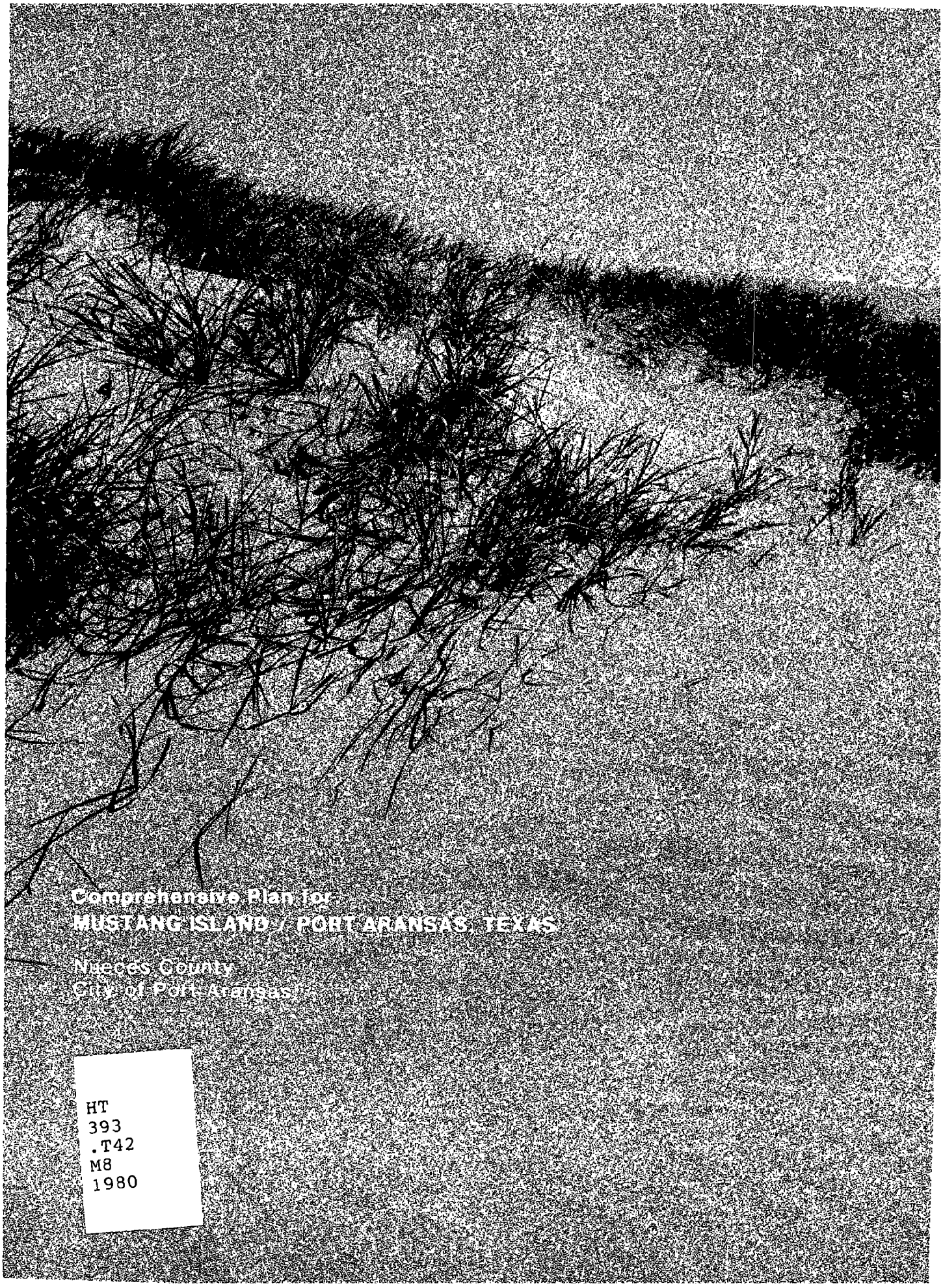

Comprehensive Plan for MUSTANG ISLAND / PORT ARANSAS, TEXAS

Nueces County
City of Port Aransas

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1980

Coastal Energy Impact Program
Office of Coastal Zone Management
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

Project Summary

City of Port Aransas/Nueces County
Planning for Impacts on Mustang Island and City of Port Aransas

Type of CEIP Assistance - Section 308(c)(1) planning grant

Assistance Federal $56,000 Non-Federal $14,000

Grant Number NA-79-AA-D-CZ014 (SAI No. 8-06-50-333)

Project Duration 12/1/78-3/31/80

Problem

Mustang Island is one of the last remaining islands privately held and developable. The growth in energy development activities nearby has increased pressures on Mustang Island's dunes, beaches, and wetland areas. Four units of government have authority over part or all of the island; state and federal agencies have jurisdiction in specific areas. In short, no single unit of government has authority to direct development on Mustang Island.

Project

The objective of this project was to develop a comprehensive plan for Mustang Island and establish a framework for development guidance.

Results

A Comprehensive Plan for Mustang Island and an update to the 1971 Port Aransas Comprehensive Plan were completed. The major focus of this activity was to formulate a plan that would protect environmental resources and at the same time allow appropriate development and public use.

National Objective Implementation

Through this project, local governments and private citizens on Mustang Island, representing both development and preservation interests, were able to work together to formulate a responsible plan for managing the island's resources as a whole. A coordinated set of specific actions for each unit of government were also proposed for implementing the plan.

Report

"Comprehensive Plan for Mustang Island/Port Aransas, Texas." For copies, contact the City of Port Aransas or Nueces County.

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CHARLESTON, SC 29405-2413

COMPREHENSIVE PLAN
MUSTANG ISLAND/PORT ARANSAS, TEXAS

Prepared By

Nueces County
City of Port Aransas

January, 1980

The preparation of this report was financed through a Coastal Energy Impact Project Grant from the US Department of Commerce administered by the state of Texas, Governor's Office, Department of Budget and Planning.

