment (with erosion control and shore protection measures) in Category II and III areas requiring emergency shore protection.
- Beach replenishment (with erosion control) for enhanced recreation in Category I areas.
- Recreational facility development in Category I areas in coordination with selected plans pending implementation by municipalities.
- Recreational facility planning and development in the Buccaneer Park area in coordination with the Mississippi State Parks Commission.

Beach Replenishment

As noted earlier, the U.S. Army Corps of Engineers is in the early stages of conducting a feasibility study for erosion control and beach replenishment assistance. The time frame for completion of the draft feasibility study is December, 1986; a final draft should be completed by April, 1987; and final COE recommendations can be expected by October, 1987. If the project receives a positive recommendation from the Chief of the Engineers, then the project will be sent to the sponsoring Congressional Committee for authorization and appropriation. Congressional authorization might follow one legislative session or require several depending on the mood of Congress, the total cost of the project compared to its benefits, and Hancock County's commitment of matching funds. In any event, given the schedule for completion of the feasibility study, a major, federally funded beach replenishment effort can not be initiated before 1988, at the earliest.

Beach Erosion Control Measures

In conjunction with extensive beach replenishment, it will be necessary to implement sand conservation measures to stabilize and thereby prolong the life of the renourished beach. This will include the upgrading of several shore-perpendicular structures to control longshore sand losses and the implementation of measures (e.g., relocation of sand across the beach profile and dune stabilization by vegetation and fencing) to limit wind-blown sediment. Stabilization of the placed sand will require the construction of several new structures, such as groins or their equivalent, and the lengthening of existing structures as described in Chapters 3 and 4.

In addition to shore-perpendicular structures for the reduction of sand losses caused by longshore sediment transport, the control of wind-blown sand on an expanded sand beach can be accomplished either by mechanical relocation of sand soundward on a biennial basis or by establishment of vegetated dunes (possibly in combination with sand fencing). Minimum initial and annual maintenance costs for vegetated dunes are estimated at \$3.00 and \$1.00 per foot, respectively. These cost estimates should be refined based on the experience of the test plantings currently being evaluated on the Harrison County beaches. If those test plantings demonstrate good survivability and minimal vandalism problems, then it is recommended that vegetated dunes be established in appropriate

Category II and III areas where an expanded sand beach is recommended for shore protection purposes.

Figure 17 summarizes recommended shore protection and erosion control measures associated with large-scale beach replenishment for shore protection and recreational development. (Not all of these measures will be implemented in Phase One.)

Recreational Facilities

Recommendations for recreational facility development to be implemented in Phase One include:

- Planning, design and construction of recreational facilities (e.g., pavilion, restrooms, showers, picnic areas, and concession) in the Category I area of the American Legion Pier planning unit.
- Planning, design and construction of recreational facilities in the Coleman Avenue Category I area, in coordination with plans being formulated by the City of Waveland.
- Planning, design and construction of recreational facilities for the Category I area of Buccaneer Park (e.g., pavilion, pier, restrooms, showers, boardwalks, concession area).

Figure 18 lists potential funding sources for these recreational development activities. Estimated unit costs for the development of recreational and supporting facilities are shown in Figure 19, and Figure 20 illustrates a sample total project cost based on unit cost estimates. Because the sites marked for development along the shoreline vary, and because the size and configuration of particular facilities will vary, preparation of detailed designs for each site should be the first step in the implementation process. After detailed designs are completed, more specific cost estimates should be prepared.

FIGURE 17:
**SUMMARY OF RECOMMENDED SHORE PROTECTION
AND BEACH EROSION CONTROL MEASURES**

<u>Type of Activity</u>	<u>Est. Cost</u>
1. Beach replenishment; design beach 200 feet wide; crest elevation 5 feet above mean sea level.	[\$To be determined]
2. Beach replenishment as necessary for shore protection purposes in Category III areas.	[To be determined]
3. Construction of new structures for stabilization of placed sand (groins or equivalent structures):	
- Ulman Ave. Planning Unit: 200-foot groin at the base of McDonald Ave.	\$ 40,000
- St. Stanislaus Planning Unit: 200-foot groin near the base of Union St.	30,000
- St. Clare/Waveland Ave. Planning Unit: 300-foot groin in the vicinity of Oak Blvd.	35,000
4. Lengthening and elevating existing structures: projections of 300 feet from seawall; crest elevations of 5-6 feet:	\$5,000 - 15,000 per structure
- American Legion Pier Planning Unit: drainage outfall just north of Ramaneda St.	
- Ramaneda/Bay Oaks Planning Unit: drainage outfall near the base of Bay Oaks Drive	
- Nicholson Ave. Planning Unit: drainage outfall approx. 1,000 feet east of Nicholson Ave.	
- Coleman Ave. Planning Unit: drainage outfall approx. 800 feet east of Mollere Dr.	
- St. Clare/Waveland Ave. Planning Unit: Drainage outfall just east of Sears Ave.	
- Buccaneer Park Planning Unit: Drainage outfalls	
- adjacent to Picnic Pavilion & Camping Area	
- just east of entrance to Wave Pool	
- approx. 1,600 ft. west of entrance to Wave Pool	
- approx. 2,800 ft. west of entrance to Wave Pool	
- approx. 4,000 ft. west of entrance to Wave Pool	
5. Mechanical relocation of sand Soundward on a biennial basis in Category I High Use Activity Areas	
6. Vegetated dunes in Category II and III areas	\$120,000 (initial) 45,000 (annual)

FIGURE 18:
IMPLEMENTATION OF PHASE ONE RECOMMENDATIONS
FOR RECREATIONAL FACILITIES

Planning Unit	Type of Activity	Source of Funds
American Legion Pier (Bay St. Louis)	Category I: Planning design and construction of re- creational facilities.	Road Protection & Seawall Taxes County District 4 City of Bay St. Louis County Recreation Fund
Coleman Ave. (Waveland)	Category I: Design of recreational facilities and parking site plans in coordination with City of Waveland's plans for recreational development.	Road Protection & Seawall Taxes County District 1 City of Waveland County Recreation Fund
Buccaneer Park (Waveland)	Category I: Design of recreational facilities and parking site plan in coordination with MS State Park Commission.	Road Protection & Seawall Taxes County District 1 City of Waveland MS State Parks Commission County Recreation Fund

FIGURE 19: UNIT COSTS FOR RECREATIONAL FACILITIES

Structures	
All wood; built to local and federal standards for structures in beach zone subject to hurricane force storms; handicapped access where required.	
<u>Picnic shelters</u>	
20' x 20'; concrete floor	\$10,000 each
<u>Play area</u>	
Incl. play equipment and low curb	\$15,000 - 25,000 each
<u>Restroom/showers</u>	
In street right-of-way; elevated for storm protection; handicapped access; utilities under highway by others; 20' x 30'	\$40,000 each
<u>Temporary Restroom</u>	
4-stall unit; enclosure to coordinate with other design elements	\$ 5,000 each
<u>Restroom/shower/concession</u>	
In high-use areas; utilities under highway by others; 30' x 40'	\$110,000 each
<u>Major Facilities</u>	
Restroom/showers/concessions & restaurant; joint public-private	

Pedestrian Walkways	
<u>Concrete sidewalk</u>	
6' wide, placed on grade	\$ 11/lin.ft.
10' wide, placed on grade	\$ 18/lin.ft.
<u>Boardwalk</u>	
10' wide, elevation less than 6'	\$200/lin.ft.
10' wide, elevation 10'	\$250/lin.ft.
<u>Plank & cable walk through dunes</u>	
10' wide	\$ 40/lin.ft.
Control rail	\$ 7/lin.ft.
Graphics (re:dune protection)	\$100 each

FIGURE 19: (Continued)

Parking Areas

Parking at 90° angle to Beach Blvd.

Asphalt with signs,
wheel stops, meters
Each 20 spaces \$8,000

Opportunity area north of seawall

Asphalt on sand with parking meters,
signs, and 8 x 8 wood post and rail.
Base of 60 spaces \$70,000
Each additional 20 spaces \$20,000

Parking south of seawall

Asphalt on sand with parking meters,
signs, and 8 x 8 post and rail.
Base of 60 spaces \$85,000
Each additional 20 spaces \$20,000

Plantings*

Live oak trees

Depending on size \$ 100-300 each

Palm trees on beach

Depending on size \$ 200-300 each

Small flowering trees

Depending on size \$ 100-200 each

Shrubs

Depending on size \$ 15-40 each

Pine tree group

Typical mass 76 plants
(300' x 50' planted) \$ 3,500-4,500

* Prices include maintenance until plants
are established. Some demolition may be
required for oak tree planting in some areas.

FIGURE 20:
COST ESTIMATE FOR A TYPICAL CATEGORY I
BEACH RECREATION AREA

Parking Area (south of seawall 200 spaces)	\$ 90,000
Restroom/showers/concessions (1200 sq. ft.)	90,000
Pavilions (400 sq. ft.)	10,000
10 Sun Shelters	5,000
Beach Playground	15,000
Landscaping	10,000
Erosion Control	5,000
Other Equipment	10,000
Contingency	<u>15,000</u>
Est. Total Cost	\$250,000

Phase Two: Longer-Term Action

Longer-term activities should affect all of the planning units, and should address the desired long-term future of the sand beach in a manner which optimizes the economic and recreational opportunities of the beach. Phase Two could include expansion of Phase One projects, as well as other activities made possible as a result of a major beach replenishment project.

Phase Two activities should be initiated as soon as funds are available and in accordance with public attitudes following implementation of the Immediate Action Program. Specific Phase Two activities should include:

- Expansion of erosion control measures to all Category III areas.
- Recreational facility development in selected areas identified for beach improvements in the downtown Bay St. Louis area.
- Design and construction of recreational facilities in Category II areas (Ulman Avenue, American Legion Pier, Coleman Avenue, and Buccaneer Park).

Figure 21 summarizes recreational facilities recommended for development in Phase Two.

FIGURE 21:
IMPLEMENTATION OF PHASE TWO
RECOMMENDATIONS FOR RECREATIONAL FACILITIES

Planning Unit	Type of Activity	Source of Funds
Ulman Ave. (Bay St. Louis)	Category II: design and construction of recreational facilities in coordination with plans for a municipal neighborhood park.	Road Protection & Seawall Taxes County District 3 City of Bay St. Louis County Recreation Fund
Downtown Bay St. Louis (Bay St. Louis)	Category I: development of recreational facilities in coordination with Urban Waterfront redevelopment plans.	Road Protection & Seawall Taxes County District 5 City of Bay St. Louis County Recreation Fund Community Development Block Grant
American Legion Pier (Bay St. Louis)	Category II: design and construction of new parking facilities for expanded beach area.	Road Protection & Seawall Taxes County District 4 City of Bay St. Louis County Recreation Fund
Coleman Ave. (Waveland)	Category II: design and construction of new parking facilities for expanded beach area.	Road Protection & Seawall Taxes County District 1 City of Waveland County Recreation Fund
Buccaneer Park (Waveland)	Category II: design and construction of new parking facilities for expanded beach area.	Road Protection & Seawall Taxes County District 1 City of Waveland County Recreation Fund MS State Park Commission

POTENTIAL FUNDING SOURCES

Constructing new facilities, replenishing the beach, and establishing erosion control measures in accordance with Master Plan recommendations, will require increased levels of funding for sand beach activities. Increasing existing funding levels will require taking some public revenues currently applied to programs not related to the sand beach and redirecting those revenues toward the beach, as well as obtaining additional capital and operating funds from new sources.

The potential of a number of local, state, and federal funding sources for contributing to implementation of the Master Plan has been evaluated. As noted in Chapter 1 (see Plan Recommendations for Administration and Financing), local funding sources have been chosen to form the financial base for implementing the Master Plan.

The basic recommendations for financing implementation of the Master Plan are as follows:

- Revenues from the special 3 cents/gallon tax on gasoline (seawall tax) and the 1½ cents/gallon road protection tax should be the principal sources of funding for all shore protection and beach maintenance activities.
- The Board of Supervisors should consider levying a special tax in accordance with County recreation laws to support public recreational development.
- The development of public/private partnerships should be pursued to aid in the financing of new recreational facilities.
- Beach user fees should be applied where practical to help defray construction, operation, and maintenance costs for recreational facilities and erosion control measures.
- The Board of Supervisors should consider adding a special sales tax on food, beverages and lodging to help finance beach improvements and user facilities.
- State and federal funding sources should also be utilized in the financing of beach improvements.

Potential Local Funding Sources

As noted earlier, funding sources for some of the existing beach-related activities carried out by local government entities are authorized by specific state statutes. A review of these statutes has revealed opportunities for financing beach improvements in Hancock County. The following sections describe potential local funding sources as authorized by specific chapters of the Mississippi Code.

Chapter 9 - County Park System

The five-member Hancock County Park Commission has full authority and responsibility to develop, operate and maintain any or all of the County's recreational resources and facilities. The County Park Commission may hire employees, collect fees for park use, and operate or lease concessions (MSS Code Sections 55-9-83 and 55-9-85). This Commission can join with other commissions, municipalities or authorities in establishing, maintaining and operating any public park or recreational facility and can accept funds from any source and levy up to 2 mills to accomplish these purposes. Because of the recreational functions which a renourished beach would provide, it would be possible to consider managing the entire sand beach operation, including maintenance of shore protection functions, as a County park and recreation system. The Board of Supervisors can levy a 2 mill County-wide tax and can allocate all or a portion of that collected in the municipalities for recreational improvements on the beach for the benefit of municipal residents.

Chapter 11 - County Port and Harbor Commission and

Chapter 9 - County Port Authority or Development Commission

Through the Hancock County Port and Harbor Commission (PHC), the Board of Supervisors has the authority to replenish County sand beaches (Section 59-9-21) by the issuance of general obligation bonds, or the Board of Supervisors may apply, for beach replenishment purposes, any funds made available to the Port and Harbor Commission. It has been suggested that if tourism is designated an "industry" under the definitions cited in MSS Code Section 55-9-5, then County funds designated for PHC use for industrial development purposes could be used to finance beach recreational facilities. Under current law, however, replenishment and the development and maintenance of

harbors appear to be the only beachfront-related projects for which Port and Harbor Commission funds may be applied.

Chapter 33 - Sea Walls

The five member Board of Supervisors has broad powers under this statute to erect, improve and maintain all necessary shore and road protection structures (MSS Code Section 65-33-1). Numerous methods of financing are also authorized under this Chapter to implement shore and road protection structures. The Board of Supervisors may issue general obligation or revenue bonds, borrow, collect fees and tolls, assess ad valorem taxes, levy automobile privilege license taxes, levy and collect motor vehicle license taxes, borrow money on the full faith and credit of the County, levy and collect gasoline excise taxes, and receive state and federal aid.

About 1928, the Board of Supervisors enacted a 3 cents per gallon special County tax (seawall tax) on gasoline to pay for the construction of the Hancock County seawall. After the original seawall construction bonds were retired, the seawall tax was continued and revenues from this tax, as well as surplus County funds, were used for debt service on the County's Port Bienville Industrial Park and Stennis Industrial Airport. As a result, the total seawall tax revenues available for shore protection and maintenance purposes were reduced. This allocation of seawall tax revenues for purposes other than shore protection is allowed by various statutes, under certain conditions as stated in MSS Code Section 59-9-53 and 59-9-57. (Recent seawall tax collections are shown in Table 1.)

The potential funding sources and options available for industrial development projects are as numerous as those available for shore protection purposes, but have not been as fully utilized. For industrial development purposes, the Board of Supervisors can issue bonds, borrow, assess taxes, collect fees and apply the proceeds from sale of lands or operation of industrial parks (MSS Code 1972, Section 59-9-53). However, because of the available surplus revenues traditionally generated by the seawall tax, revenue sources established specifically for industrial development purposes have not been utilized. These other sources should be utilized in order for additional seawall tax revenues to be available for shore protection purposes.

Table 2 shows the debt service requirements for retiring the construction bonds on the Port Bienville Industrial Park and Stennis Airport. There is a current outstanding balance of \$1,808,000, but by the end of 1993 the bonds will be completely retired if collections remain as expected and continue to be applied in the same manner. However, these funds should be available much sooner if the Board of Supervisors applies all or a portion of available industrial development revenues and proceeds estimated at \$2 million (MSS code of 1972 Section 59-9-53) to the retirement of the two major bond issues.

Table 1:
Annual Collections from
3¢ Special Tax (Seawall) on Gasoline

<u>Year</u>	<u>Amount</u>
1978	266,882
1979	301,658
1980	274,964
1981	297,362
1982	336,924
1983	350,477
1984	340,789

Source: Mississippi Motor Vehicle Comptroller, 1986.

Table 2:
Bond Payment Schedule Summary
Port & Harbor Bond & Interest Sinking Fund

<u>Year</u>	<u>Principal & Interest</u>
1986	213,000
1987	223,000
1988	233,000
1989	248,000
1990	258,000
1991	258,000
1992	175,000
1993	200,000
1994	- 0 -

Chapter 13 - Harbor Improvements by Coast Counties

This Chapter authorizes the Board of Supervisors to use and expend funds from the sale of bonds to develop and improve public harbors, breakwaters, docks, and recreational centers, and to purchase land and rights-of-way as necessary (MSS Code Section 59-13-1).