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Joaquin Villareal

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Dennis Dreyer

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Gerald Keene	Gerald Keene
Al Mora	Joe Kelly
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Robert Thorpe	City Attorney
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J. D. Gallik	Planning Technician
Sterling Wheeler	Planning Technician
Iris Young	Planning Technician

Special appreciation is extended to the students and teaching staff of Port Aransas High School for conducting surveys and participation and interest in the planning process.

CONSULTANTS

Harland Bartholomew & Associates, Inc.
Ross, Hardies, O'Keefe, Babcock and Parsons

INTRODUCTION

Mustang Island is the northern extension of Padre Island, a barrier island 120 miles in length along the south Texas gulf coast. Mustang Island itself is approximately 12,000 acres in area and 18-19 miles in length, and lies at the mouth of, and protecting, Corpus Christi Bay. Environmentally fragile, the island has long been considered a valuable resource by both the environmental factions and interested developers. The city of Port Aransas is located on the northern tip of the island and has a permanent population of around 2,500 persons. The city has long been a summer tourist spot famed for its fishing and attractive beaches and the population of Port Aransas increases greatly on peak days, such as Easter break, when college students spend their vacation on the island.

National and state interest in recent years has focused on coastal resources such as Mustang Island. Locally, the issue of major development, the proposed superport and its impact on the island, and the concern by landowners over the impact of public use of the beaches by increasingly larger numbers of people, have all been topics of discussion.

In 1979, Nueces County and the city of Port Aransas, using Coastal Energy Program funds, commissioned this planning study to develop a Comprehensive Plan for Mustang Island and to update the 1971 Comprehensive plan for Port Aransas. The major focus of the study from the beginning has been to devise a framework for development of the island which will protect the environmental resources and strengthen the overall economy.

The project has involved close involvement by the four local governments, having authority on Mustang Island including Nueces County, the Nueces County Water Control and Improvement District #4, the city of Port Aransas and the city of Corpus Christi. A separate committee composed of island landowners has also been involved in working on the project. Numerous other governmental agencies, as well as interested groups and individuals were contacted and public meetings were held to facilitate public input.

This report contains final recommendations for the island as a whole and for Port Aransas. A specific list of actions for each unit of government has been included in the implementation section.

Mustang Island is one of the last remaining islands privately held and developable. Its beautiful dunes, beach, and wetland areas cannot be replaced. The quality of new development that occurs in the next ten years, the ability of the development community to site buildings and utilize the land without harm to the fragile systems that exist, and the need for government to responsibly manage the island resources will be important in the long run. This plan provides the opportunity for those involved in the island, both its development and management, to work together for the good of Mustang Island.

EXECUTIVE SUMMARY

Present Development

Present development of Mustang Island consists of the city of Port Aransas, with a permanent population of around 2,500 persons and an average summertime population of around 7,500. A number of projects have been constructed south of Port Aransas including Mustang Beach, El Cortes, Gulf Shores and Lost Colony. The city of Port Aransas has some potential for expansion, however, the greatest potential lies south of Port Aransas, where there are approximately 6,100 acres between Mustang Island State Park and the city.

Complicating Factors

A number of factors complicate present and future development on the island. These include:

1. Fragmented Governmental Jurisdiction

Four units of government, Nueces County, the city of Port Aransas, the city of Corpus Christi, and the Nueces County Water Control and Improvement District #4, have authority over part or all of the island. In addition, the state of Texas and the various federal agencies have jurisdiction in specific areas. No single unit of government has authority to direct development on the island.

2. Economic Focus

The island economy is based on the tourist. Mustang Island competes in the market place for the tourist dollar and its marketing effort, at present, is limited.

3. Island Ecology

The ecological systems of the island are fragile and any use of the island should minimize stress on various enviornmental zones.

4. Lack of Development Guidance

In addition to the fragmented governmental authority, there is no comprehensive development guidance for the island. The most effective leadership to date has been exerted by the NCWC & ID #4. A plan, with policies and standards, together with appropriate regulations is needed for future development.

5. Heavy Beach Use

The major public resource of the island, the gulf beach, is heavily used on some days of the year. Crowd control during these days is a problem.

Management of use of the beach on a day-to-day basis is limited and beach users often cause damage to the dune areas and trespass on privately-owned property.

Mustang Island Comprehensive Plan

The plan for Mustang Island is designed to provide a framework for development of the island, recognizing the city of Port Aransas as the urban center for the island. The plan assumes that either the city of Port Aransas or the city of Corpus Christi, or both, will eventually expand their corporate boundary, so that Mustang Island is entirely within a municipality. However, since that will probably occur over a long period of time, the plan is designed to deal with Mustang Island as an unincorporated area over the short run. The plan assumes that Nueces County will not have ordinance making powers. Major recommendations are:

1. The island should form an economic development corporation, perhaps including North Padre Island, made up of leaders in the business community, public officials and citizens, to aggressively market the island.

2. The following development policies should be adopted by jurisdictions having authority on the island:

   a. Jurisdictions should plan for growth in the city of Port Aransas from an average summer population of 7,500 to 10,000 persons.

   b. Jurisdictions should plan for a long-range population on the island (excluding Port Aransas) of between 20,000 and 30,000 average summer population. Over the short run, growth will probably be slow, with a few new projects each year.

   c. Major development should be located in the barrier flat environmental zone, with no development in the beach and foredune areas, limited development in the dune zone (behind the foredune ridge) and very limited development in the tidal flats zone.

   d. Densities should be allocated by environmental zones with bonuses provided for development in the barrier flats zone to provide an incentive for development of that zone. (See Development Guide.)

   e. Standards should be adopted for development of the island to insure the quality development of the island.