Chapter 15 - Small Craft Harbors

Under this Chapter, any municipality which has a population of 10,000 or more may be authorized to acquire land, harbor sites, and waterfrontage for the purpose of establishing, operating and controlling harbors and recreational parks. The municipality can accept grants, charge fees, lease and also levy sufficient millage in connection with the issuance of bonds for the specified purposes.

Chapter 37 - Streets, Parks and Other Public Property

The governing authority of any municipality may own, operate and regulate piers, pavilions, bathhouses, etc. for public recreational purposes through the use of streets or public landings or the procurement of same (MSS Code Section 27-37-13).

Ad Valorem

In Hancock County, a 1 mill Ad Valorem tax on the assessed County-wide valuation would generate approximately \$125,000.

Potential State Sources of Revenue

Bureau of Marine Resources

The Mississippi Department of Wildlife Conservation, Bureau of Marine Resources administers several grant programs (available for coastal planning as well as construction purposes), including those authorized by various sections of the Coastal Zone Management Act of 1972, as amended.

Potential Federal Funding Sources

Several federal programs have also been identified as potential funding sources for beach improvements and recreational facilities. The availability of funds through some of these programs could, however, be significantly curtailed by recent Administration proposals to reduce the federal deficit.

Economic Development Administration Programs

The Economic Development Administration provides grants for development facilities (public works) under Title I of the Public Works and Economic Development Act of 1965. Hancock County is located in an EDA-designated Redevelopment Area. Projects for funding are judged by estimated employment increases relative to the size of the grant. The EDA also requires a demonstration of feasibility for all proposed projects.

Docking facilities designed to stimulate the tourist industry are considered as project activities eligible for EDA public works grant assistance.

Community Development Block Grants

Under the Housing and Community Development Act of 1974, the Community Development Block Grant program allocates grants to urban areas. These grants can be used to fund facilities and infrastructure planned to support economic development.

Urban Mass Transit Administration Programs

The Urban Mass Transit Administration, U.S. Department of Transportation, administers a program of grants for mass transportation projects under Section 9 of the Urban Mass Transportation Act of 1964. This program provides for grants of up to 80% of eligible planning costs, and in some cases 50% of any net deficit operating costs. Funds are allocated by state, and within the state among specific areas. A proposed project must be described in an application to the UMTA Regional Office, and must be listed and described in an area plan for urban mass transit. A private developer or other private enterprise entity can operate the service under agreement with the grantee.

Land and Water Conservation Fund

Recreation grants are available through the Land and Water Conservation Fund administered by the National Parks Service of the U.S. Department of the Interior. Funds granted under this program can be used on a 50% local matching basis for acquisition of land for park or recreational use and for recreational facilities, including elements of pleasure-craft marina facilities. The Bureau of Recreation and Parks, Mississippi Department of Natural Resources, administers the Land and Water Conservation Fund at the state level. Final project approval rests with the Atlanta Regional Office of the National Parks Service.

NOAA/Fish & Wildlife Service Program

This program is administered jointly by the National Oceanic and Atmospheric Administration (U.S. Department of Commerce), and the U.S. Fish and Wildlife Service, and is authorized under the Fish Restoration and Management Act (the "Dingell-Johnson

Act"), as recently amended by the "Wallop-Breaux" Act. Funds from this program may be used to support recreational fishing development and can be used to construct piers, boat ramps, and other supporting facilities. Under the program, pooled proceeds from specific excise taxes are collected by the federal government and allocated to state governments on a formula basis, requiring a state match of 25% of the federal funds in each state. Under the amendment, more tax proceeds are available, the funding pool larger, and marine (salt water) fisheries resources and users are eligible.

U.S. Army Corps of Engineers

As described in Chapter 1 and Appendix A, the Corps of Engineers has recently completed a Reconnaissance Report recommending that a study of the Hancock County Shoreline be conducted to determine the feasibility of establishing a federal shore protection project. The Feasibility Study, which will be funded by the Corps (50%) and by Hancock County (50% matching funds), will make recommendations regarding the need for, and costs of, beach replenishment and other shore protection measures.

APPENDICES

APPENDIX A:

HISTORY OF BEACH AND SEAWALL CONSTRUCTION

HISTORY OF BEACH AND SEAWALL CONSTRUCTION

[Note: The information contained in this Appendix is taken largely from three sources: (1) the draft Phase I Survey Report on Beach Erosion Control and Hurricane Protection for Shores of Mississippi (Hancock County) by the U.S. Army Corps of Engineers, 1974; (2) "Shorefront Rehabilitation, a Proposed Plan of Action for Hancock County, Miss." prepared by Gulf Regional Planning Commission and Southern Mississippi Planning and Development District, September 1983; and (3) the National Shoreline Study, Regional Inventory Report, South Atlantic - Gulf Region, U.S. Army Engineer Division, South Atlantic Corps of Engineers, Atlanta, Georgia. The Corps of Engineers, Mobile District has recently completed a reconnaissance study of the Hancock County shoreline in preparation for studying the feasibility of a federal shore protection project, but this reconnaissance study is not yet available for public review.]

Background

Historically, shoreline erosion has caused significant problems in Hancock County. Over the years, incessant wind and wave action, flooding, inadequate drainage, beach erosion, and occasional hurricanes have caused millions of dollars in damage, limited economic growth, and presented life threatening situations to the people of Hancock County. The existing seawall and sand beach, as well as Beach Boulevard which runs alongside the seawall, have deteriorated significantly as a result of these natural forces.

Hancock County has no coastline on the Gulf of Mexico. The County's Mississippi Sound shoreline is protected by Cat Island and by the islands of the Louisiana marshes. The eastern boundary of Hancock County's coastal region is a center line through St. Louis Bay, one of the two inland bays on the Mississippi coast. The north shore of the bay, from the Harrison-Hancock County boundary to the mouth of the Jourdan River, is entirely marsh. Most of the County's eastern coast, from near the mouth of the Jourdan River to the mouth of Bayou Caddy, is protected by 11.5 miles of seawall built piecemeal between 1915 and 1928, and by an originally 6-mile long sand beach pumped into place along the Mississippi Sound side of the seawall in early 1967. A paved road (Beach Boulevard) immediately behind the seawall connects the various shoreline communities. At Bayou Caddy there is an abrupt change in topography. From Bayou Caddy westward the Hancock County coastal area is flat, drainage is poor, and the shoreline is almost entirely low salt marsh broken by numerous bayous and streams.

With the exception of a mile of school property, the entire Hancock County shoreline is privately owned.

Hancock County's 1980 population of 24,537 makes it the least populous of Mississippi's three coastal counties. Much of the population is concentrated near the coastal area from Bay St. Louis to Bayou Caddy. Considerable residential development has taken place in the County in recent years, particularly since the NASA Mississippi Test Facility was constructed. The coast westward from Bayou Caddy is undeveloped.

In past years, development in Hancock County has not kept pace with development in the two other Mississippi coastal counties. The area from Highway 90 to Bayou Caddy is appreciated to continue to develop as a residential area, while future development of the marshy shoreline westward of Bayou Caddy is unlikely.

Existing Shore Protection Works

The principal shore protection structure in Hancock County is the 11.5-mile seawall constructed by local interests between the Jourdan River and Bayou Caddy. The existing seawall consists of a variety of wall types and configurations. Between 1915 and 1920, the City of Bay St. Louis, together with St. Stanislaus College, built a series of seawalls 5,500 feet in length to protect the city's main business district. Another series of step-type seawalls was constructed by the County between 1926 and 1928. The total cost of original construction of these seawalls was approximately \$850,000. The adjoining roadway (Beach Boulevard) was initially constructed as a 24-foot double lane concrete structure, costing approximately \$350,000.

The seawall sections constructed by the City of Bay St. Louis include three sections of step-type walls and five varieties of upright concrete walls. The seawalls constructed by the County are reinforced concrete step-type slabs supported at the heel by reinforced concrete piling and at the toe by a curtain wall of interlocking concrete piles. Top elevations of both series of seawalls vary according to backshore elevations, and range from 2.78 feet above Mean Sea Level at Bayou Caddy to 11.0 feet at Bay St. Louis.

In 1929, local interests attempted to maintain a beach seaward of the seawall through construction of a series of low, short concrete groins. In 1941, small amounts of dredged fill were placed against the wall in another effort to establish a protective beach. Both of these efforts proved ineffective.

Historically, maintenance of the seawall by local interests has been limited to essential repair work after complete washouts of sections of Beach Boulevard during periods of intense coastal flooding. Following extensive damage to the seawall and adjoining roadway caused by Hurricane Betsy in September 1965, wall sections were repaired and a 6.1 mile stretch of protective sand beach was constructed along the more severely damaged sections from Clermont Harbor to Bay St. Louis. The sand beach was pumped into place early in 1967 and constructed to a 150-foot top width. Beach construction and seawall repairs were performed by the Federal Office of Emergency Preparedness.

Additional repairs to undermined sections of the seawall have since been realized indirectly as a result of repairs to Beach Boulevard by the Mississippi State Highway Department. Beach Boulevard is no longer a state highway, however, and its maintenance is now a County responsibility. In 1982, sections of the roadway were repaired by the County using Federal Coastal Energy Impact Program grant funds provided under the Coastal Zone Management Act of 1972.

Shoreline Erosion

The portion of the Hancock County shoreline northeast of Bayou Caddy has historically been subject to the forces of erosion. (See Appendix B.) Available surveys indicate that the magnitude of shoreline recession has been greatest near the mouth of Bayou Caddy. A total recession of about 750 feet occurred near the mouth of the Bayou during the 89-year period between 1852 and 1941. About a mile to the northeast, the shoreline eroded 250 feet in the 1852-1917 period and 300 feet in the 1917-1941 period for a total recession of 550 feet. Between two and three miles northeast of the Bayou, the 1852-1917 erosion was about 250 feet and the 1917-1941 erosion was about 100 feet, for a total recession of 350 feet. This trend continued northerly around Bay St. Louis to the mouth of the Jourdan River.

With minor exceptions, the existing seawall defines the 1941 shoreline. At many points in Bay St. Louis the seawall also coincides with the shoreline as it existed in 1917-1918. The position of the shoreline from the mouth of the Jourdan River to the mouth of Bayou Caddy was more or less fixed by construction of the seawall between 1915 and 1928, but prior to that period the shoreline was experiencing severe recession.

Essentially all natural beaches that existed seaward of the seawalls at the times of their construction have been eliminated by erosion. Since the design toe elevations of the seawalls generally approximated the elevations of the natural beaches, loss of the beaches has left many of the underlying cut-off walls exposed to all tidal stages in those areas where the walls are not protected by artificial fill. Many exposed cut-off walls have developed cracks, due to the improper driving of the cut-off walls and settling and shifting of some seawall sections as a result of decay of untreated timber supports and past storm damages. These cracks allow sand back-fill from behind the seawall and under the adjacent roadway to seep out, endangering the stability of the walls and undermining the adjoining road bed and sidewalk.

A detailed survey of the Hancock County seawalls following Hurricane Betsey in 1965 indicated the following: 252 linear feet of destroyed, buried or badly displaced seawall attributed directly to the hurricane; 729 linear feet of similar damages attributable to earlier storms and general deteriorations; and an additional 10,103 linear feet of less damaged seawall attributed to improper construction, settlement and deteriorating factors. All seawall damages adjacent to Beach Boulevard were accompanied by undermining and failures of the adjoining road and backlying properties. Reconstruction of the destroyed seawall sections and placement of the 6-mile protective beach berm against the wall were authorized and accomplished in 1967 with federal disaster recovery funds. A survey of the seawall following Hurricane Camille in 1969 indicated that general conditions of the wall were unchanged from those following the repairs in 1967. Numerous cracks and openings in the underlying cut-off walls, however, continue to result in leakage of back-fill and settlement of the adjoining sidewalk and roadway along unprotected reaches. General conditions of the older vertical-faced seawalls are better than the conditions of the more numerous step-type walls with respect to both structural integrity and soundness of cut-off walls.

The approximately 6 miles of artificial beach along Mississippi Sound between Clermont Harbor and Bay St. Louis were constructed to provide a berm width of 50 feet at elevations ranging from 3.4 to 6.0 feet above Mean Sea Level and a seaward slope of 1 vertical to 25 horizontal. Initial widths of beach formed by the protective berm extended from about 150 to 200 feet from the seawall. Currents apparently flowing southwesterly along the shore have completely eroded this beach on the south sides of littoral blockages. (Numerous piers, several irregularly spaced bulkheaded drains and

broken concrete groins extend from the seawall and block the littoral movement of material along the shoreline from Highway 90 to Bayou Caddy.

The 6-mile artificial beach suffered negligible damage during Hurricane Camille in 1969, apparently because the beach was so rapidly inundated by the storm surge. A second low and shallow artificial beach about 1 mile in length was constructed in the Ulman Avenue area south of the U.S. Highway 90 bridge by the Mississippi State Highway Department in 1967. This beach, however, was completely eroded by Hurricane Camille.

Improvements Desired

The hurricanes of 1947, 1965, 1969, 1978, 1979, the severe flooding caused by abnormal high tides and rain in April 1983, and, most recently, Hurricanes Elena and Juan in the fall of 1985, have served as powerful stimulants to local interests seeking means for protection against tidal flooding, and have led to many unanswered requests for federal assistance. Efforts to mitigate the existing flood and erosion problems have included various Congressional resolutions authorizing the Corps of Engineers to study the effects of hurricanes and shore protection needs. These studies took place on several different occasions beginning in 1943, again in 1966 and 1974, and a 1985 report has just recently been completed by the Corps. Each of these studies and/or investigations hinged on the construction of new shore protection devices that would attempt to minimize the potential for hurricane damage. The 1974 report, for example, focused on construction of a massive rock barrier to protect the Hancock County shore. Federal assistance for the proposed structure (which would have cost an estimated \$300 million and stretched from the Henderson Point area in west Harrison County to an upland point mid-way in Hancock County) was not recommended. Not only was the project declared economically unjustified by the Corps, the proposal posed significant environmental impacts.

In the last several years, actions undertaken and funded by Bay St. Louis, Waveland and Hancock County have been primarily remedial. Local action has included various planning and administrative pursuits, along with many resolutions and requests for federal assistance. Collectively, these local actions have included: replenishment of portions of the sand berm in 1972; routine overlay and other roadway repairs; acquisition of \$325,000 in Coastal Energy Impact Funds to initiate emergency road repairs in 1982; and completion of an Emergency Beach Road Repair Plan in 1983.

The Corps of Engineers has recently completed a Reconnaissance Study of the Hancock County shoreline prior to initiating a study of the feasibility of a federal shore protection project. The recommendations from the reconnaissance report were favorable, and the Corps' has initiated the feasibility planning study.

Assuming early allocation of local matching funds, the draft feasibility study should be completed by December 1986, the final draft by April 1987, and final Corps of Engineers' recommendations regarding a federal shore protection project could be issued in October 1987. If a positive recommendation is issued, then the proposed shore protection project will be presented to the sponsoring Congressional Committee for authorization and appropriation. Congressional action could require one legislative session or several, depending on such factors such as the total cost of the project compared to its benefits, and Hancock County's commitment of matching funds for construction.

APPENDIX B:

SHOREFRONT EROSION CONDITIONS AND BEACH STABILIZATION MEASURES

SHOREFRONT EROSION CONDITIONS AND BEACH STABILIZATION MEASURES

This Appendix provides a review of the erosion-causing processes affecting the Hancock County sand beach and an assessment of various measures available for reducing erosion and the loss of sand from the beach system. The information presented is based on an examination of historical information regarding the beach and a knowledge of coastal processes and engineering considerations.

Background

The sand beach in Hancock County has a long and interesting relationship to the stability of the shoreline and to recreational activities in the area. At the turn of the century, a natural sand beach helped form the edge of the County shoreline. Almost complete erosion of this natural beach, however, took place after construction of the seawall. It was recognized that the stability of the seawall was in jeopardy without a protective beach, so several efforts were undertaken to construct man-made beaches along the seawall using sand sources located immediately offshore. The first beach was placed in 1967 over a 6.1 mile stretch extending from Clermont Harbor to Bay St. Louis. Over the following years, however, the effects of wind, waves, and currents gradually reduce this beach. Table B-1 presents a summary of the key events in the history of seawall construction and beach nourishment in Hancock County.

With the recognition that the sand beach provides both shore protection and recreational opportunities, it is important to understand its interaction with the natural coastal environment and to incorporate this understanding into improved design for both shore protection and recreation.

Environmental Factors Affecting Sediment Transport

This section includes a review of the dominant forces affecting sediment transport along the Hancock County shoreline with a view toward identifying appropriate measures for reducing sediment losses.

Table B-1:

**History of Beach Replenishment
and
Seawall Construction**

Date	Activity	Comments
1915-1928	Seawall constructed	Seawall constructed in segments. Total length: 11.5 miles, extending from Jordon River to Bayou Caddy
1965	Hurricane Betsy	Significant beach erosion and seawall damage
1967	Beach nourishment	Project characteristics: length = 6.1 miles, extending from Clermont Harbour to Bay St. Louis; width = 150 to 200 ft.; elevations 3.4 to 5.0 ft.