3. Transportation recommendations include the following:

a. Further study of the concrete median on the Kennedy Causeway and of the potential for raising the level of low portions of the causeway to provide a higher capacity hurricane evacuation route.

b. Gradual improvement of Park Road 53 as a major arterial highway for the island.

c. Where the dune complex permits, development of secondary routes parallel to Park Road 53.

d. Concentration of access from Park Road 53 at points where Park Road 53 intersects both major beach access roads.

e. Preservation of Park Road 53 capacity by a variety of methods of combining and limiting access.

4. Support services should be provided in accordance with population levels as outlined on Table 5. Special effort should be directed to increasing sanitary sewer treatment capacity and developing of alternate methods of solid waste disposal.

5. The plan proposes two major park concepts:

a. Development of 5-10 multi-purpose strip-breaker parks to provide access to the beach, preservation and development of storm drainage capacity and land banking to assure future park resources.

b. Development of a major park on the bay side and providing alternative recreation opportunities.

6. Utilizing the existing authorities, the plan proposes a method of development guidance, which includes:

a. Formation of a Coordinated Development Review Process, by agreement between the present jurisdictions to: (1) provide all jurisdictions specific facts concerning a proposed development, (2) provide each jurisdiction a basis for decision making, and (3) coordinate the overall review process without usurping the authority of any existing jurisdiction.

b. Adoption or approval of the Development Guide by each jurisdiction as minimum standards for development on the island (and which may be made more restrictive by any jurisdiction that so desires).

c. As an alternate to utilization of the above, the city and Water District, could enforce the Development Guide on most of the island, by way of an intergovernmental contract.

7. The update of the Comprehensive Plan for Port Aransas includes adjustments to the land use plan, the major streets plan and community facilities plan and provides a focus for efforts by the city over the next 10 years. These include:

   a. Marketing the Civic Center and other tourist accommodation facilities.

   b. Continued development of the Port Aransas harbor.

   c. Improvements to Cotter Avenue.

   d. Improvements to Alister Street and provision of additional parking for commercial stores.

   e. Development of programs to bring about commercial renovation and housing rehabilitation.

   f. Attention to a wide range of civic design areas including parking lots, signs, pedestrian/bicycle ways, landscaping and property standards.

BACKGROUND ANALYSES

To provide a background for planning and an understanding of the island and the many factors which influence it, many areas were investigated using a literature review, personal interviews, meetings, and surveys.

The following chapter contains analyses of governmental jurisdictions, the tourist, land ownership patterns, support facilities and services, beach use, hurricane evacuation, environmental considerations and potential development levels.

Relevant Governmental Authorities

There are a number of governmental entities with jurisdiction over all or a part of Mustang Island. (See Plate 1).

Nueces County

Mustang Island is located in the northeast corner of Nueces County. The County has administrative responsibilities in the unincorporated portions of the county, constructs and maintains county roads, provides county parks and administers the Dune Protection Order for the entire island. The County works with the City of Port Aransas on beach maintenance and regulation.

City of Port Aransas

The city limits of Port Aransas extend approximately from the Jetty to Access Road No. 1-A and its extraterritorial limits extend approximately one mile beyond, subject to a boundary agreement with the City of Corpus Christi and Aransas Pass. The City's land use regulations include development performance standards, subdivision and flood plain regulations, and beach regulations. The City works with Nueces County to preserve the dunes and to maintain the beach.

City of Corpus Christi

The city limits of Corpus Christi run along the bay side of Mustang Island for much of the island's length. The extraterritorial jurisdiction of Corpus Christi includes all of the island except for that within the extraterritorial jurisdiction of Port Aransas. Corpus Christi exercises its platting authority in its extraterritorial area.

Nueces County Water Control and Improvement District #4

The Water District provides water and sewer service to Mustang Island. All of the island including the City of Port Aransas is in the District except for approximately 800 acres of land located in the northern one-third of the island. In connection with the services it provides, the District implements some city regulations within the unincorporated portions of the island by means of an agreement with the City.