The two dominant agents which affect sediment transport along the shoreline are waves and winds. The primary wave direction affective long shore sediment transport is from the southeast (the direction of prevailing winds). The primary impediments to this sediment transport are structures (including drainage outfalls) which extend perpendicularly from the seawall into the Mississippi Sound. These structures form compartments and cause the beach to orient into the waves such that the obliquity between the wave crests and the beach line is greatly reduced and longshore sediment transport is thereby limited. The drainage structures and other structures extending perpendicularly from the shore have functioned as groins to reduce the longshore sediment transport, as well as longshore sediment losses. The drainage outfalls function in a manner such that when the beach is at its fullest, the outfalls protrude a lesser distance from the beach into Mississippi Sound and are therefore less effective in reducing longshore losses and transport. As more and more sediment has been lost from the active beach system, the outfalls have protruded further from the beach face and become more effective in stabilizing the remaining sediment.

The other primary factor resulting in a loss of sand to the beach system is the prevailing wind from the southeast which, if the beach berm was wider, would cause sediment to be carried to, and over, the base of the seawall. In some places, the steps of the seawall, rather than acting as a barrier to blowing sand, would fill with sand to form a ramp facilitating the movement of sand over the wall and onto the roadway. To some degree this type of transport and deposition could be viewed as a tendency for the wind to build a natural dune system. This transport, however, could cause a substantial loss of sediment from the beach system if the beach was significantly wider than at present.

Sediment Budget

The following estimates address the amounts of sediment lost from the Hancock County beach as a result of longshore, offshore, and airborne sediment transport. These estimates are schematically illustrated in Figure B-1. (In interpreting the loss component quantities provided in Figure B-1, it is important to note that, with a wider beach

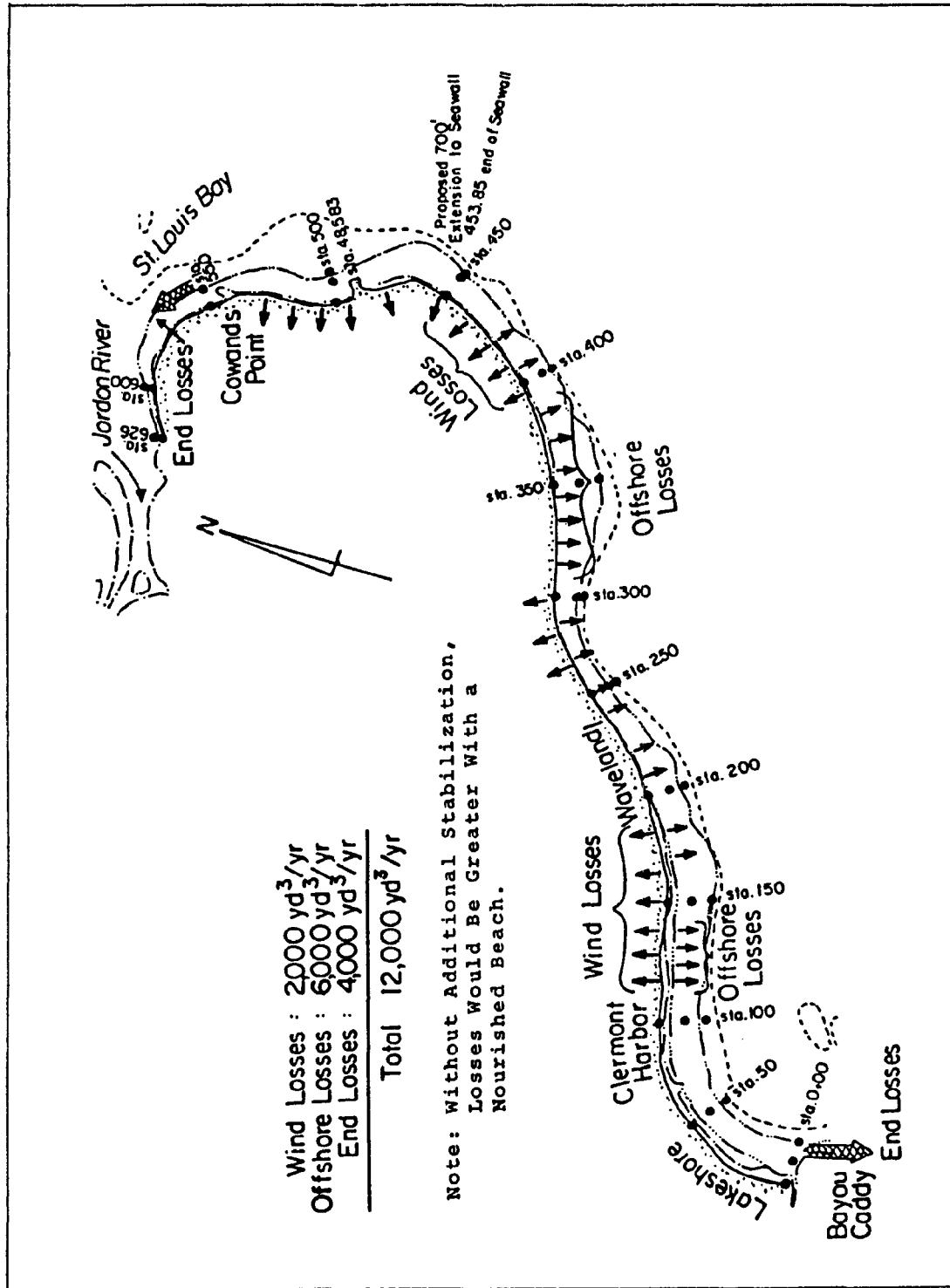


FIGURE B-1: SCHEMATIC ILLUSTRATION OF SEDIMENT LOSSES

and without any measures to stabilize the placed sand, the longshore and wind losses could be expected to increase substantially.)

Longshore Sediment Transport

The orientation of the Hancock County shoreline is slightly different from the Harrison County shoreline, where the longshore sediment transport is directed from east to west due to the predominance of the southeast waves. In Hancock County, due to the orientation of the shoreline, there is a transport "node" near the American Legion Pier. North of this point, the net transport is toward Bay St. Louis, and south of this point the net transport is toward Bayou Caddy. It is estimated that the potential annual longshore sediment transport is approximately 100,000 cubic yards.

At the present time, the longshore sediment transport in Hancock County is greatly reduced due to the fact that there is very little sediment in the active beach system. Most of the sediment is stabilized by the littoral barriers which interrupt the longshore sediment transport.

Offshore Sediment Transport

If a beach profile is considered to be approximately in equilibrium prior to the placement of sediment to construct a man-made beach, then by definition the added sediment represents an anomaly to this equilibrium and the beach profile will tend to naturally requilibrate to some degree in response to environmental conditions. This requilibration is expected to be rapid at first due to the initial degree of disequilibrium, but the requilibration may also occur most rapidly during periods of high energy storm activity. The offshore component of sediment transport from the above-water beach system is most difficult to quantify. At the present time, the offshore sediment transport is fairly low in magnitude because the beach width is quite narrow and therefore represents a small disequilibrium of the overall beach profile. However, it is estimated that the annual losses due to this mode of tranport amount to approximately 6,000 yd³ per year.

Airborne Sediment Transport

The final component of sediment loss is due to the winds acting predominantly from the south-east which, over long periods, can cause sediment to be transported primarily as bedload from the broad berm and ultimately over the top of the seawall. (See Figure B-2). Estimates of this mode of sediment transport indicate that, at present, the losses are generally small — on the order of 2,000 cubic yards per year.

The winds affecting the Hancock County area are approximately the same as those at Harrison County. The airborne sediment transport, however, is reduced greatly since the quantity of transport depends significantly on the width of the beach berm. In the case of Hancock County, this width is generally very narrow and thus the magnitude of the resulting transport is small. At present, the Hancock County beach system is very much sediment-deficient, and therefore all transport components of the sediment system are relatively small. (See Figure B-1.)

Potential Beach Stabilization Measures

There are a number of approaches that can be considered for stabilizing the beach system. These approaches can also result in improved beach characteristics for recreational purposes.

Reduction of Longshore Sediment Transport Losses

Any substantial reduction in longshore sediment transport losses must be achieved through the use of various structural or engineered approaches. As noted previously, the drainage outfalls which perform as groins and the other littoral blockages are quite effective in compartmentalizing the beach and thus reducing the longshore sediment transport losses. If, through renourishment, the existing width of the beach is increased, and an increase in beach stability is desired, then it will be necessary to increase the length, and possibly the number, of the shore-perpendicular structures extending into Mississippi Sound.

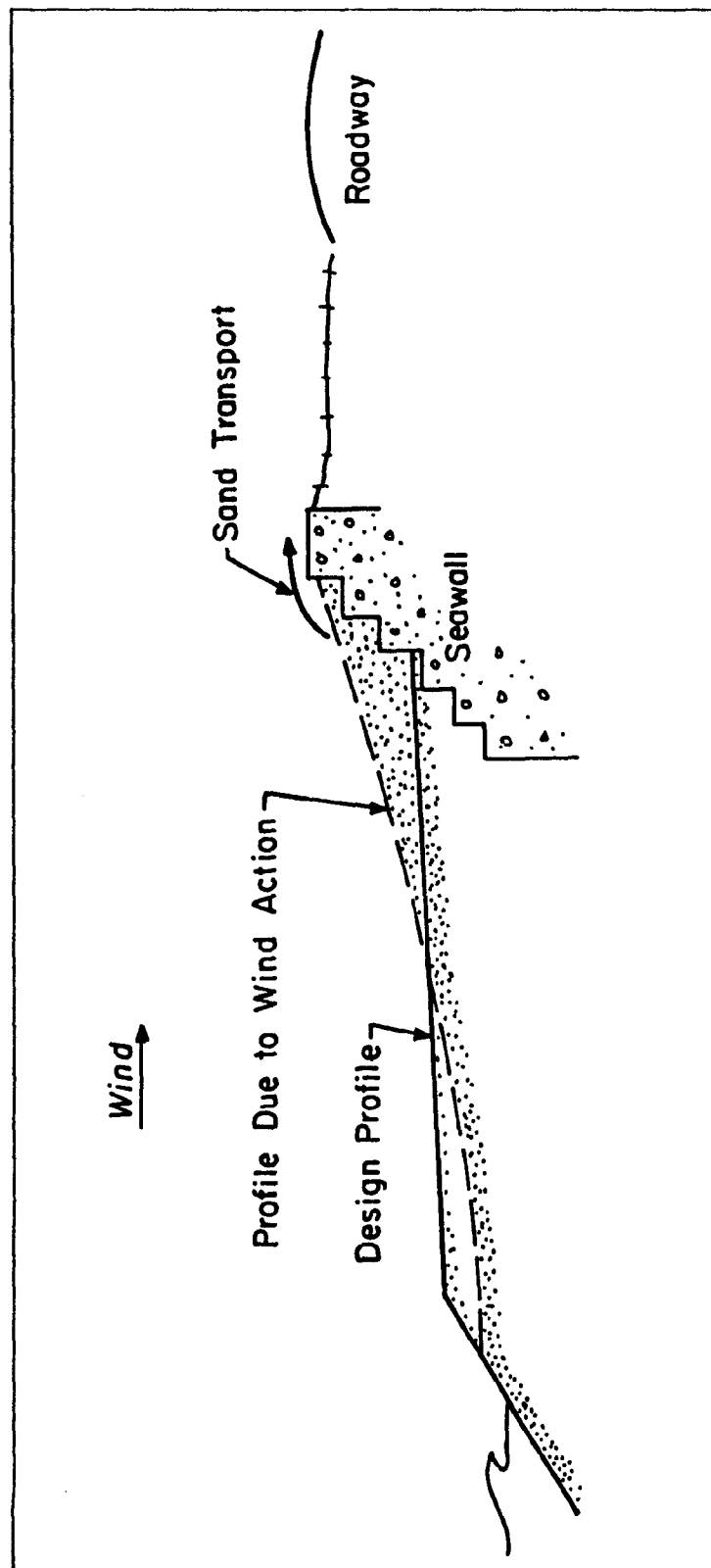


FIGURE B-2: POTENTIAL FUTURE ALTERATION OF BEACH PROFILE BY ONSHORE WINDS

Other types of stabilizing structures could include offshore breakwaters as shown in Figure B-3 and also artificial headlands as shown in Figure B-4. Offshore breakwaters function by reducing the wave energy behind the structures, thereby causing sediment to deposit and resulting in a protruberance of the shoreline. Offshore breakwaters can therefore be employed to add variety to an existing, relatively straight shoreline alignment. One characteristic of offshore breakwaters is that if they are placed within a certain distance of the shoreline, sediment deposition may ultimately cause the shoreline to attach to the breakwater (this feature is called a "tombolo"). Usually, it is desired to provide some additional stability to the shoreline by reducing the longshore sediment transport but not to such an extent that a complete tombolo forms behind a breakwater. By constructing the breakwater crest to an elevation such that at high tide waves can break over the crest of the breakwater and cause sufficient sediment transport, tombolo formation can generally be avoided. The cost of offshore breakwater construction in Hancock County would be relatively low due to the very mild offshore slope.

An artificial headland is quite similar to an offshore breakwater except that the headland is placed along the shoreline with the intention that shore attachment always occurs.

The wave patterns interacting with artificial headlands typically result in a "scaloped" shoreline configuration known as crenulated shoreline, spiral bay, and by other names. The shoreline variety formed by the artificial headlands may provide desired relief from an otherwise straight shoreline. A supporting "stem" constructed of rock or other material may be necessary to ensure that the shore attachment will not be lost in a storm.

Reduction of Airborne Sediment Losses

As noted previously, a relatively wide beach in combination with onshore-directed winds can result in the formation of a ramp at the base of the seawall and a resulting transport of sediment to the top of the seawall and beyond. Clearly, the most cost-effective way to reduce airborne sediment losses is simply to remove the ramp as it tends to form, placing the material back towards the Mississippi Sound; in other words,