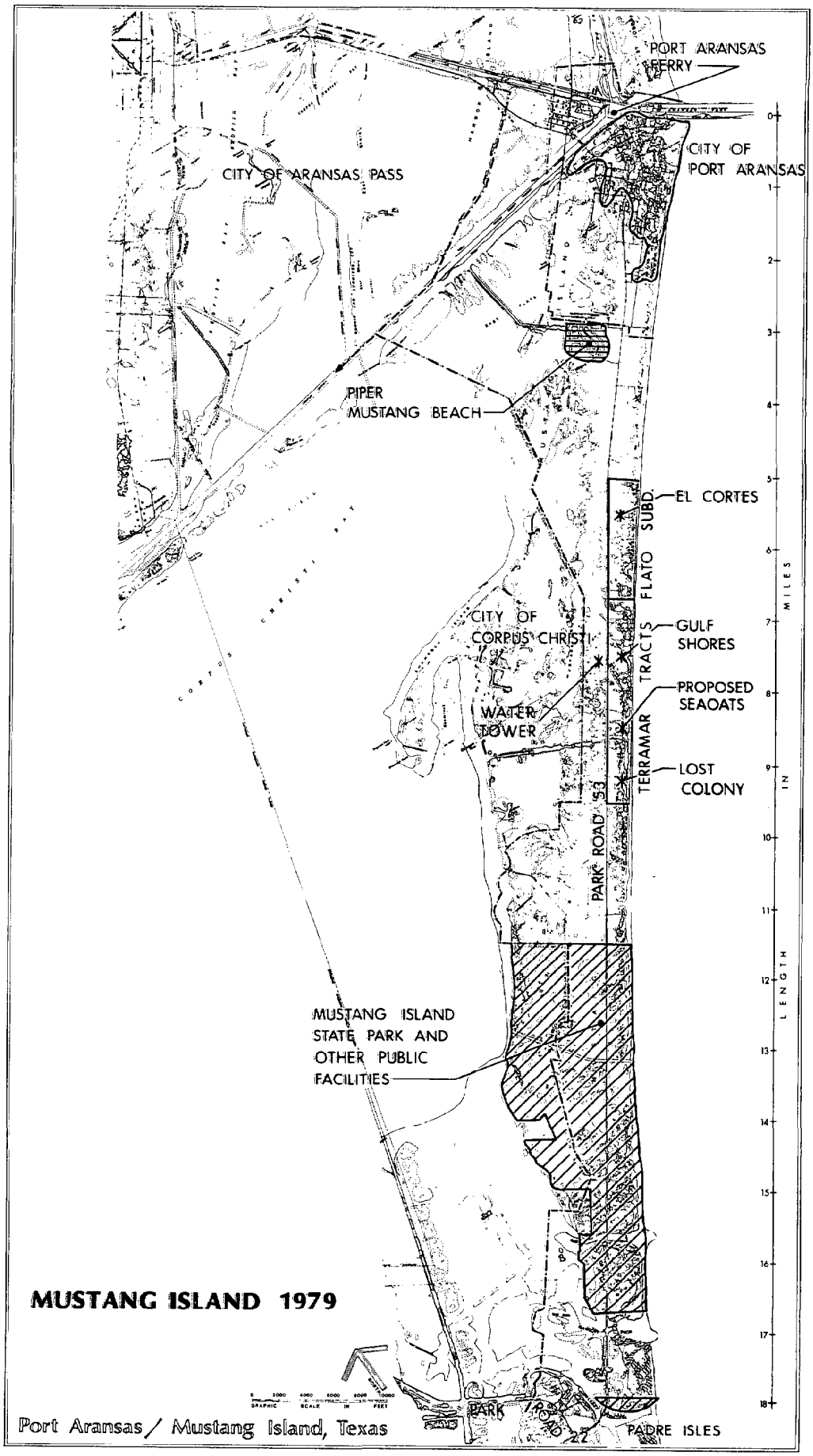

PORT ARANSAS FERRY
CITY OF PORT ARANSAS
CITY OF ARANSAS PASS
PIPER MUSTANG BEACH
EL CORTES
FLATO SUBD.
CITY OF CORPUS CHRISTI
GULF SHORES
TRACTS
PROPOSED SEAOATS
WATER TOWER
TERRAMAR
LOST COLONY
PARK ROAD 53
MUSTANG ISLAND STATE PARK AND OTHER PUBLIC FACILITIES
MUSTANG ISLAND 1979
PARK
PADRE ISLES
Port Aransas / Mustang Island, Texas
LENGTH IN MILES

PLATE 1

Other Entities

In addition to the above principal entities, there are a number of other governmental entities with direct or indirect interests on the island, including The State of Texas, particularly the General Land Office, Nueces County Navigation District No. 1, U. S. Army Corps of Engineers, U. S. Fish and Wildlife Service and the Environmental Protection Agency.

The Tourist

In order to better identify the tourist, where he comes from, where he stays, where he spends money, etc., two questionnaire surveys were utilized and combined with observations gained through interviews with people on the Island.

Survey Methodologies

Vehicle occupants leaving the Island via the ferry were surveyed on Sunday, August 19. Questionnaires were filled out while the vehicles were waiting in the ferry line. A total of 472 usable surveys were obtained representing 14.3 percent of the 3,300 vehicles exiting the Island that day. These represented a broad cross-section of the tourists coming to the Island and were felt to be representative of the tourist industry as a whole.

Persons staying in tourist accommodations, from motels to condominiums, (including RV parks) were surveyed to gather more data on this segment of the tourist industry and to cross-check results of the Outbound Vehicle Survey. Questionnaires were left with motel/condominium clerks and parties checking out on Sunday, August 12, were asked to fill out the questionnaire. Questionnaires from 121 parties containing 542 persons were obtained representing approximately 10 percent of the $\pm$ 1,200 available rooms on the Island. Of the approximately 50 establishments on the islands, questionnaires were returned from 21.

A sample of each survey is contained in the appendix.

Outbound Vehicle Survey (OBV)

Major findings of the summary are listed below. (See Table 1). Survey responses reflected the "Summer Sunday Afternoon Ferry" group. Different characteristics could be expected for an average weekday or an off-season day.

1. Average number of people per vehicle was 2.9 persons with 75 percent of the vehicles consisting of 4 or less persons.

2. Most surveyed (54 percent) stayed two days or less, with 75 percent staying five days or less.

Table 1
SUMMARY OF FINDINGS
OUTBOUND VEHICLE QUESTIONNAIRE
Port Aransas, Texas

A. Vehicle Type

	Percent
Auto or pick-up with sleeping accommodations	4.9
Auto or pick-up without sleeping accommodations	91.7
Recreation vehicle	2.8
Other	0.6
	100.0

B. Number in Party

1 person	4.7
2 persons	31.6
3 persons	16.7
4 persons	22.5
5 persons	10.2
6 persons	6.1
7 persons	4.6
8 persons	3.6
	100.0

C. Permanent Address

San Antonio	32.4	
Corpus Christi	7.4	
Austin	8.1	
Houston	7.6	
Dallas	1.9	
Ft. Worth	1.5	
Aransas Pass	3.0	
Other Texas	29.0	
Total Texas	90.9	90.9
Total Out of State		8.5
Not Identified		0.6
Total		100.0

D. Length of Stay

1 day or less	30.3	
2 days	24.2	
3-5 days	22.9	
6-10 days	4.7	
over 10 days	3.6	
Sub Total	85.7	85.7
Live or work on Island		1.6
Not Identified		12.7
Total		100.0

E. Access Point

	Percent
Port Aransas Ferry	80.3
Park Road 53	17.4
Not Identified	2.3
Total	100.0

F. Type of Lodging

Tent on Beach	4.2	
Car on Beach	8.3	
RV on Beach	2.8	
County or State Park	1.5	
Boat	3.2	
Sub Total		20.0
RV in RV Park	1.5	
Motel	14.4	
Condominium	15.0	
Private Home	12.1	
Sub Total		43.0
Day Tripper	30.3	
Not Identified	6.7	
Sub Total		37.0
Total		100.0