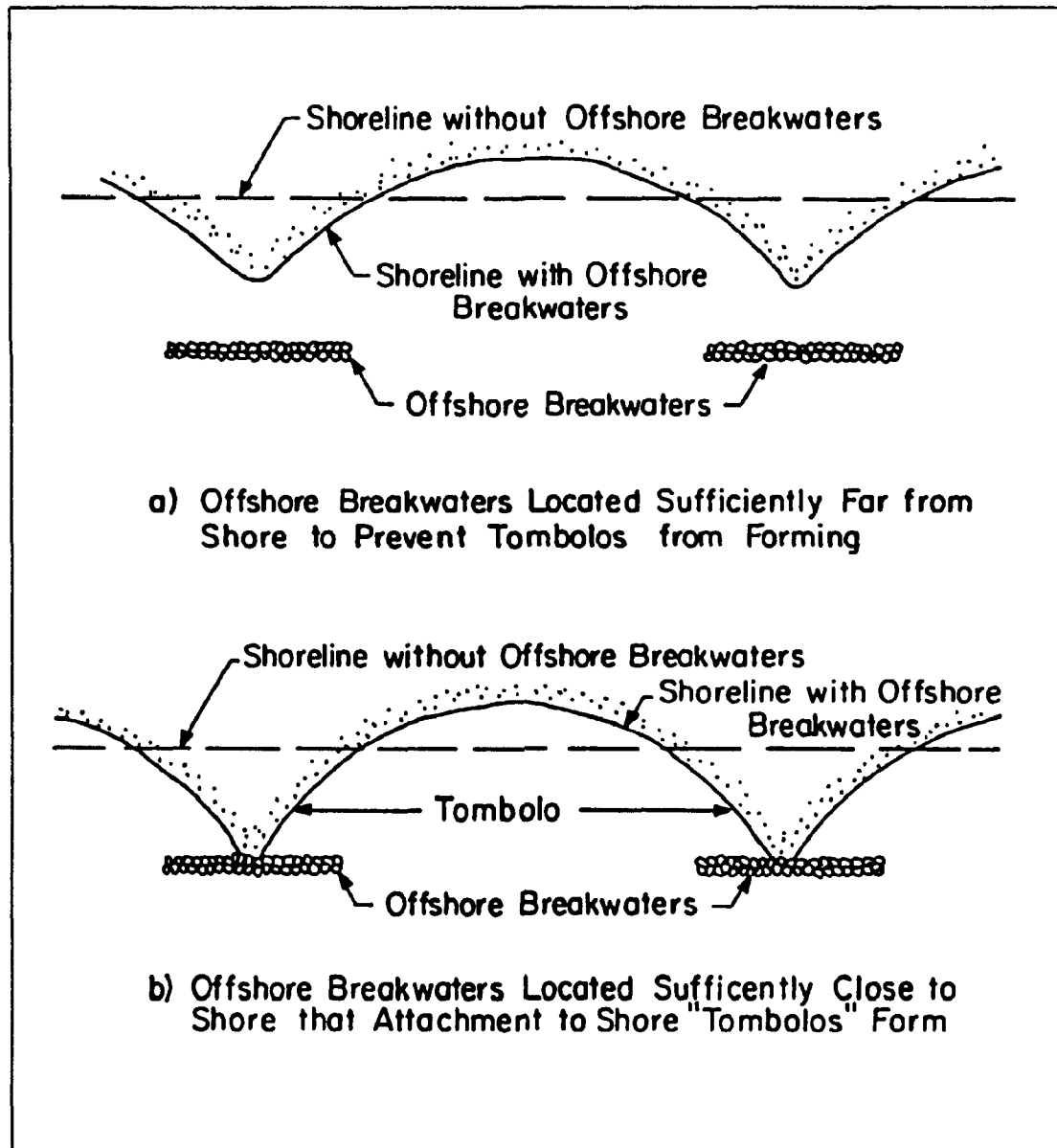


FIGURE B-3: OFFSHORE BREAKWATERS AND SHORELINE EFFECTS

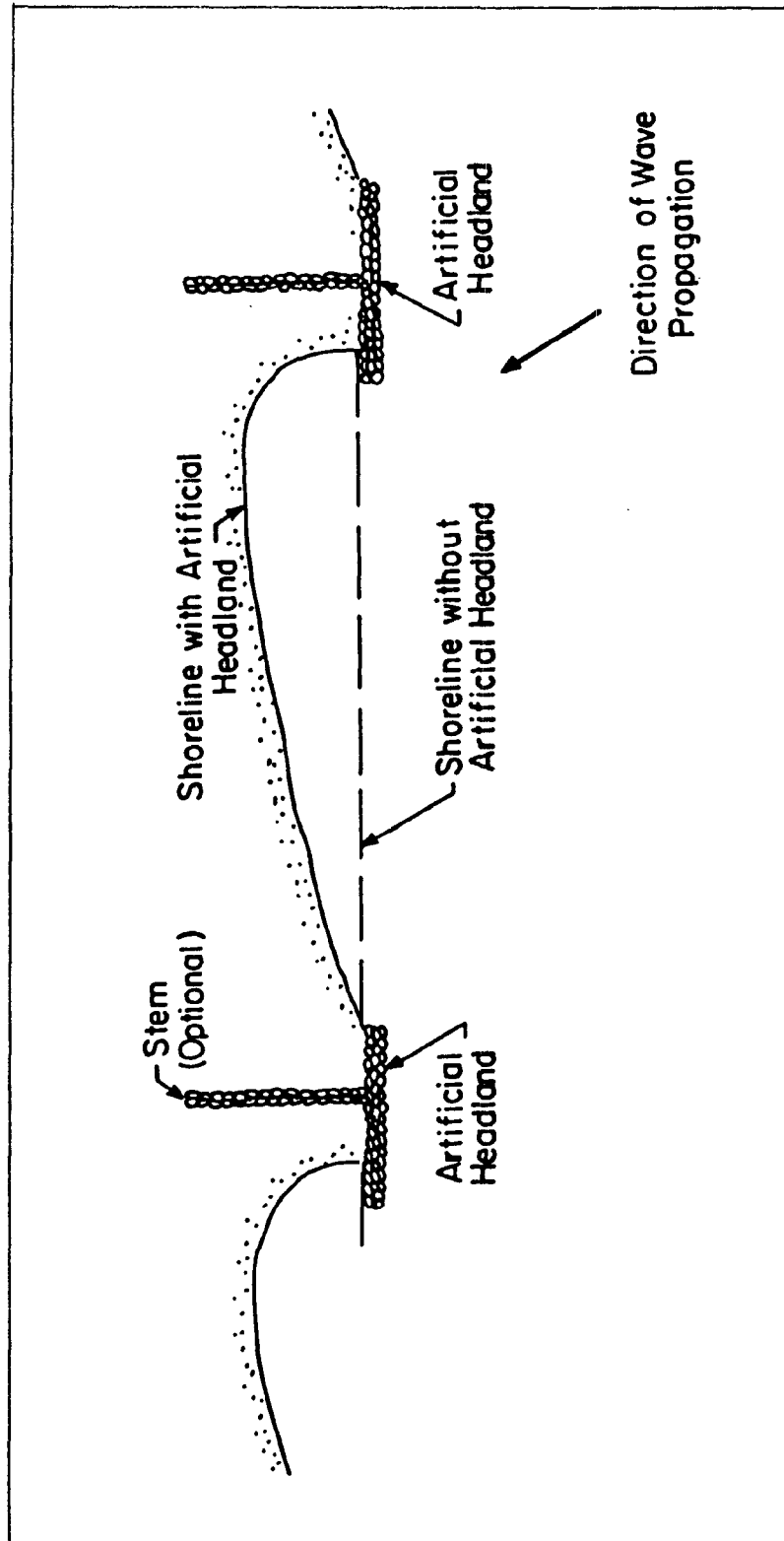


FIGURE B-4: ARTIFICIAL HEADLANDS AND SHORELINE EFFECTS

to recycle the sand from the landward portion of the berm back to the soundward portion prior to the sand having adequate opportunity to be transported over the seawall and onto the roadway. This would require a simple "shaving" of the expanded beach, removing a shallow veneer in the vicinity of the seawall perhaps with "pan" equipment and transporting and depositing this material near the waterline of the beach. It is estimated that this could be accomplished with reasonable expense and effort, and that a fairly shallow area would require management on at least a biennial basis. This procedure is illustrated in Figure B-5.

A second possibility for reducing airborne sediment losses would be through the use of structures and vegetation that would cause the sand to be deposited in dune-like features seaward of the seawall such that the sand could then be transported back toward the water or left as an inactive dune. Such a system suitable for use in areas not prioritized for recreational use is illustrated in Figure B-6. A similar system for use in recreational activity areas is shown in Figure B-7.

Protection of Seawall and Upland Without Beach Nourishment

A substantial portion of the seawall to the east and northeast of Bayou Caddy has been used traditionally for fishing and the placement of a protective beach in this area would necessarily affect this use. An alternative means of providing storm protection for the seawall and upland would be through the construction of a sloping rock revetment immediately on the Sound side of the seawall. The revetment could consist of several layers of rock, with each successive layer coarser than the layer below and the size of the rock comprising the cover layer would be selected to resist the design wave and storm tide conditions. With this revetment, recreational fishing would continue, taking place from the rocks rather than from the seawall.

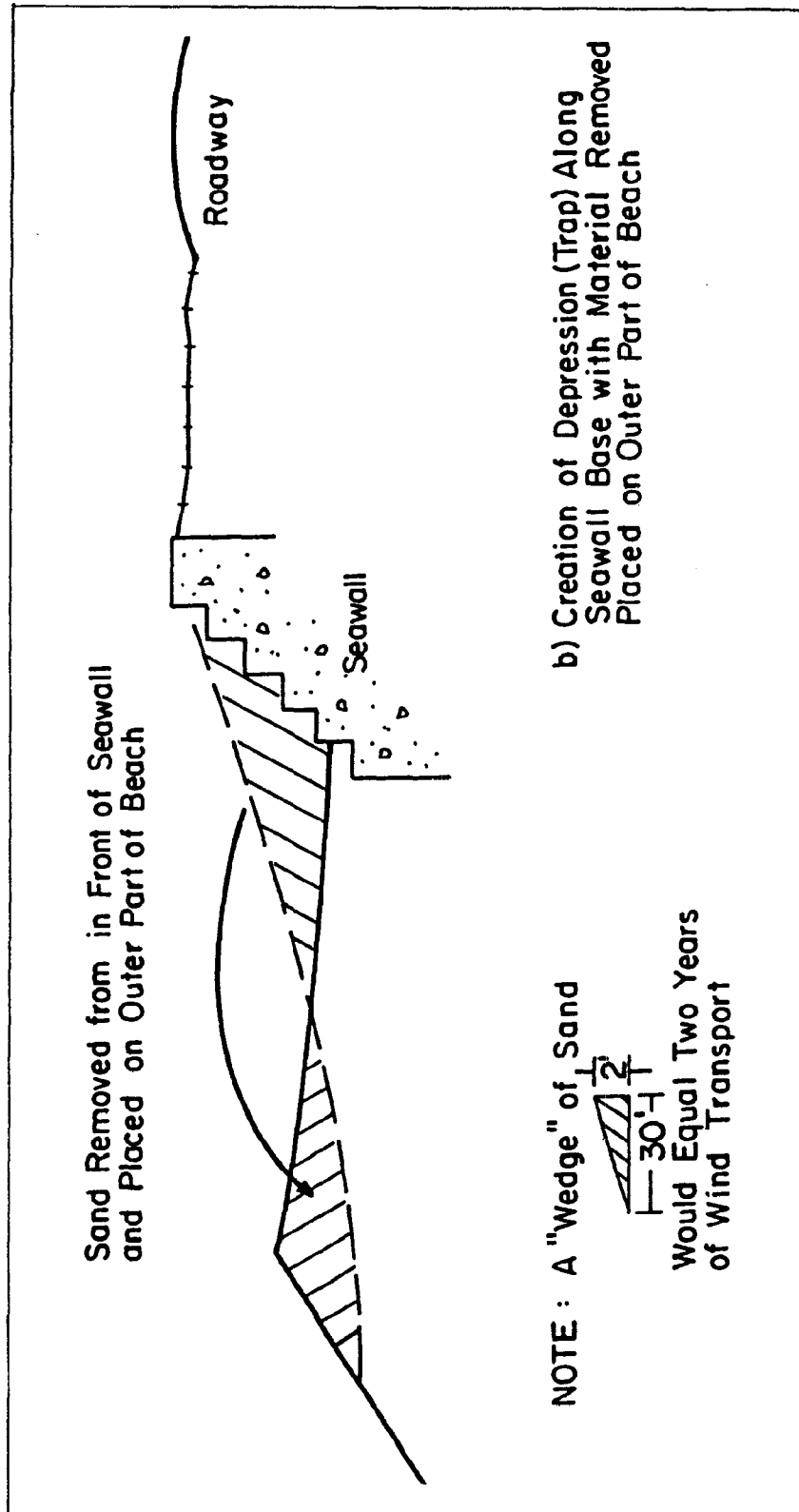


FIGURE B-5: PREVENTION OF SAND TRANSPORT ONTO ROADWAY THROUGH CREATION
 OF SAND TRAP AT BASE OF SEAWALL

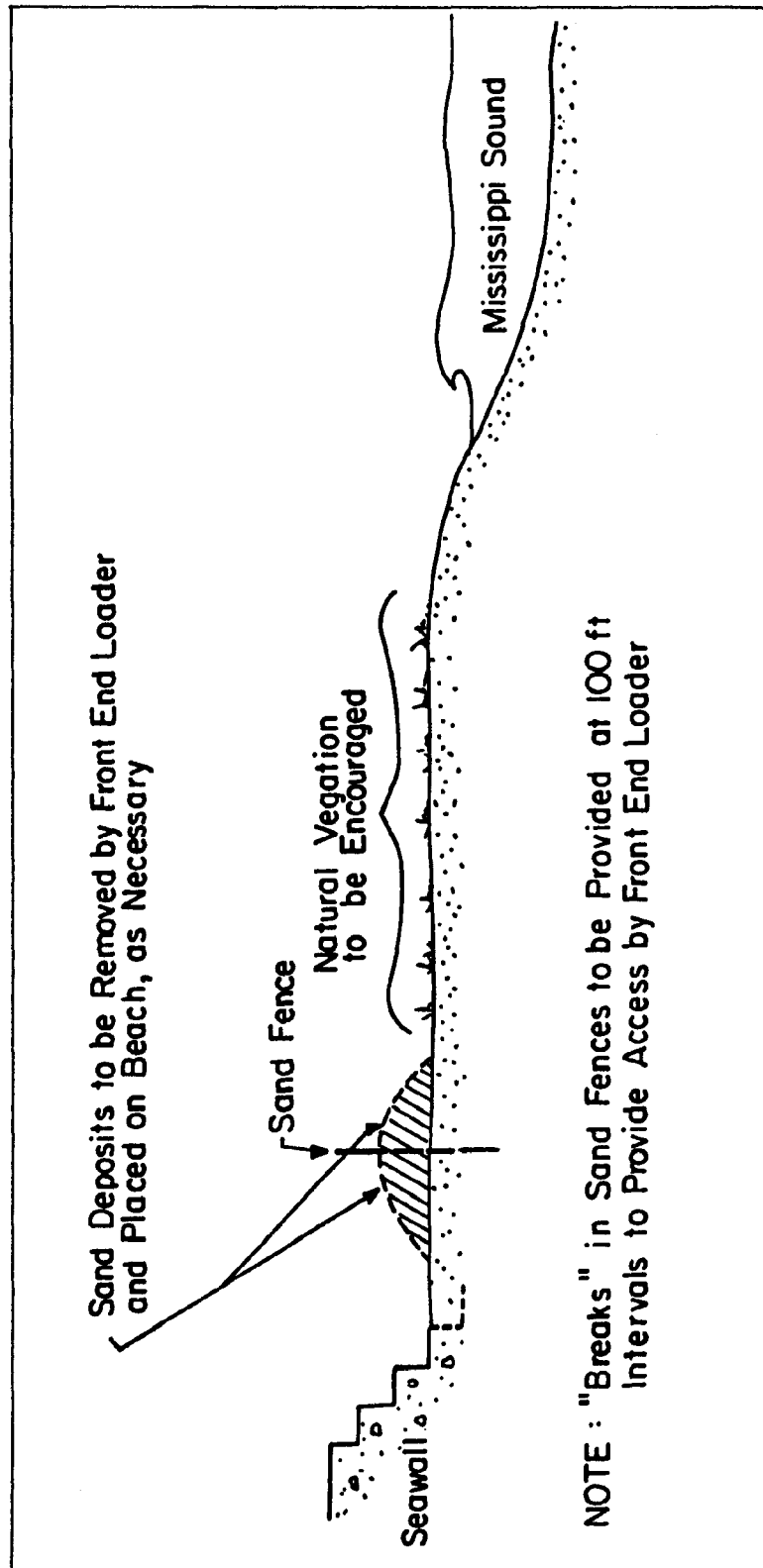


FIGURE B-6: BEACH DUNE AND VEGETATION SYSTEM (LOW RECREATIONAL USE AREA)

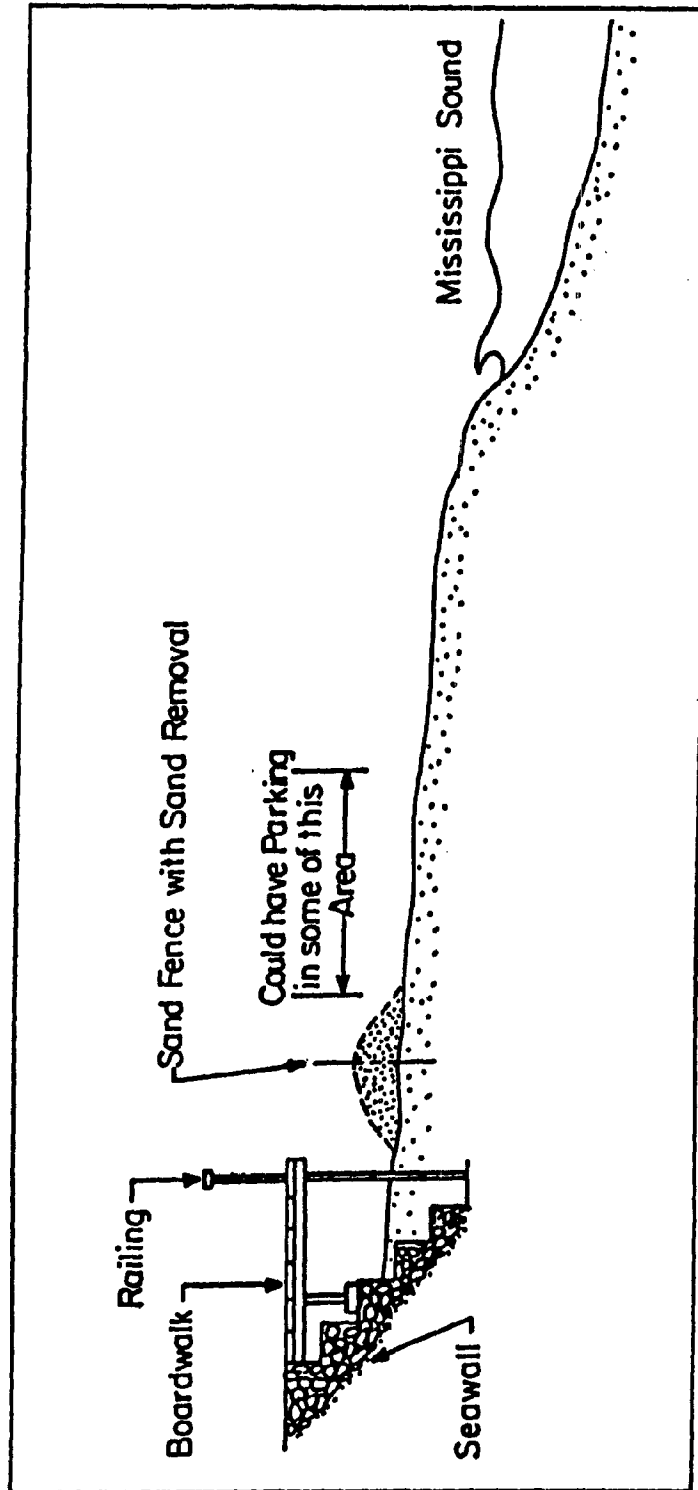


FIGURE B-7: BEACH DUNE AND VEGETATION SYSTEM (RECREATIONAL ACTIVITY AREA)

APPENDIX C:
PUBLIC OPINION SURVEYS

*Hancock-Harrison
County
Sand Beach Master Plan*

SAND BEACH MASTER PLAN
Public Opinion Survey

August 1985

To better understand the public's perception of the sand beach, the Public Relations Sub-Committee of the Harrison and Hancock County TACs developed an opinion survey to gather information on problems, preferences and ideas for improvements. 12,000 surveys were distributed through the area schools and Chambers of Commerce. A return of 9% (1,111 surveys) was achieved. The results of the survey have been tabulated by place of residence for each question.

This survey is being conducted to receive your and your family's ideas and opinions about improving the public sand beaches in Harrison and Hancock counties. Through this survey, your opinion will influence the course of the study. Please help us by filling out this questionnaire.

Please add any specific comments you may have on how to improve the beach.

SAND BEACH MASTER PLAN
Public Opinion Survey

What are the primary recreation beach activities that your family enjoys?	Biloxi out of 235	Gulfport out of 333	Long Beach out of 109	Pass Christian out of 97	Bay St. Louis out of 247	Waveland out of 90	All out of 1111	1
Boating	68	109	34	33	91	40	377	34
Pier fishing	125	159	41	44	120	36	522	47
Wade fishing	47	86	30	34	54	20	277	25
Sunbathing	119	159	85	35	150	76	588	53
Swimming	96	156	43	59	141	72	544	49
Wading	105	146	52	35	124	66	511	46
Sightseeing	100	157	41	32	132	30	477	43
Walking	146	233	80	53	141	60	711	64
Jogging	38	79	20	20	39	10	222	20
Picnicing	62	156	44	37	116	26	466	42
Sports	31	70	11	24	38	13	211	19
Windsurfing	7	12	5	2	9	4	44	4
Rental Equipment	7	12	2	4	7	2	35	3

What is your family's opinion of the following in relation to the sand beach?
People for:

Beautification/Appearance	206	293	100	87	230	87	978	88
Pestrooms	190	266	89	83	187	45	855	77
Sidewalks	66	129	42	31	116	40	444	40
Protect wildlife	172	229	72	61	170	61	744	67
Boat launches	62	157	45	47	82	32	455	41
Bike paths	74	158	42	31	87	36	466	42
Litter control	201	281	101	88	215	88	988	89
Cabanas	62	121	56	35	74	14	400	36
Parking	185	250	79	74	162	69	811	73
Public piers	160	206	82	51	144	54	722	65
Showers	95	160	41	34	72	20	478	43
Purchase refreshments	83	151	39	46	88	25	467	42

Would you use the beach more often if the improvements you think important were made?

no. of people that said yes	218	290	100	86	224	80	978	88
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Which beach areas do you normally use?

Biloxi's beach	190	30	5	3	3	10	250	23
Gulfport's beach	10	298	19	10	14	15	366	33
Long Beach's beach	3	25	90	14	3	25	129	12
Pass Christian's beach	0	6	27	17	27	36	140	13
Bay St. Louis's beach	0	1	1	6	160	62	180	16
Other beaches	11	2	0	0	1	6	16	1

In your opinion, would it be appropriate to apply the revenues from existing taxes to finance the improvements you would like to see?

no. of people for existing taxes to be used	194	270	98	67	207	71	877	79
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Would you consider an additional tax to finance the improvements you would like to see made?

no. of people who would consider additional taxes	97	130	40	39	148	51	488	44
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HANCOCK COUNTY CHAMBERS OF COMMERCE

Extend the beach so that there is beach all the way from Clermont Harbor to Nicholson.

Designated areas with children's playground equipment.

Playground, jungle gym/merry go round. Bike/Walking path, beach road to dangerous for bikers and walkers.

Trash should be picked up and placed into trucks by sanitation crews, not dumped into sand and then picked up.

Since I run on the beach (6 miles or so) at least three times a week I'm probably more aware of its condition than most. The beach in Gulfport is absolutely the filthiest, most poorly kept beach in the country. The only way to improve the beach is to strictly enforce the Litter law, fines handed out.

Need boat launch at Legion Pier dredged.

Cleanliness is major concern.

Shade areas would be appealing, and ramps for handicapped would be nice, too.

More enforcement of Glass Ordinance on whole beach front. Broken glass is a real problem along the entire beach.

Provide shade areas on beach.

Law to control speeding.

You have me and my family behind you 100%, so do whatever you have to to clean up the beach.

Supply more trash containers, fines given for littering. Regular cleaning of beach. Build shade structures or cabanas, more parking, rebuild roads in front of beach. Why is the water so dirty?

More parking, no animals, no fires, enforce no glass law, clean up polluted waters.

The beach area is not patrolled sufficiently on holidays and weekends. On days there are a lot of people I suggest patrollers be out in force to catch people who litter.

Parking is needed badly. We use the beach a lot and cannot find a parking place. The sand built up across the beach should be removed for better grounds are parking areas to be built. I hear complaints of too many young people hanging out on the beach. Well, I can't see where this is hurting anyone. At least they are not killing or robbing people. The beach is a good place to stay out of trouble.

We need boardwalks with snack bars, operated by private enterprises.

Public awareness of the problems and strict penalties for the people who break the laws. People get a great deal of enjoyment from the beach but they should also be held accountable for it's upkeep. Great place for teenagers to hang out but they should be held accountable for their litter.

Do not commercialize.

I feel that there should be a certain part of beach in Waveland that you can run and exercise your dogs.

Pull the beach back out of the water. Purchase a sand sifter. It will be more efficient and faster then using county crews. Allow commercial zoning. Repair and maintain beach roads and seawalls. Remove piles of half-buried objects and all hazards. Contractors in the past have charged exhorbant fees in return for shoddy work. In the future oversee the work being done.

We need trash bins and the sand needs to be grated to get rid of dangerous fish bones and broken glass.

Fill in eroded areas.

I think the beach could be cleaner. We could use some trash bins.

A walking and biking lane separate from auto traffic is most important particularly considering the auto traffic. I would like to take part in any committee work on respective beach development.

I need to be proud of anything I'm involved in and at present I am ashamed to have people see our beach in the condition it is now. I believe if we would enforce the litter law it would help a great deal.

Once beach is renewed it should have erosion control done by plantings, proper drainage from nearby streets and whatever will help prevent wave action erosion. I would also like to see revenues derived from the tourists from New Orleans and other areas, who come here for the day and don't contribute anything but litter. Perhaps parking permits that they would purchase at local businesses would help. Fines could be imposed by the Beach Patrol if anyone parks on the beach or within 50 feet on an access street without a decal or temporary permit.

To improve the beaches would help the economy by bringing in tourists and it would give the kids a nice clean place to go. It would also make our citizens prouder of our home. We need bathrooms with showers, garbage cans, public piers and cabanas to improve our beaches.

We should have trash barrels and beach patrol.

I would use the beach several times a week if the beach was replenished.

I would like to see a strict beach ordinance to prevent people from throwing glass and garbage on our beaches. This is strictly enforced in Florida and it should be done here. It would be so much more enjoyable if it were cleaner.

We need more public boat slips. Keep beaches clean in Hancock County. Improve beach facilities similar to West Florida with fishing piers, restrooms and supply purchase facilities.

Stop sand erosion, clean up the beach and enforce glass container law with most priority. Public awareness and a vigorous campaign toward that goal should bring immediate relief. Return trash bins to Waveland Beach and empty them regularly.

Keep it clean.

We need garbage cans on beach in Waveland. We also need to enforce parallel parking and not allow parking in front of fire hydrants.

Clean up the litter.

Improve the appearance by picking up the litter, bottles and dead fish.

Strict enforcement of litter law.

Pump in more sand.

Develop and plan to prevent beach erosion then replenish the beach and set up a regular maintenance program to keep the beach neat and clean.

Widen the beach as much as possible for protection from storms as well as appearance and recreation.

I think that the public should be made more aware of problems and planned actions to benefit users of the beach and the public should be given more opportunity to get involved in beach beautification projects.

Enforce present restrictions against any further improvements to the Washington St. Pier.

We need walkovers with stairs to avoid traffic mishaps. Keep the kids off the roads.

Enforce the no glass on beach law. Add more trash cans.

We need parking to help prevent people from getting their cars stuck in the sand. If we improved our beaches more people would be able to enjoy themselves. Refreshment stands would help from having to get in your car to go up the highway.

Litter control and beach maintenance are primary concern.

The piers (private) along the beaches from Bay St. Louis through Waveland detract from the beauty of the Bay not to mention the debris caused by storms along the roadway. Beach patrols should be enlisted to help keep down litter and all cities should provide trash recepticals for use. Adequate parking is needed in Waveland and Bay St. Louis.

I think that upon entering public beach areas that a sign be placed in proper places as to rules and care of the public areas and that fines be adopted by the communities when there is a violation of rules. A patrol should be established with properly trained people who are familiar with local, state and federal laws because our seashores are our country's borders.

Litter education in Gulf Coast Schools should be formulated, quick, down-pat, and continuous procedure throughout the school year. Some type of beach patrol should be evident during weekends and tourist times as a sign of local community interest and respect for the beach and all who visit her or are indigenous to her.

How about an occasional palm tree in Bay-Waveland area? Noise control. The inconsiderate use of "ghetto blasters" on or near the beach is obnoxious.

Some plan needs to be made to keep the sand on the beach instead of blowing away. I also would like to see some dunes and grassy areas.

I believe the sand beach should be extended 1/4 mile from road to water's edge. There should be a parking road the entire length of Beach Boulevard between the sand and the present beach road.

My main concern would be to have enough trash barrels and sidewalks or bike paths so kids can be out of the traffic.

Plant grass on it to cut down on erosion. The sand is pretty but too much of it gets lost.

The appearance is the main reason we do not visit the area beaches. We hesitate to take guests. Other beaches provide us with a place to walk, sunbathe and picnic.

Pump more sand in.

Keep glass and trash out of sand.

We need strict enforcement of existing litter laws with a higher fine.

We need stricter enforced speed limits and better parking.

Enforce no bottles and cans law. Better parking.

We need more personnel to see that ordinances are enforced, such as no glass, no litter, etc.

The beaches need to be kept cleaner. There need to be more trash cans on the beach. The beaches need replenishing so the seawall and the road doesn't fall into the water.

Improvement needs to be made on the efforts to enforce the speed limit and there needs to be more parking.

Enforce glass laws and finish removing drainage pipes and pilings. Need more trash cans.

Pump sand up to protect seawall and beach road.

I would like to see the beach patrolled by a 3-wheeler and strong measures taken to keep glass containers off of the beach.

More sand beaches.

I think that the beach patrol is really going to be a big help. We need more input from the two cities to help keep up the beach front.

I think that restrooms and showers would be very helpful.

Provide for and have regular garbage pickup and also daytime clean up of litter.

Control litter.

The number one priority is to keep beaches clean of debris and litter. The second priority would be to pump in new sand.

The seawall tax should be used for beach road, seawall and sand beach. Beach maintenance should be consolidated and maintained by one group not 5 supervisors.

We definitely need more restrooms and public showers. I thoroughly enjoy the beach and it is the main reason I moved to this part of the country.

Have the sheriff, police and beat supervisors strictly enforce the glass bottle law. The amount of broken glass on the beach is awful. Have coastal board fine fishermen for throwing trash overboard, which then washes up on our beach.

We have a seawall tax, let's use it. We should not let the roads run off onto the beach as we did in the Bay-Waveland area.

I think the worst thing about our beaches is their unnatural appearance; litter, sewer drain pipes, and lack of vegetation.

We need to have some sand on our beaches.

Formulate a continued maintenance program.

I would rather pay an additional tax to keep our beaches clean and beautiful and uncluttered with commercial products being sold. Cabanas, showers, etc., are eye sores and give the beach an unkept appearance. Any revenue received from these endeavors could never compensate for the peace, tranquility and natural beauty that God has given us.

HANCOCK COUNTY SCHOOLS

I think shade shelters, picnic benches and grills would add to the improvement of the beach. Also the streets on the beach are in terrible condition.

Remove old pilings and piers along the beach from Lakeshore to Cedar Point, and try to keep the weeds trimmed down, so you can see the beach.

Water should be cleaned of pilings, pipes, rock piles, etc.. Trash cans should be readily available, signs posted on littering violations. It would be nice to have a roped area for small children to play in the water. It could be placed on weekends, at least.

I find that there is inadequate parking and this causes large crowds in one or two prime areas. There are some nice beaches but no proper way to get to them due to all the sand in parking area. Restrooms would be nice to have also.

More protection from police to patrol beaches on holidays. Fines on bringing glass on beaches.

Put more sand, enforce no glass!, no cans on beach after leaving must be picked up. Set fine at \$50.00 to \$75.00 for glass and \$25.00 for cans and paper.

More police patrol, more litter barrels, picnic tables with shelters.

Have some way to make people pick up their trash before leaving the beaches that they use.

Have no dumping dead animals in the water because I almost stepped on one and it was gross.

Please improve bathroom facilities at park locations.

More Sand.

Upkeep - beaches would not be in present condition had they been kept up since pumped into the area. Beach Patrols - eliminate trash and glass and people urinating on either side of beach vicinity. More traffic control on weekends and holidays. Enforcement of litter laws.

The two biggest problems, I feel, that now exist concerning our beaches are (1) Rowdy and unruly teenagers and their loud music, and (2) trash and garbage left behind by people using our beaches, having no consideration for others. However, the garbage and broken glass are far more important, we need trash cans on the beaches and someone to enforce the litter law.

Need more police patrol. There are too many animals on the beach. Need to pump in more sand and provide parking bays.

Just keeping the beach in Beat One clean would help.

Place more litter cans on beach, put enough shade huts on beach, keep dogs off the beach and prosecute violators after 1st offence. Allow no glass on beach. Have the beach cleaned and sand turned over every other day. Somehow, put better parking on one side at least. Try to keep the boat launches cleaner even if you have to fine them to do it. We surely need our beaches cleaned up and improved.

It would be nice to have good side walks along the beaches.

More police patrol to control bottles and litter.

Reduction of pollution on beach, drainage pipes, bottles, cans, anything else that causes the problems we have today.

More police patrol to control bottles and litter.

You need more police to patrol the beaches at all times, during the summer months.

Please improve restroom facilities at Buccaneer State Park.

By taking just sections of the beach for public, so maintenance and patrolling can be effective.

If there were enough money available, I would like to see a bike path from St. Charles Avenue to Buccaneer Park at least on the land side of Beach Blvd. Parking bays on the water side, deep enough so traffic will not hinder the entrance or exit from parked cars and users of the beach would not have to cross the road unless they lived nearby.

Remove the trash, especially bottles and cans, reduce all drainage going into the bay, it is destroying the water. Provide trash receptacles on the beaches. Provide public piers, build up the beaches by dredging.

The beaches in Hancock County have eroded to the point that they are no longer in many areas. I think to begin with, simply keeping the beach areas pumped in and keeping what we do have clean would be a great improvement over the present beaches.

Pump in more beach.

The beaches need to be replenished with sand. The beaches have really gone down over the last 5 years. If something is not done I am afraid in a few years there will be no beach at all in Waveland.

Take the beach out of the hands of the Supervisors. The City should be able to handle it much better. Continuous cleaning of the beach and strict enforcement of the present laws. Construct a different type of embankment to keep the sand off the road and on the beach where it belongs.

The most important improvement necessary is to pump the beach back in and then to maintain the sand distribution. This is a constant, necessary, job. I believe with proper waste cans at regular intervals along the beach and proper beach maintenance the litter problem would disappear. The Coleman Ave. area and the Washington St. area and Buccaneer Park beach area would be the areas to be developed to accomodate tourism. Restrooms, showers, refreshment stands, public piers, etc. Bay Waveland area is blessed with a natural tourist attraction. Developed properly, it would benefit all.

Special attention should be made for parking areas and litter control.

Parking areas and bike paths on the beach side would be great. A public pier charging a fee for fishing.

Before our beaches can be improved, you have to deal with the "litter mentality" - it's OK to dump anything anywhere!!!

Enforcement of our existing litter laws, pertaining to our beaches. Placing litter barrels at strategic points. Regular police patrols to discourage mass gathering of teenager after eleven P.M.. This in itself, would reduce the littering and the speeding cars along Beach Blvd.

Restrooms are needed and we pay a seawall tax, so why can't the money be used for this. Also, there should be more fences put in to hold the sand down.

People should be more aware of keeping the beaches clean from litter. They should use the trash cans provided by the beach.

Why not use the Sea Wall Tax for these improvements?

Better litter control (removal of dead fish). Stiff fines for littering. (out of state visitors from LA. do not buy anything from MS but leave their litter)

Jet ski rental.

Make beach available through platforms to wheelchairs.

At the P. C. Harbor there is so much rock, I think they should be taking it up.

One authority, control all recreation (state park rangers). Buccaneer Park Officials best equipped to handle the entire beach area in our best interest.