G. Spending Characteristics

Category	Average expenditure per person per day
Lodging	$ 4.11
Food/Liquor (Store)	2.89
Food/Liquor (Restaurant)	2.65
Gasoline	1.99
Clothing	1.26
Recreation Expenses	2.55
Gifts and Souvenirs	1.17
Miscellaneous	0.42
Total	$17.04

H. Spending Habits (a) By Lodging Type (b)

	Lodging Type 1	2	3	4	5
Lodging	$ -	$ 2.20	$10.45	$ -	$ -
Food/Liquor (Store)	2.67	1.20	3.43	3.39	2.07
Food/Liquor (Restaurant)	2.60	3.60	3.96	2.36	1.11
Gasoline	2.03	2.20	2.31	1.89	1.36
Clothing	1.33	1.60	1.30	1.61	1.08
Recreation	2.40	6.60	2.98	2.27	1.14
Gifts & Souvenirs	1.08	0.40	1.05	0.61	1.11
Miscellaneous	0.38	-	0.29	0.52	0.40
Total	$12.49	$17.80	$25.77	$12.65	$8.27

Notes: (a) Average expenditure in dollars per person per day.

(b) Lodging Types

1. Tent on Beach, Car on beach, RV on beach, boat (n=59)
2. RV in RV Park (n=5)
3. Motel, Private home, or Condominium (rental) (n=114)
4. Private home or condominium (owned) (n=59)
5. No lodging - Day Tripper (n=89)

Source: Field Survey, City of Port Aransas, Sunday, August 1979.

3. Over 90 percent of vehicles were from Texas, and 32 percent of vehicles were from San Antonio.

4. Of the total vehicles, 30 percent were day trippers, 43 percent stayed overnight in permanent lodging (i.e. home, condominium, motel, or RV Park) and 20 percent stayed overnight on the beach, a boat or in a public park.

5. Average expenditures per person for all surveyed were $17.04 per day. Broken down by lodging types these ranged from $8.27 for day trippers to $25.77 for those renting a motel, condominium or private home.

Tourist and Accommodation Survey (TA)

Survey results for the separately conducted Tourist Accommodations Survey are presented in Table 2 and findings are summarized below.

1. Size of groups surveyed tended to be larger than for the OBV Survey with fewer 1 and 2 person groups and a higher percentage of 5 to 7 person groups.

2. Length of stay tended to be slightly longer with a higher percentage of groups staying three days or longer and 22.8 percent staying six days or more.

3. As with the OBV survey, around 90 percent of visitors were from Texas, with a high percentage (36.6 percent) for San Antonio.

4. Spending habits of TA visitors, closely paralleled those for the OBV Survey. Average expenditures were estimated at $24.83 per person per day, with lodging expenditures of around $10.00 per day. Overall, the TA survey strongly reinforced findings of the OBV survey.

Typical Expenditure Pattern For Survey Data

By expanding expenditure estimates based on survey findings, a hypothetical pattern of daily expenditures for the 3,300 outbound vehicles can be calculated for each lodging type. (See Below).

Lodging Type	Total Daily Expenditures (000)	Percent
1. Tent on Beach, Car on Beach, etc.	$ 23.9	16.4
2. RV in RV Park	2.5	1.7
3. Motel, Home, Condominium (Rental)	67.5	46.2
4. Home, Condominium (Owned)	17.1	11.7
5. Day Tripper	24.0	16.5
6. Not Identified	10.9	7.5
	$145.9	100.0

Table 2

SUMMARY OF FINDINGS
TOURIST ACCOMMODATION QUESTIONNAIRE
PORT ARANSAS/MUSTANG ISLAND
August, 1979

Number in Party	Percent
1 person	2.4
2 persons	19.0
3 persons	11.9
4 persons	26.2
5 persons	15.1
6 persons	11.9
7 and Over	13.5
Permanent Address	
San Antonio	36.6
Austin	13.0
Houston	8.1
Dallas	6.5
Ft. Worth	3.3
Other Texas	24.4
Total Texas	91.9
Out of State	8.1
Total	100.0
Length of Stay	
1 day	1.7
2 days	27.6
3 days	29.1
4days	9.4
5 days	9.4
6-10 days	16.5
Over 10 days	6.3
Total	100.0
Access Point	
Port Aransas Ferry	83.7
Park Road 53	14.6
Other (private aircraft)	1.7
Total	100.0
Spending Characteristics	
Lodging	$ 10.12
Food/Liquor (store)	3.22
Food/Liquor (restaurant)	3.76
Gasoline	2.08
Clothing	1.03
Recreation	2.40
Gifts and Souvenirs	1.42
Miscellaneous	0.80
Total	$ 24.83

Correlation Between Vehicular Traffic and Bank Deposits

In interviews, the premise was advanced that a direct relationship exists between ferry traffic and bank deposits on the Island. Analysis of ferry traffic and bank deposits for the period of June 18 to June 29 was made by city staff. A positive correlation of 0.8298 was calculated. It is highly probable that the correlation would be even greater for holiday weekends, when traffic is significantly greater than for the average weekday.

Conclusions For Planning

From the surveys and from general observations of the tourist economy during the summer the Port Aransas/Mustang area serves primarily a regional/state market area in the summer. The major concentrations of tourists come from San Antonio, with the remainder fairly widely scattered throughout the State. The typical tourist visit is relatively short (1 to 3 days). There are a number of identifiable tourist groups from day trippers to condominium renters. Each plays a part in contributing to the tourist economy. The survey indicated that on an average day, 55-60 percent of income to the economy was from tourists renting motels, condominiums, or private homes. On a holiday weekend, the overall income share may shift in favor of the day tripper and tourist using "non-permanent" lodging.

Recommendations to Strengthen the Tourist Economy

The units of government having jurisdiction should take positive steps to strengthen the economy, whether collectively, or individually. These should include:

1. Development of a strong organization, adequately funded and with strong leadership, to market Mustang Island, both to tourists and to development interests.

2. Promotional objectives should be aimed at:

   a. expanding year-round use of the island

   b. expanding the regional/state market

   c. attracting a national/international market

   d. expanding lodging types in conjunction with the private market

   e. expanding the expenditure pattern by offering additional income generating attractions

   f. expanding length of stay.

In addition, units of government should:

a. make policy decisions concerning what mix of tourist groups the community wishes to permit

b. develop policies which will help the diverse groups that are attracted to Mustang Island to coexist.

Land Ownership and Potential Land Absorption Pattern

The land ownership configuration of Port Aransas/Mustang Island presents interesting challenges to its developers. The total Island consists of around 12,000 acres extended over 18-19 linear miles. Mustang Island State Park and other public holdings limit development on most of the land on the first 7 miles north from Padre Island Drive. From the State Park to Port Aransas, a distance of 8-9 miles, only limited development has occurred. Within this area there are private land holdings of around 6,100 acres, 2,100 acres between Park Road 53 and the Gulf of Mexico, 4,000 acres between Park Road 53 and the Bay. On the Gulf side, approximately 1,200 acres of the 2,100 acres are in small tracts of less than 20 acres (including the 69 Terramar tracts and the Flato subdivision, lots for which range from 13 to 16 acres apiece). Fifty-two percent of the Gulf frontage has been subdivided and the Flato tract next to the State Park, is being subdivided. Three developments are constructed or under construction. On the 4,000 acres on the Bay side, only one project exists, the Piper Development (Mustang Beach).

In the City of Port Aransas, considerable development has taken place in recent years along the Gulf front; however, several hundred acres remain potentially developable today.

Given the tremendous amount of land potentially developable, the cost of land, the capital required for development, national economics and the recreation services market, the prospects for land absorption over the next decade are not clear. Land development will probably occur as described below:

1. Infilling of properties along the Gulf side and near the harbor in the City of Port Aransas will continue before concentrated development on the Island occurs.

2. Continued subdivision of unsubdivided Gulf side properties will occur south of the City, making it virtually impossible to achieve any unified development scheme on that portion of the Island.

3. Development of Gulf side properties will probably occur before major development of Bay side properties.

4. Developable properties located south of the State Park and near Padre Island Drive, are few in number and development prospects and timing are not known.

Present developments such as El Cortes, Lost Colony, Gulf Shores, while being substantial projects are small in scale to the overall land area. Each has only begun or completed construction of Phase I. Without a major project involving 200-400 acres in a unified development, development will continue to be spread out along the Island.

Support Services and Facilities

Support services and facilities for the City of Port Aransas and for Mustang Island were analyzed to determine where expansions will be needed to serve anticipated development.

City of Port Aransas

The City of Port Aransas provides a full range of services (excluding water and sewer) to residents. Nueces County Water Control and Improvement District #4 provided water and sewer services. (See Table 3.)

Remainder of Mustang Island

The remaining portions of Mustang Island are under the juristiction of Nueces County or the city of Corpus Christi and are virtually undeveloped. Unincorporated portions are within the extraterritorial jusrisdiction of either Port Aransas or Corpus Christi. The Water District and Corpus Christi provide water and sewer service. Only a minimal level of other services is provided.

Anticipated Timing of Provision of Services

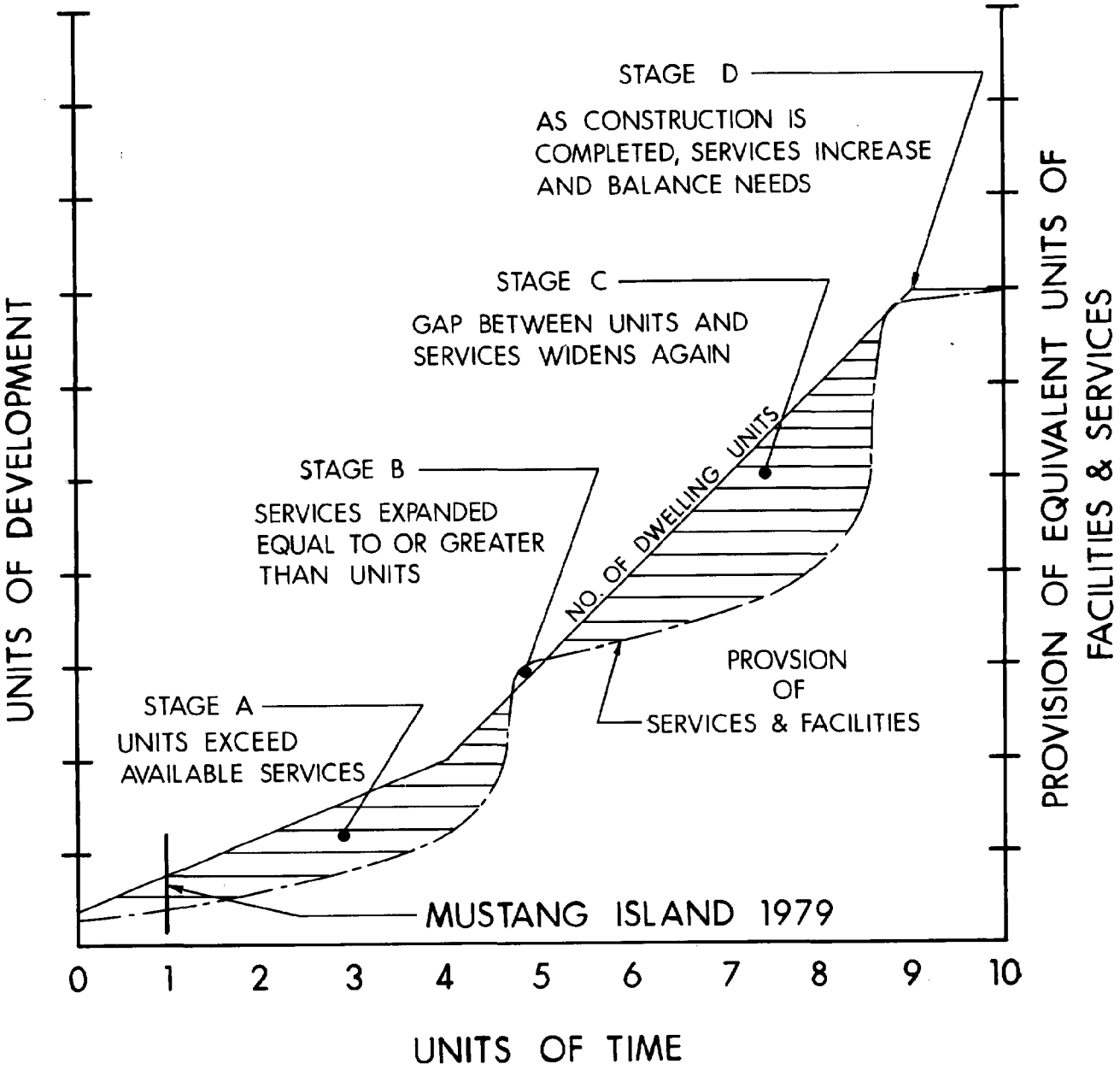
Research with other new communities, similar to the undeveloped part of Mustang Island, provides some insight into the probable timing and type of services provision that can be anticipated. (See Plate 2.)