Keeping dogs and cats off the beaches. Glass bottles should all be put in trash drums. People should also stay in their own places. Don't throw paper and beer cans all over. Plant some shade trees and more picnic tables should also be put up along the beaches for people to use.

More sand on the beaches, dig the beaches deeper.

I think we should be ashamed of our beaches. I think it is awful to let such natural beauty be wasted as it is. All one has to do is drive into Florida to see what a beach should look like.

There is so much debris and garbage along the beach and the green gunk that spoils the wading and the looks of the beach and I do not know the answer.

I would like to see the sand replaced. The water is too shallow. The sand needs to be cleaned. Also they need more law enforcement on littering.

Give a bingo (prize) or dance or have a fish fry that way the poor people that can't afford any more tax increase don't have to pay for it. People that can afford it will go. Ask people to bring a gift for the prize bingo and help out. Because the old people can just get by now.

They should not have beer, whiskey, and other beverages, need to keep glass off of the beach. Need paper off the beach.

The beaches need to be cleaned.

We are for the upgrading of the sand beaches but we've noticed in some areas that too many or too gaudy cabanas, refreshment stands or other add-ons have taken away from the beauty and natural look of the beach. You get the feeling of being at an amusement park.

Clean the water so it'll be blue or at least bluer than it is.

Make the water cleaner, and get all glass and other things out of the sand.

Cleaner beaches, specific picnic areas.

Cleaner, no dogs unleashed, fisherman not camping on beach or streets. Enforce present laws, fishermen not throwing trash or fish on beaches which are smelly, and harmful.

Parking bays beach side of highway, paved shoulders of roadway rather than soft sand. Replacement of corrugated drainage tubes, with concrete.

Widen the street to allow for parking, riding bikes or walking.

Improve pollution control.

Litter, glass, etc., need laws enforced.

Put up monkey bars and swings.

The biggest problems would be to clean our beach up and keep it that way. Also there needs to be some parking improvements.

I would like the police to patrol the beaches and streets by the beaches because there is a slight problem with some of the blacks on the beaches.

I hardly go to the beach because of the trash and holes in the water and on the beach. All the dead and decaying animals on the beach are disgusting.

Most people do not want to go to the beach because the water is so dirty. We would like to see you try to let our children swim in clean healthy water.

Keep dogs off the beach.

I do not go to the beach because of the mess the beach is in.

I would love to see improvement on the beach, but we will have to pay more tax, and other people from New Orleans, and around, take up the beaches, and when we get ready to go to the beach, we don't have any room to picnic. I think out of town people should have to pay to go in picnic area.

They need to keep someone out there to keep the bathrooms clean, and they need to build a little pool for the little children so they won't have to cross the street to get in the water. And they need a recreational hall for the children on the side that the local people use.

Somehow limit the traffic on the beach road. Enforce the litter laws on beach with fines or tickets by a beach patrol.

For one thing, they need to keep the bathrooms clean and put out fences so that the little children won't get run over and keep from people hogging the beach for themselves.

The state has lost so much money over the years, that the smallest thing will not count if the water can not be cleaned up.

Put more sand on the beaches, dig the beaches deeper.

Use the money from the Sea Wall Tax.

Better Roads.

Enforce the litter control, have a special work force to keep beaches clean and repaired. Plant some palm trees, put some water spouts for drinking, put up some nice rest areas, and please fix the roads. If a place to purchase refreshments were to be built all proceeds from all sales should go in a special account to help pay for all repairs and improvements that will be made.

Phones in case of emergency, restrooms, and put a fine on littering.

I wouldn't mind additional taxes to pay for beach repairs and upkeep, if that's what the monies would be used for!!!

I think animal should not be allowed on the beach. More control on the speeders on Highway 90, it's dangerous down there.

Improve the beach.

Have a park where little kids can play, have a \$500.00 fine for littering on the beach, cleaner piers for shrimpboats.

One hazard is the presence of 3 wheelers and 4 wheelers in areas that family waders, picnics and sunbathers use. The two recreations do not mix.

Large markers to show depth of water for swimming.

Have people clean up mess, have concrete parking along beach, a new road along beach, and to have dead fish cleaned up.

The beaches in this area have never had a year round maintenance crew. After you fix it up you should have this crew.

If sold, refreshment profits, be put toward improvement. Litter control a must. At some points on the beach, the water should be deep enough to swim. Palm trees would enhance the area and welcome shade to those people who burn easy.

This family enjoys the wave pool and picnic areas at Buccaneer Park.

I would like to see a limited vending business on the beach of beach goods, but most important I would like to see more sand pumped in and it kept cleaner.

More beach area, clean up the water, keep glass and cans off beach.

I just visited the pier in Biloxi, it had restrooms, refreshment stand, picnic area and bait shop. It was clean and managed, in my opinion, excellent. If this type of pier or piers were constructed in our area, it would increase our business and employment opportunities.

I don't know how it could be implemented, but we residents should be protected from out-of-state visitors who litter our beaches and leave us the mess. They don't pay to clean them and many of them don't care. Perhaps they should have to purchase a beach permits, sometimes when it hits the pocket book, people act accordingly. It would be nice to have an area for handicapped people, maybe sidewalks from the seawall to the waterline and ramps to the piers.

Enforce littering law, raise fines if necessary, keep animal on leash at all times, patrol beaches more.

A strict enforcement of the no glass container law.

Prohibit dogs and horses, more trash barrels and empty daily. Lower speed limit on Beach Blvd., clean the water in the bay, fill in the deep hole, remove all the old pilings and those sewer pipes along with all the trash, rocks, and broken glass. Have emergency first aid stands and have beach patrolled more often. Last but not least, lighting at night.

By doing all the above, plus keeping it clean once they fix the repairs.

No dogs allowed on beach would be a nice start. Get rid of pilings. Need to pump in more beach. More parking, sift the sand to get out all glass and rocks.

All we want is a clean beach. New garbage cans and the beach cleaned on a regular basis.

HARRISON COUNTY CHAMBERS OF COMMERCE

Financing should come through taxing those businesses and/or people who use and benefit from usage of the beach (Hotels, Motels, Restaurants, Beach Vendors, Gas Stations, Specialty Shops, etc.). The General Public should not pay for these improvements, except through the higher prices these businesses will have to charge.

Restrooms and parking are essential.

Clean it up! Fine more heavily for littering.

Let more natural grasses grow to control blowing sand and keep dead fish and litter cleaned up!

I can somewhat sympathize with the hotel owners here, but the primary thrust of the beaches should be to satisfy local residents here first, instead of just bringing in tourists. To do that, we should involve ourselves more with quality of life and less with quick dollar schemes. For example, bike paths here are non-existent, that would be a big lifestyle-conscious improvement, on the other hand, adding more ships in the small craft harbor will only pollute it, that's a quick dollar idea to attract more out of town yachts, bad idea.

Plant a barrier of sea oats or similar flora just south of the seawall which would create dunes to prevent sand loss to the highway.

Keep shoreline policed from washed up trash. Put out more trash containers. Trash that collects on the beach is a real problem. Tourist, Airman and civilians need to be aware that it is their responsibility to try to keep the beach clean and put their litter in a container. I've been to Gulfshores and Pensacola, their beaches are clean and much more crowded than ours. It's clean because those people care, and our people don't seem to care.

I manage a small motel on the beach. During the summer season daily we have several inquiries for a place to change and shower off sand before people drive home. Many requests are for use of restroom facilities. A bath house, where people can change, shower, put personal items in lockers, and rent towels would be the best thing that could happen. A reasonable fee for usage of such would not be out of the question.

Enforce existing beach ordinances and fix and maintain piers.

I wish there were engineering changes that could be made that would eliminate grass clippings, leaves, etc. from being washed down the drainage pipes to the beach which invariably find their way up on the beach. This really spoils a normally nice-looking beach.

I feel that improvement should be made in areas other than the sand that we see. I would like to see the water itself cleaned up and the bottom cleaned of debris so safe watersports can take place.

I think our beaches are beautiful.

Boat rentals and entertainment for visitors should be made available all along the beach. The highway turn off should be improved. Take bikini sales and place them at Small Craft Harbor or by light house. As chairman of the Biloxi Development Commission, I would be willing to serve on a board to help implement these projects.

The beaches are the mainstay of tourism. If they are not kept up and constantly improved and maintained we will have no convention/tourist trade, you must spend money to make money. A side walk needs desperately to be constructed on the north side of Hwy. 90 from the coliseum/convention center to Broadwater Beach.

When low tide, there should be man power to clean bottom of trash, etc.. So many people cut them selves on glass and cans.

Public Restrooms, Board walks, Cabanas & Oasis, Replenish eroding beach area. Most improvements need to be made in front of our motels this is where the heaviest use of the beach takes place.

If we are to be a serious resort destination, we have got to take care of our #1 attraction, the beach. Please consider what would happen to our economy if the tourism industry closed because people stopped coming to our beach. Right now, however, tourism is not considered an industry, so maybe you should start there. Wouldn't we be eligible for Harrison County Development Commission funds if we were a true, dedicated, recognized "industry."

More parking, showers and restroom facilities.

Clean up old tires etc in shallow water, this can be accomplished at low tide when sandbars are plentiful. Let grass grow to stop sand from blowing into road, since this would save tax money and beautify coast. Why bulldoze at all?

Board walk between Edgewater Mall and Beauvoir (at least) or in front of most motel areas.

Keep up the great work & add more parking.

I feel we should view the sand beach as an income generator for our tourist industry. Maybe I'm wrong, but I don't think permanent residents use it for anything else.

Dogs should be kept off the beach or owners liable for picking up refuse.

Making sand dunes with shrubbery along the road sides. I feel this would hold the sand on the beaches alot better, plus the beach would be more private for sun bathers who feel they have no privacy from all the perverts that ride up and down the beach all day getting their kicks off on women.

Enforce the law at roadside and on the sand beach.

Need Public Boat Launch Facilities in West Biloxi Area. Ban on commercial fishing vessels dumping dead fish overboard and strict enforcement. Better enforcement against glass bottles on beach. Promote keeping beaches clean.

Improvements should be financed through existing seawall tax. The items discussed in the Biloxi master waterfront plan are ambitious, but possible. The beach is a very important factor in our tourism industry, as well as a source of enjoyment to local residents. In my opinion, the top priorities should be, Appearance, Restroom/showers, and public piers.

Use the 2 cent seawall tax to improve it. Something needs to be done about blowing sand and erosion. Do something about the pollution.

Continue to investigate way to eliminate beach erosion from the southerly winds. Ticket people who park illegally on the beach and on the medians.

I would like to see a little better cooperation between the Highway Department and the Chamber concerning removal of excess sand on Highway 90. This past Memorial Day was a classic example. We had miles of sand piled up along both sides of U. S. 90 at the beginning of a very major tourist holiday. It would probably benefit the appearance of the whole coast if the sand removal project could be accomplished a week or so prior to any major holiday (to allow time for rains, etc.) and not on the holidays themselves.

Need to pump sand to widen the beach. Enforce the glass container law. Closer enforcement of proper parking.

We need a police patrol to insure against litter, glass containers, bon fires not cleaned up, etc.. It is my opinion no additional tax would be needed if present tax money were used properly. I understand the 3 or 4 cents per gallon of gas is seawall tax to be used for beach maintenance. If it is not being spent on the beach, where is it? If eroding sand is not replaced soon, highway 90 will be in the Gulf.

Jogging path wider, running on seawall is OK but can be dangerous.

We are deeply grateful Mississippi has had the foresight to keep the beaches intact for all the people. Our prayer is that officials stand firm on no construction. We have visitors from all section of the U. S. and the one thing that impresses them most is the open beaches and the palms fluttering in the breeze. People, large and small enjoying Mississippi treasure. It seems pertinent that environmental education be stressed in our schools, not only on the beach but on the water. We spend many beautiful days fishing in the sound and are distressed by seeing people throw everything over the side of their boat. It is not unusual to bring up a plastic bag or rings from "six packs" on your hook. We can blame tourist for littering our beaches, if we want to fool ourselves, but there are not that many tourists fishing. Bottles should be prohibited and beach patrol, enforced. It seems salaries would be contributed to by fines and less labor necessary to clean areas.

More recreational facilities, public restrooms and cleanliness.

I think that it is very dangerous walking across the highway to use the restrooms. Something should be done about it. It's dangerous for kids, families, and tourists to have to run across Highway 90 to use the restrooms. It causes traffic problems too.

More emphasis on beach activity, restrooms and showers are needed. If you curtail beach vendors you curtail fun. Control with the vendors fees but authorities should not restrict these vendors because of numbers or unfair to the permanent business located near the beach.

The biggest problem is broken bottles and rusty cans.

Cleanliness, all year. Programs to enlist the aid of school children (prizes, contests, ideas) to take pride in our beaches, plant the seeds for future generations.

I prefer to spend the tax money developing our attractive beach for people to see while driving down Highway 90, and for the amount of use we are experiencing today. I see no reason to clutter the beach with showers and baths. Bike paths would cost too much for the little use that would be made.

Remove the old pilings that dot the beach. Clean the debris at low tide. Install lighting on the piles for night activities. Encourage private investment in boat rentals for fishing or motoring to Deer Island. The development of the beach would expend the tax base to help off set development cost. The "Seawall" tax should be received to ensure that the monies collected is going to where it was intended. The Coast needs to develop a family oriented atmosphere.

The beach is nice as is. It would be good to have extras mentioned above but I do not feel it is important. I do not go to the beach alot, but when I do the litter control has always been excellent.

Do not allow too much regulation, let people enjoy the beach without having to deal with government.

The out of state use of the beaches, especially in Pass Christian, brings in absolutely no revenue. Something needs to be done about this situation. The litter control is excellent after the litter has been left, but the problem of proper putting it there to begin with must be addressed. Fines for violations should be enforced by fines, that are made to be paid.

The beach is OK for sun bathing and sports, but to enjoy water activities I think most people go to florida where the water is cleaner. More attention should be paid to the water than to the beach itself.

I think this survey missed the most important question. Local residents know better than to go in the water. Making a "pretty beach" will not solve the basic problem.

Showers are not necessary. cabanas are not necessary. I would suggest, if possible, purchase of properties east of the Biloxi harbor to be made into parking.

Preventing individuals from using glass bottles/containers. I spend most of my beach time picking up glass.

Remove old piling for which there are no planned uses.

Beaches behind Shoney's are unclean, trash and glass in abundance in water and on beach.

I would like to see natural vegetation on the beach, not palm trees. Safety is important, especially at night. Piers with fish cleaning tables, so people won't clean their fish on the benches.

I think if the beaches were cleaner it would bring more tourism into the city, therefore I feel if there were constant workers who did nothing but pick up trash, especially during the shrimp season when we have all the matter float up on the beach, that would be a tremendous start. Also, I think if there were just a place for elderly people to go on the beach, a good many senior citizens can't get around very good, so that leaves walking on sand out of the question. There should be a walkway for our seniors so that they may also use the beach. If we had vendors on the beach for refreshments that would be terrific. If you want something to drink or eat you have to go into a restaurant and usually your not dressed to go into one.

I feel that a public pier similar to West Side of Gulf Park would be nice (but not necessary), I like our beach uncluttered and would not like to see it commercial.

In the Long Beach area I would like beach maintained free of commercial establishment, the beach sand maintained free of debris, and install a restroom area.

Long range plans should provide boating and other concessions to interest condo and resort guests.

The Least Tern Protection areas should be removed and converted back to beach area for tourists. All the islands are full of Least Terns, if they were ever an endangered species, they most certainly are not now. Many tourist complain about this.

The Sand Beach could be maintained for less money, if the sand was not constantly churned by those cleaning machines. We are creating dust bowl conditions. Settle the sand and cleaning up litter by hand would allow grass to take hold and would help the sand to stay put. There would still be enough room for sunbathers and games to take place.

Living in Long Beach our beach is not commercialized, I simply would like to see it kept clean and not being exposed to profanity and trashy people. Very simple requests, I think.

Add more palm trees, shaded tables, clean restrooms, locked after dark, outdoor showers, allow no new business on the south side of berm, enforce strongly laws on litter and destruction. Allow all vendors with approved merchandise. Put electric lights and restrooms on piers.

More paved parking areas, sitting piers, wood walkways and piers, showers and restrooms facilities in obviously frequented public areas. Possibly even life guards.

Legislature being asked to declare tourism an industry. When this is done a great deal of the seawall tax should be used for beach projects. It is my opinion that seawall tax should not be used for industrial park construction and maintenance but for repair of seawall and beach maintenance and beach projects.

Pedestrian overpasses (over Highway 90) connecting the beach with the motels are desperately needed. These should be in the following areas: Holiday Inn, Gulfport, Best Western, Hilton, D'Iberville, Between Cowan and Teagarden. If not overpasses, at least cross walks with lights and lines.

For tourist benefits, Chamber of Commerce should be open 7 days a week, being weekends are very busy.

Step up the litter enforcement, especially glass containers is my number one concern. Public piers with boat launches, restrooms, showers and cabanas in clusters at the major points of public usage along the beach is a good idea. Clean up of these facilities would be expensive, so maybe a user fee could be enforced.

Stricter control over the litter, especially enforcing glass and cans thrown around, by use of more beach patrol personnel, increase the number of litter containers on the beach. More personnel needed by the county to keep beaches clean of debris and trash especially on Deer Island. One suggestion might be to use prisoners or minor offenders of the law, or even a summer program for high school student to keep Biloxi Beautiful. Secondly, shelters or picnic tables, possibly concrete which would be vandal proof, grills would be an excellent improvement to the coast area.

Closer cleaning at Waterline, Highway crossovers for pedestrians.

Desperate need for public restrooms, more diagonal parking as is to the south of Hilton Hotel.

It appears to this observer, that existing funds could be better utilized if resources (people) were pooled, priorities determined, and permit one agency to oversee all phases of beach operation, protection, and the like.

The area around the new I-10 loop needs to be seriously looked at. I know that there has already been several recommendations for this area and also question as to who would be responsible for its development. This area should be given primary consideration as it will be the receiving area for much in-bound traffic. My specific concern is that it doesn't become a derelict area that occurs under so many interstate structures.

The first thing we need is to try to bring more business into Biloxi, especially on the sand beach. We can attract more tourists and local people by growing more palm trees on the beach, benches under shade of the palm trees. Set up some showers for swimmers and issue more permit licenses for food on wheels. That means we create many more jobs for our community.

The beach would improve itself if not graded so much. The sand would bleach out white, sand dunes would form, sea oats could grow and grass would hold the sand off the road. There would be enough sand by the water for everyone.

The people of Harrison County are taxed enough. Some Government Office get the seawall tax. This seawall have been paid for many times over!! What is this money used for? If we are going to be taxed for the seawall, why not use this money for improvements of the beach.

Look at the possibility of private enterprise being responsible for restrooms, showers litter control, etc. in exchange for vending rights.

Specific plan to handle drainage, sand erosion and vegetation.

Continue to improve the entire Sand Beach.

I see no reason why additional taxes should be required after years of seawall tax being paid in. If additional funds are required, which will be, then there are part of Biloxi's Waterfront Master Plan that should be integrated with the Sand Beach Master Plan and funded from bond money accordingly.

Your doing good Jeff.

Enforce litter laws on the beach. The litter is a disgrace and it blows into the highway and lawns along the beach. A well lit (street lights) would improve the beach area.

Add bath houses, bathrooms, pavillions, decks, landscaping and snack stands, beachside camping for RV's, etc.. Several protected swimming areas with Lifeguards, pavillions, etc., large and long government owned fishing piers, with fishing tackle rentals and snack bar.

The reason we no longer use the beaches is due to dirty water and trash washed up on the shoreline areas and lack of available parking.

Remove drains which act as jetties and interfere with littoral drift. Beach would be self cleaning through action of tides, storm surge and littoral drift. Get machines off beach, they destroy the dune formation process. Leave vegetation and driftwood alone. Use prisoners to pick up trash. Prohibit parking on U. S. 90 right of way, extremely dangerous. Require parking north of Hwy., if necessary lease property to use as parking space for users of beach.

Until you control the raw sewage from being drained into the Gulf I would not support the spending of tax money to improve the beach.

Keep pushing on this.

The area next to the Gpt. Small Craft Harbor always get left out.

Please pump sand in, to make beach larger.

What are you doing to improve the quality of the water? The water is in much worse shape than the beach.

Combine by code the Parkway and the Sand Beach maintenance into new organization. Vendors to pay fees to the new organization. Vendors or their organization responsible for providing clean restrooms with approval of location and type/design resting with new organization.

More frequent patrols and much stricter enforcement of litter laws, including stiff fines. Outlaw rental of motorized recreational equipment along the beach, such as "Jet Skis". Aside from being dangerous to swimmers and inexperienced operators, they are a noisy nuisance. Outlaw vendors of all kinds on public property, i.e. U. S. Hwy. 90, seawall, etc.

A law prohibiting glass containers on the beach is greatly needed. Warning signs could be painted on the sea wall with little or no maintenance.

The beach is plain dirty, the water is not fit to swim in if something is not done soon the tourist business will disappear. Activities are needed to keep interest up other than the beach.

I have had a long time interest in the coast getting its full potential from the Sand Beach. As it is we have so much to offer, but with certain improvements we could offer so much more.

Impose stiff fines for litter, especially glass and cans.

Our beach fronts are very dangerous at waters edge. Cuts and bruises from rocks and bottles not only happen daily, but keep many from using the beaches. Once cleaned up the job of keeping it clean would not be too big. Those rocks at waters edge should go.

The sand beach has got to be Harrison County's number one tourist attraction. We are losing more and more tourist to the Alabama and northern Florida beaches every year. I recommend more emphasis on litter control in the short term plan and a major Sand Beach renovation for long term.

Wish water were cleaner.

What is happening to the existing "Sea wall Tax" revenues?

Charge for parking, Coast residents \$1.00 all day, Miss. residents \$2.00, non-residents \$4.00. Not to be put into meters but to have booths to collect the money, this way they could help handicapped and elderly out of their car.

Showers and restrooms should not be built anywhere south of Hwy. 90. I will be happy to discuss my reasons for strongly believing this.

Highway 90 needs more turn lanes. We are constantly almost run over even after using a blinker to notify oncoming cars of our impending turn onto our street. Also the sand needs to be removed from turning bays in the median on a regular basis if not at least after a bad rainy day. Beach highways need better drainage.

HARRISON COUNTY SCHOOLS

When dead fish wash ashore, authorized people should pick them up and throw them into the trash. There needs to be a lifeguard. You never know what's going to happen.

In other areas I have visited there are vendors for everything under the sun, litter everywhere and total wrecking of a natural, beautiful beach. I would hate to see this happen to our area. We need no raw sewage in the water, no pollution in the water, a better way of controlling traffic on Highway 90 during the tourist season, better marking of shortcuts to I-10 and stricter enforcement of beach laws.

We need strict fines on litter and more beach patrol. I believe the financing should come from sea wall taxes which have been paid for ten years.

We need rental chairs and public bathrooms. If we shape up our beaches tourism will be 100% better.

I think maybe they should fine people for littering the beach, including the area where the birds nest. Protecting our wildlife is important. I think they should keep those boats from turning up the sand because it makes our beach water black and dirty looking.

I would like to see the water cleaned and holes that cause fatal accidents to be filled. I would also like to see a certain part of the beach set off for small children and approved lifeguards appointed to different areas of the beach during holidays and on weekends.

Glass containers shouldn't be allowed, as well as dogs. Also when people fish off the beach, they should not leave their unwanted catches lying along the beach. The bones are dangerous from the fish, because a barefoot person could suffer a serious injury; and the smell can be very bad.

It needs a playground.

We do not ever go to the beach for fun, but we have taken out of state people to view it and they feel the same way we do. It needs to be cleaned up with more police patrol.

We do not go to the beach.

The areas in the harbor where small boats are docked need to be cleaned and dredged.

Please have new swings and amusement equipment installed for children.

Have a strict law against all glass on the beach and animals. I have walked the beach many times and picked up enormous amounts of glass along the water's edge. It seems like something could be more enforced about the issue.

Enforce the litter laws and stop boats from throwing off trash.

If out of state tags were charged \$5.00 per day to use our beaches no additional taxes would be needed. Harrison and Hancock beaches are getting worse than Florida during the summer. Local residents don't enjoy them because it is almost impossible to find a place to park on weekends and holidays so why should we pay additional taxes for the pleasure of others?

Do not allow glass containers on the beach. Require out of state motorists to have a decal that local motels and service stations give to customers to say that Louisiana people can buy one tank of gas or spend one night a year or charge a fee on a yearly basis.

Make the laws concerning the beach more publicly known and then make it stick when you catch someone breaking them. Put up cabanas containing showers and dressing rooms and charge for them. People don't mind paying for a little privacy.

The beaches need to be cleaned up around the piers, the erosion to the highway surface needs attention, and some system for highway drainage in the low spots along the beach needs to be developed.

Public officials can see with their own eyes what needs to be done on the beach, but raising taxes is not the answer. Our streets and schools need to come first. These areas have been neglected long enough. Our beaches can wait.

I think there should be parking meters in front of each parking space. This is the way it is in Florida. Mississippians have to pay for the clean-up and maintenance for the beach for the out-of-towners. If parking meters were there, it would help defray the costs. Make the ones using the beach pay for it. There is a lot of Mississippians that don't use the beach. Why should they be taxed?

I believe the grass that is growing in certain areas on the beach is very unattractive. Also I would like to say the beach area of Gulfport Harbor looks great.

Broken bottles seem to be the major nuisance on the beach. I would really like to see a strictly enforced ordinance to keep all glass off the beach.

I feel like it is necessary to clean up the bathing area. Also restrooms are a necessity for every beach goer.

Clean up the water and beach line.

I hardly go to the beach because all the tables and the shelters have been taken down. That fence is very ugly.

We need more palm trees on the beach.

We need better control to enforce existing regulations. Also have people that build bonfires clean up their mess afterwards.

There should be clean water, clean sand and no dogs.

Stop septic and waste water from entering the Gulf.

I would recommend a strict enforcement of no glass on beaches. I would also like to see designated areas on the beach for camping with tents maybe with a 14-day limit on them.

The water is filthy. There is broken glass in the water as far as 4 feet deep.

Keep policeman or some type of law in these areas at all hours. Fine the people who litter and throw glass and trash over the beaches and the highway, and stop the sewage from going into our Gulf waters.

I would like to see them enforce the glass law on the beach. There's so much broken glass from beer bottles and drink bottles it's actually dangerous for kids to play and swim. If you can't enforce the glass law the beach communities should have their business people consider only stocking their drinks in cans and plastic bottles. If people can't buy them in glass containers they can't smash them on the beach. The drink companies make returnable glass containers. Let them make returnable cans.

In my opinion the more beautiful we keep our beaches, the more pleasant our trip is to the beach. A more beautiful beach would generate more income from increased tourism. I strongly believe in keeping the beach free of litter, especially glass bottles and cans.

There has to be something done about cleaning the water.

We were here visiting. When we walked the beach on Hwy. 90 the litter was awful. The Base Commander prefers that military families not use the beach because of pollution.

I think it's just a shame that there is all that beach and it looks so terrible. Nobody seems to care where they put their trash. I think more beach patrol are needed and a fine for littering should be strictly enforced. A few \$100 fines given out and made to be paid would make people think twice about littering.

There needs to be no glass or pets. The sand needs to be cleaned.

We did not use the beach at all during our 5 years at Keesler due to the litter and, foremost, the water itself.

The beaches would be so much nicer if the glass and dangerous materials could be removed from the sand.

Litter control and the enforcement of the no glass containers rule should have top priority. Showers and restrooms should come second.

Put more trees for shade.

The beach needs cleaning. The broken glass needs to be picked up.

Our beaches should be made to attract tourists. Flowers and restrooms are a must. People also get turned off by alcoholic beverages being consumed in large amounts and obnoxious comments from the drunks. Beaches should be for everyone-not just one select group of people.

Keep it clean.

Until we no longer have waste in our water, we won't be able to use our beaches with comfort.

Our beach and the water are a disgrace.

I know it would be difficult, but one of the main problems, I feel, is the Biloxi beaches had is trash in the wading areas and along the shoreline.

The water is disgusting.

Clean up the water. The beach is nice from a distance, but filthy close up. It's not very healthy.

There should be some kind of patrol on the beach to assure that people don't litter or break bottles. All glass should be cleaned up from the beach for the safety of the people who use the beach area.

Clean up glass in the water and on the beach.

During a recent trip to Gulf Shores, Al, I noticed that the public beaches had an ideal setup. They had a wooden boardwalk along the north side of the beach and about every 500 feet a covered pavilion with benches for the sunburned. There were also several outdoor showers where people could wash away sand getting into their cars. These such improvements would draw more people to our beaches, locals and tourists.

Stop, at once, business and private disposal of waste water and products into storm drains. All places should be required to hook into the sewer system. This would help a great deal in making the water more sanitary.

I believe that inmates of local city and county jails should be used to clean up beach areas. People who receive DUIs should have to help clean up also.

We need playgrounds on different parts of the beach for the little kids.

We need bathrooms.

Restrooms are a must. Additional lighting would be helpful.

The beach is O.K., but the water is filthy. It's the main reason why we don't go to the beach.

Clean up the water by finding an alternative sewage.

Clean up the water.

I believe more time and effort should be put in cleaning the water than putting any more money into the sand beaches. Then maybe more people would take their families swimming.

We need bathrooms and more shady areas.

Put the tables back on the beaches with shelters over them like before. I think more people would use the beaches. We need the swings back.

I do not think that any additional taxes are needed to finance improvements for the beach. We pay plenty of tax when we buy license plates and our roads are not kept up accordingly to the rate of tax we pay.

The sea wall tax should cover basic improvements, however a one to two percent tax for short term duration would be acceptable for immediate improvements. Short term would be no longer than 2 or 3 years. Dredge area to improve swimming and accompanying boardwalk with food, rest areas, games, etc, to provide revenue for maintenance of this area. Also this area should have a lifeguard.

The only way to improve the beach would be to improve the quality of the water. Remove all buildings from the beach side of HWY. 90 and put sand dunes in their place.

Clean the water. Stop dropping sewage in the Gulf. There need to be more launching ramps on West Beach Biloxi.

Put the tables back on the beaches with shelters over them like before. I think more people would use the beach. Put the swings back, also.

The amount of trash found immediately offshore is shocking. Could not workers from the county jail be employed to police this critical offshore portion of the beach during the winter when the tide is low?

Halt the procedure of dumping sewage in the water.

The beach needs to be cleaned up.

Pick up glass, fish bones, sharp sticks and shells. Put picnic tables out to eat on.

Beach improvements should come from existing revenues. You could charge for usage of beaches like New Jersey does.

Playground equipment could be used by our kids while we're at the beach.

As was done in the 1950's-windrowing should be used to keep the sand from blowing on the highway. It was successful then and would be now. This should be done especially during the winter months when the beach is not used extensively and not so much in the summer so the sand could pack making it easier to walk on the beach.

Keep the Long Beach area as attractive as the Gulfport area. The Gulfport area is kept much cleaner and the sand is sifted much more often then the Long Beach area.

I think that the people from Louisiana who use our beaches on the weekend and summer months should share the cost of upkeep and maintenance.

Our family would like to see our beach area maintained in as close to natural state as possible.

The birds should revert to the islands, a natural habitat. The beach is not nature's plan for the birds.

Enforce glass ordinance.

Have bonfires strictly monitored.

Prevent further commercialization along the beach front and the accompanying degradation of the natural state of the beach. Erect sand fencing from November to March to retain sand on beach and to keep it off HWY. 90. This method has been used successfully along the Atlantic Coast.

They need more restrooms and more picnic tables on all beaches.

Enforce litter laws and improve the drainage system. Water that pours into the Gulf through the drain systems is almost always dirty with bottles and trash of all kinds.

We need more picnic areas, more bathrooms and showers, and more boat launches.

We need to clean up the water. The trash floating around is terrible. We need to figure out how to get the Louisiana folks that come over for the day to spend money in our city to supply some of the revenue for making the improvement mentioned above.

Build more shades or plant something that will provide such an effect. The sewers are an unattractive site.

Improve the beach patrol to prevent littering and secure public safety. The litter at Henderson's point needs cleaning up.

Do something about the traffic along the beaches.

Enforce no glass and no littering ordinance.

Clean the water. Enforce no glass law on the beach.

Make a smaller area in one part of the beach for the Least Tern birds; they don't need miles and miles of beach. People come down to enjoy our beaches. If they don't have anywhere to go because of the birds, the people will start to go somewhere else.

Arrange to have litter barrels on the beach emptied by Monday afternoon following the weekends during peak season. There needs to be stricter enforcement of articles on beach such as glass bottles and other breakable items. There should be no pets on beach.

We've already been charged a seawall tax for the last 20 years or so, that has been used for many other things not even related to the beach. If the seawall tax were to be used exclusively for beach maintenance and improvements, there would be no need for additional taxes.

We need better quality and more frequent beach patrol, better maintained wildlife, improved litter control, and the fishing boats need to be further away from shore.

Build a bridge to Ship Island.

We need enforced litter control programs.

We need showers, restrooms and refreshments.

Pavilions can be used to hold birthday parties.

Enforce the no pets and no glass ordinances. I don't know what needs to be done, but the water is so dirty we do not swim.

Tear down the Long Beach Yacht Club and re-build the children playground. I bet there are more families living in Long Beach with small children than there are families that own yachts.

I think we should establish fines for glass containers being used on the beach and fines for littering. I also think we should do whatever possible to get rid of all the Least Terns trying to nest in areas not designated for them.

There should be areas for large concentrations of people and duned areas for nature lovers. Planting grass would improve sand holding abilities. Restrooms, parking lots, cabanas and showers in picnic areas would localize concentrations of people making it easier for litter control.

The main problems with our beaches is the water. The water has never been deep enough or clean enough to swim in.

Add more shaded areas with tables for picnics with trash cans.

The water is unclean for swimming. What a waste.

Beautification of any kind is fruitless unless, existing laws against litter are enforced or new more strict laws are implemented. Litter along the beach is worse than ever.