Assuming hypothetical development of a new community, provision of services will almost always lag behind. (See Stage A.) Initial services provided will consist of water, sewer, minimal police and fire protection, and street access. The intensity of these services will increase as more development occurs and tax base and population increase. Once sufficient tax base is available to underwrite capital expenditures, new facilities and increased services will be provided, meeting required needs. (See Stage B.) Continued development of services and facilities will again fall behind (See Stage C) until new capital investments can be made and services again increased. As development tapers off, services and facilities tend to approach requirements and stability.

Table 3

Support Services & Facilities
Port Aransas/Mustang Island

Support Service or Facility	PRESENT CONDITIONS				ADDITIONAL NEEDS WITH FULL ISLAND DEVELOPMENT
	City of Port Aransas	Details	Rest of Mustang Island	Details	
Administration	City	Full Service	County NCWCID#4 City of Corpus Christi City of Port Aransas	General, Dune Permit by agreement with City for Building Code Subdivision Regulations	More direct administrative services needed than can probably be provided by the County.
Police	City	Staff-Chief-7 persons Budget-80-$170,000	County	Constable- County Sheriff's Department	Increased sta Increased staff, equipment, possible substation required.
Fire	City	Staff-2 Part Time, 20 Volunteers Budget-79-$22,500	Flour Bluff Port Aransas	Mutual Aid-Fire Protection	Substation with equipment and minimum of 2 part time employees and volunteers - provision of water.
Streets & Roads	City	Staff-8 persons Budget- Assistance-Alister, Cotter, G, 11th Beach Access	County		Additional roads, traffic control mechanisms, maintenance budget.
	State	Ferry			
Parks & Recreation	City	Staff-4 interns Budget-$4,000	State County	Mustang Island Park Beach Maintenance & Security	Additional lands, maintenance and security.
	County	Nueces County Park, Fishing Pier, Beach Maintenance			
Civil Defense	City	Staff Budget	County		More extensive evacuation plan and designated assistance.
Emergency Medical Service	City	Staff-2 + 10 Volunteers Budget-Subsidized by County	-	City serves island.	Increased staff and equipment.
Health Services	Private	Physicians	None		More physicians and possibly a hospital or clinic.
Water	NCWCID#4	Supply to City	NCWCID#4	Supply by contract or as annexed to District.	Additional capacity and storage.
Sewer	NCWCID#4	Service to City	NCWCID#4	Service to most of island by contract or as annexed to District.	Additional treatment capacity.
Storm Drainage	City	(Street Staff)		Park Road 53	Additional staff, equipment.
	State	Park Road 53	State	Site Specific	
	Property Owner	Site Specific	Property Owner		
Solid Waste Disposal	City	Island site	-	Use city site by cooperative agreement	New dumping arrangements and expanded collection system.
Collection	City	Staff-7 Budget-			
Education	Port Aransas Independent School District	E-J-S Schools	Port Aransas Independent School District	—	Uncertain, dependent upon type of resident and pupil generation.



TYPICAL TIMING OF DEVELOPMENT AND SUPPORT FACILITIES

PLATE 2

This type of sequence probably illustrates fairly well, the timing that will occur with development of Mustang Island. Granted the rate and intensity will vary with many factors peculiar to the Island.

Service and Facility Needs for Mustang Island

Expansion of services and facilities will be needed for the Island. These include: administrative capabilities, additional police, fire and other emergency services, additional water and sewer capacity, ability to maintain streets and roads and to deal with storm water, and provision of health services. (See Table 3, last column).

Environmental Considerations

There are four major environmental units and numerous sub-units on the Island. The major units, beach, dune complex, barrier flat and tidal flat are shown on Plate 3 further described below:

Beach

The beach consists of well-sorted fine to very fine sand composed primarily of quartz, some feldspar, and heavy minerals. It is generally 200 to 300 feet wide with two principal components, as described below. The beach is subject to gradual erosion or accretion; the Mustang Island beach appears to be near equilibrium at present, but net change since 1860 has been predominately erosional (Morton and Pieper, 1977).