We need more security control.

Just clean it up.

There are just too many tourists on the beach, especially during the summer months, for the long time local residents to find a place to park and enjoy the beach that our taxes maintain year round.

We need better litter control.

We need to stop building across Hwy. 49. The water and sand need to be cleaned.

If our beaches were improved it would greatly be appreciated among the local people and it would increase tourism.

There needs to be a higher priority to clean up the dangerously polluted water. Instead of new taxes perhaps they can reallocate existing revenues to take care of these problems. Look into how the seawall taxes are being used. Existing efforts in pollution control in both residential and commercial activities must be vigorously pursued. Consideration should be given to charging user fees such as \$5.00 per bonfire or small charges for showers and bath house facilities.

I enjoy looking at the beach, but every time I decide to get any closer and walk on it or wade in the water, I become disgusted. When you get close up there is still a lot of litter in the sand and the water is horrible. I would not even consider swimming in our water at this time because every time I have allowed my children to swim in the Gulf they have developed throat and ear infections.

Safety signs could be put up as to how far children can wade and be safe. The water should be tested often and the public should be aware if the water is not safe to swim or wade in. Remodel and light Courthouse Rd. Pier, Moses Pier, and Westside Pier.

Clean the beach up. There is too much glass. The water is horrible.

We definitely need more parking. Benches should be erected every so often. A boardwalk would be nice.

We need more picnic facilities.

There needs to be some concern about the sanitation of the water.

Restrooms are very much needed. I don't care for the beach being used as a bath or pool for dogs. More trees are needed.

There should be a stiff fine for people who do not clean up after themselves and who use glass containers on the beach. Use high school and college youths to patrol areas with authority to give citations for unwanted use of beach site. It would provide responsibility and jobs for many young people.

Do away with fines for pets; some humans make a much larger mess.

By improving the beach I believe you would add immensely to the attraction and would pay for itself in tourist revenues.

Clean it up.

We need cabanas and sheds for shade, picnic tables with grills, and playground facilities for children.

People would take better care of the beaches if the town did. You have a lot of tourists and a busy traffic road. Restrooms and showers would please the people, especially the people from out of town. They might stay longer too.

The addition of restroom facilities and litter control would improve the revenue of the city by more tourists. Biloxi beach is one of the most beautiful I have seen, but it is also one of the most polluted.

Enforce litter control. Violators of no littering ordinances should be fined heavily.

There should be special areas for jet skis because of children's swimming. Speed boats should stay from shore and around piers where people are fishing. A lifeguard is needed in heavily swimmmed areas.

Clean up the glass and water.

There should be better enforcement of restrictions concerning glass. Consider putting a boardwalk that would accommodate fishing, bicycles, walking, skating, etc. There need to be some areas with deep water and lifeguards for swimming.

Clean the water.

You need clean water and white sand.

Clean the sand and water so people won't cut their feet.

More lighting is needed for people that like to sit on the beach at night.

Reduce the number of vendors on the beach. Have specified swimming areas with cabanas, restrooms and showers. Keep the bottom of these areas free from dangerous debris.

Leave it alone.

We need more public fishing piers.

We need to keep the trash in the garbage cans. People need to practice water safety.

The water quality is terrible. The sight of the culvert emptying into the sound does nothing to make me want to use the beach.

Clean up the water and station lifeguards. The beach water closely resembles a sewer. Our greatest attraction on the Coast is such a disappointment.

The beach has improved, but there's still a lot of trash. If only the water wasn't so bad by the shore.

In front of Paradise Ave. there are concrete stacks and they are very dangerous to the city. Would you do something about it before someone gets hurt?

Keep the beach cleaner and get more trash cans.

Tourism is one of our most important industries. This greatly aids our community by (1) increasing jobs, (2) larger tax based on increasing business and revenue. If we don't improve our resources to compete with neighboring Dauphin Island, we can kiss our lovely revenues "good-bye" and expect the taxes to be spread among fewer tax payers.

The beach area should be extended and kept at a certain boundary line. I would like to see recreational areas established with restrooms, rentals and refreshments available in one location with adequate parking off of Hwy. 90. I would like to see the Least Tern Area abolished.

I would like to see more public work details from the ranks of the DUI's and convicted men. Beautification and recreational maintenance must be actively on-going for tourist attraction and local pride. If the quality in a "Sand Beach Master Plan" should surface through wise unselfish planning with recreational and esthetic benefits for all protected by law, I feel that my family and I would eagerly enjoy and participate.

Gulfport beach needs more parking locations. Also the sand spurs are annoying on the beach.

Take the glass out of the water and off the sand and other objects. We need new trashcans. New barbeque pits would stop the people from building fires on the beach. It should have a beach patrol. No glass allowed on beach, if caught will be fined \$100.

Clean the beaches. Build another park. Try not to let people pollute the water.

Find where existing tax dollars are going. We obviously are not getting them even though this is not a high tax area. There should be enough dollars to not only improve the beaches and make them more attractive to residents and tourists but the latter would return dollars to help pay for improvements, especially with concessions sold.

They need to clean the seaweed and dead fish from the water. Blow up the islands. The water would be more like Alabama and Florida beaches.

Something needs to be done about the appearance of the water. We need more picnic areas.

I would like to see some portions of the beach patrolled more thoroughly by the police.

I work on the beach and I think that the driftwood needs to be cleaned up. More beach patrol. The parasail needs to be farther out. Someone is going to get hurt. No more rentals than are now. Dead fish need to be cleaned up.

Keep area nearest water clean of debris, dead fish, etc. Have more covered areas from which you could retreat from the sun.

Do something to make the water cleaner. We would be willing to pay more tax to accomplish this. Use less beach space for the birds. We feel both the above hurts tourism.

I feel that restrooms and showers would improve the appeal of the beach but these facilities would be a detriment if they could not be kept clean and free of abuse. I question whether this can be done without almost constant maintenance.

Have it controlled in some way to help improve the litter and to clean the shore of the trash and litter from the water.

Need to clean the beach and try as much as possible to keep it really neat and clean for tourists and our own people. Put more playground equipment for children. KEEP THE BEACH CLEAN.

If the water was as clear and clean as the water in Florida or California I wouldn't mind improvements, but the way it is now any improvement would be useless. Have you seen the water? dirty, brown, scummy--YUK!YUK!

The palm trees and cactus plants improve appearance 100%. More of these would be a nice improvement. Some people complain about vendors. I think vendors, sailboats, etc. add to the beach, making it more lively and attractive. It is looking better all the time. I remember when it used to be plain and dead looking.

We need more police patrols to keep off undesirables so decent people can use the beach without any fear for their children's safety.

Put more playground equipment for children, more showers, beach walls, clean the sand on the beach. Standing by the water's edge I saw soda and beer bottles washed up. Diapers and boxes of all kinds were there too. These were things that people take on their boats and throw overboard. The Coast Guard should take notice and start fining \$1800 to anyone throwing junk off boats or people on beaches leaving garbage or throwing stuff on beaches. They have people watching out for the ones who abuse alcohol. It's bad enough that regular people have no concern for others than these drunks who never even care about themselves. Parents should start suing the city if their children get hurt at the beach while they are with them. Or we should not go at all. I would not advise at this time any of my relatives up north to vacation down here for it is ugly.

They need to get the black stuff out of the water. They need to clean the sand up. They need more garbage cans. They need more tables and little huts.

I do not have much to do with the beach so you can do what you want to do.

Gulfport Harbor is the only place we have swings. I think tourists like to have the sets for when they come for sunbathing they can watch their children swing.

There is no way to improve the beach unless you can make the water better. I do not go to the beach except maybe once a year because I think the water is polluted. If you can clean up the water I will start going to the beach more often.

Someone is needed to clean the beach and keep it clean. Children's safety should be kept in mind. More tables and huts are needed.

More litter control is needed. There should be a law that all pets had to be on leashes.

I realize there's not a lot we can do to clean up our ocean water, but there's no limit to what we could do for our beaches. The better the beaches the more tourists we'd have, which brings in more money. The little kids swings are made of metal. They should be made of plastic. I have seen a couple of small children get badly hurt from those heavy metal swings.

I know there are signs to control litter, but they don't do much good.

Gulfport Harbor is the only place on the beaches we have to swing. I recall the extra pleasure we had gotten to go down in the evenings to watch the sun set while the children played on the swings.

There is a need of cleaning or clearing the water of pollution, and the sand in some areas is not white.

The worst thing is the obvious contamination of the water. This will eventually have to be improved to avoid the elimination of sea life anywhere near the shore and health risks to humans.

I think a law should be passed to fine trespassers on the nesting areas. More bungalows for shade should be built. Also tables and benches. All the parking should not be reserved for cars belonging to boat owners since about 60% of the boats tied at our piers are from out of town. The citizens of Gulfport have gotten a raw deal on that.

Cleaner water.

There's so much broken glass, I make our children wear shoes to the beach. Such a shame people break bottles all the time.

Clean beaches after storms and clean up dead fish, dead birds, bottles, food and beer cans.

Beaches are looking a little better. The water looks terrible.

More signs need to be posted letting the public know that it is against the law to damage piers(including lights). Why can't the boat ramp and depth of area be improved at Courthouse Pier?

Cleaner water beautifies sites for tourists and the people who live here.

The seawall tax has been misused. If the seawall has to be paid for, the taxes should be channeled to the beach area. In return it would bring in more revenue and further more taxes. The beach is our asset and should be expanded for tourism with more fishing reefs, more piers and more live bait shops. We are not serving the needs of the people.

Our beaches are very nice and extremely important to the economic growth of the Gulf Coast. We must make and keep the coastal area attractive, clean and convenient, if we are to attract tourists.

It would be nice to have picnic areas with some shade, tables, barbeques, waste disposals and restrooms. We also need some lifeguards. Also a nice idea would be to have ramps overhead so that people could cross the highway easily and not have to contend with the traffic. Another good idea would be to put up a couple of lookout towers so one could get a better view of what is further out. Also bicycle paths would be nice.

Install a retainer fence to keep sand from blowing onto highway. Enforce a no drinking of alcoholic beverages on the beach law to cut down on can and bottle litter.

We need more lawn chairs, better litter control and better parking.

Clean the water up.

We need a playground on different parts of the beach for little kids.

All these improvements would make the beach nicer but as long as the water is so filthy one will not use the beach more than once or twice a summer.

Improve shoreline cleanliness if possible.

CIVIC CLUBS/DROP-OFFS

If some vegetation were allowed to grow, the vegetation would help stop sand from blowing away. If some semblance of a natural beach could be established, it would improve the appearance and make the beach more stable.

Have uniform beach patrol to control litter and others disturbing the peace.

Areas used by locals don't dictate the same services as areas used by tourists. The section by Pass Christian attracts primarily Louisiana traffic. In that area, restrooms, refreshments and showers would be appreciated.

Specific trash and dead fish need to be picked up at water's edge.

Boardwalks along frequently used sections of the beach are needed. During the summer outdoor cafes in temporary structures would be nice.

I would like to see more restrooms and showers on the beaches.

Get rid of birds and let people back on.

We need more boat slips.

Have stricter laws for shrimpers discharging trash and dead fish in the water. Set up fines if they are caught.

I know that it is impossible, but it would be nice if there were some way to charge a small fee for using the beach.

PUBLIC MEETING EXIT SURVEYS

November 12, 13, and 14, 1985

One important objective of the November public meetings was to document the publics' response to the preliminary Master Plan concepts presented during those meetings. In particular, public response was sought regarding four major concepts: 1) the basic plan concept of balancing higher use recreational activity areas with preservation/conservation areas; 2) the establishment of three management categories to designate different shoreline segments for different types and intensities of use and, where appropriate, to indicate where new facilities for beach users should be located; 3) the introduction of beach stabilization and erosion control measures; and 4) addition taxation to support beach improvements. At the conclusion of each public meeting, attendees were asked to complete an exit survey addressing each of these four concepts. As shown on the following page, the tabulated results indicate public endorsement of the approach and concepts contained in the Preliminary Master Plans for both Harrison and Hancock Counties.

EXIT SURVEY RESULTS

1. Do you agree with the overall concepts of the plan presented here tonight? Yes

<u>Meeting Location</u>	<u>#</u>	<u>%</u>	<u>Total Respondents</u>	<u>Total Surveys</u>
Biloxi	29	100%	29	31
Gulfport	40	82%	47	51
Hancock	<u>68</u>	<u>92%</u>	<u>74</u>	<u>75</u>
TOTAL	137	91%	150	157

2. Do you agree with the establishment of Beach Management Categories I, II and III presented in the plan here tonight? Yes

Biloxi	30	97%	31
Gulfport	39	85%	46
Hancock	<u>65</u>	<u>88%</u>	<u>74</u>
TOTAL	134	89%	151

3. Since something needs to be done to prevent beach erosion, do you agree with the introduction of beach vegetation and other control measures (e.g. sand fencing) to reduce beach loss and associated maintenance costs? Yes

Biloxi	30	100%	30
Gulfport	50	98%	51
Hancock	<u>75</u>	<u>100%</u>	<u>75</u>
TOTAL	155	99%	156

4. Would you consider an additional tax to finance the improvements discussed here tonight? Yes

Biloxi	23	76%	30
Gulfport	25	56%	45
Hancock	<u>58</u>	<u>79%</u>	<u>73</u>
TOTAL	109	73%	148

5. How did you hear about tonight's meeting:

	<u>Biloxi</u>	<u>Gulfport</u>	<u>Hancock</u>	
Television	<u>16</u>	<u> </u>	<u>20</u>	46
Newspaper	<u>20</u>	<u> </u>	<u>51</u>	71
Radio	<u>6</u>	<u> </u>	<u>4</u>	10
Other	<u>11</u>	<u> </u>	<u>35</u>	46

APPENDIX D:

**SAND BEACH TECHNICAL ADVISORY COUNCIL
AND
EXECUTIVE POLICY COUNCIL**

TECHNICAL ADVISORY COUNCIL

John Scafide, Jr., Chairman - Bay St. Louis
Bobby Boudin - Hancock County Civil Defense Director
Millie Bradtman - Bay St. Louis
Mike Carron - Bay St. Louis
Donald Caserta - Waveland
Lisa Cowand - Bay St. Louis
Ellis Cuevas - Sea Coast Echo
Jimmy DeBlanc - Hancock County Port and Harbor Commission
Nancy Gex - Waveland
Clarice Gustin - Chamber of Commerce (Former Director)
Gwen Hogan - Bay St. Louis
Robert Kane - Bay St. Louis
Jennell Kern - Bay St. Louis
Ray Kidd - Waveland
Buddy Klien - Waveland
Frank McNeil - Bay St. Louis
Libby Milner - Chamber of Commerce (Director)
Don Murray - Bay St. Louis
Mike Ncaise - Chancery Clerk
Sybil Paul - Bay St. Louis
Mary Perkins - Bay St. Louis
Vincent Schott - Waveland
Louis Smolensky - Waveland Councilman
Dorothy Sutton - Waveland
Richard Thomas - Bay St. Louis
Sue VanZandt - Bay St. Louis

EXECUTIVE COUNCIL

Hancock County Board of Supervisors

Bert Courrege, District 1
A. Dolph Kellar, District 2
Roger Dale Ladner, District 3
Sam Perniciaro, District 4
James Travirca, District 5

Mayors

Vic Franckiewicz, Bay St. Louis
John Longo, Waveland

Chairman Ex Officio

Dr. Richard Leard, Bureau Director, Mississippi Dept. of Wildlife Conservation, Bureau
of Marine Resources

APPENDIX E:

**EXECUTIVE POLICY COUNCIL RESOLUTION
ADOPTING MASTER PLAN**



RESOLUTION OF EXECUTIVE COUNCIL

ADOPT SAND BEACH MASTER PLAN

THERE CAME ON for consideration the matter of adopting the Hancock County Sand Beach Master Plan.

RESOLUTION

WHEREAS, the Technical Advisory Council has formulated and adopted a long range master plan for the protection and utilization of the Hancock County Sand Beach and related areas; and

WHEREAS, adoption of the Master Plan by we, the Executive Council is necessary and essential to complete the planning process; and

WHEREAS, implementation of the Master Plan is contingent on the adoption by the Municipalities and the Board of Supervisors;

NOW, THEREFORE, BE IT RESOLVED that the Sand Beach Executive Council does adopt the Hancock County Sand Beach Master Plan and recommend that the Board of Supervisors and the Municipalities adopt the Master Plan, and further that the Technical Advisory Council assist the Executive Council in the presentation of the Master Plan to the Public, Municipalities and the Board of Supervisors for their approval and adoption.

(3080P)

WHEREUPON it was moved by Council Member Courrege and seconded by Council Member Ladner, that the foregoing resolution be adopted and the motion having received unanimous affirmative vote of all members of the Executive Council, the Ex-officio Chairman declared the motion carried and the Resolution, this 21st day of May, 1986.

SIGNED

Victor Frankiewicz
Victor Frankiewicz

John Longo
John Longo

Bert Courrege
Bert Courrege

Dolph Keller
Dolph Keller

Roger Dale Ladner
Roger Dale Ladner

Sam Perniciaro
Sam Perniciaro

James M. Travirca
James Travirca

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