Principal Components or Sub-units

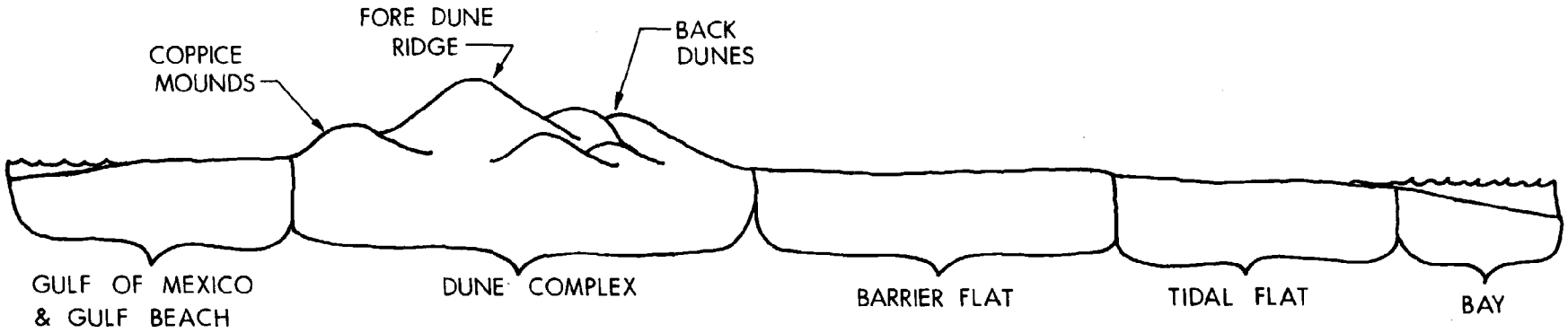
1. Forebeach - that portion gently sloping seaward at an angle of roughly one and one-half to three degrees with seasonal variations in actual slope.

2. Backbeach - that portion which lies landward of the forebeach and id usually horizontal or sometimes sloping very gently landward, also subject to seasonal variation.

Principal Processes

1. Dissipation of wave energy during non-storm conditions. The beach profile is subject to almost continuous but generally slight alterations as determined by wave action, type and amount of beach sediment available, and general form and shape of adjacent land.

2. Sediment exchange within the coastal system. The beach receives sediment from land runoff and from onshore movement of shelf sand by wave action. The beach loses sand by movement into deep waters offshore, accretion against natural and manmade barriors, and by wind transport.



SCHEMATIC PROFILE OF ENVIRONMENTAL ZONES

PLATE 3

Characteristic Vegetation and Wildlife

1. Vegetation: sea purselane, morning glory, sea oats, bitter panicum and others. Factors regulating vegetation on beaches include rainfall, beach use and salt. Frequent rainfall leaches salt from the sand and stimulates beach vegetation. Drought inhibits it both directly and indirectly through decreased moisture availability and increased salinity. Periodic drought combined with heavy recreational use greatly limits beach vegetation.

2. Wildlife: Shore birds are abundant; it is not uncommon to see 20 or more species on the beach during the summer, including herons, egrets, willets, laughing gulls, numerous terns and black skimmers. Other animals include the ghost crab, coquina clam, ghost crab, and ghost shrimp. Fishing from the beach is a common and rewarding experience and includes spotted sea trout, black drum, pinfish, Spanish mackerel, ladyfish, red drum, sand trout, Atlantic croaker and others.

Suitable Uses and Constraints. The principal use for which the beach is suited is recreation (swimming, fishing, walking, etc.). All motorized vehicles should be restricted to those portions of the beach, which lie shoreward of the coppice mounds on the backbeach. All structures, including those designed for beach stabilization, and removal of beach materials should be avoided. Movement of sedimentary materials among the beach, the dunes and the gulfwater should be allowed to proceed naturally.

Dune Complex

Dune heights range up to 15 to 25 feet. The width of the dune system ranges from 50 to roughly 2,000 feet behind the beach. The average width is generally in the vicinity of 800 feet. The dune complex consists of many components as described below, each with different properties.

Principal Components or Sub-units

1. Low, unvegetated or sparsely vegetated coppice mounds and back beach dunes in linear alignment.

2. Hummocky, discontinuous vegetated fore-island dunes.

3. Continuous-vegetated fore-island dune ridge.

4. Active dunes and blowouts.

5. Stable blowouts.

6. Back-island dunes.

Principal Processes

1. Protection of barrier island from wave action and storm surges.

2. Storage capacity for sedimentary materials on the beach and source of replacement materials during and after beach erosion.

3. Swales and depressions in the dune complex receive and transmit rainfall and surface water to ground water reserve.

Characteristic Vegetation and Wildlife

1. Vegetation: sea oats, gulf dune paspalum, thin paspalum, bitter panicum, seacoast bluestem, seashore dropseed, salt meadow cord grass, purple love grass, goat foot morning glory, fiddle leaf morning glory, beach tea, beach evening primrose, ragwort, ground cherry and partridge pea.

2. Wildlife: Birds commonly found in this unit include cattle egret, killdeer, willet, mourning dove, redwing blackbird, and eastern meadowlark. Other animals include the eastern mole, grasshopper mouse, coachwip, checkered garter snake, brown snake, milk snake, massasagua rattlesnake, green tree frog, Texas horned lizard, pocket gopher, jackrabbit, coyote, opossum, white-footed mouse, cotton rat, spotted ground squirrel and red-eared turtle.

Suitable Uses and Constraints. Much of the dune complex unit on Mustang Island is highly suited to walking, birdwatching and aesthetic enjoyment of the beach area. No vehicles should be used in or on the coppice mounds or dunes which are part of the fore-island dune ridge. Construction activities in this system should be limited to the back slope of the fore-island dune ramp areas or stable blowouts wherever possible. Under limited conditions, which would be determined on a site-by-site basis, dunes lying behind the pronounced fore-island dune ridge could be altered prudently to accommodate construction activities. All construction activities should be excluded on fore-island sites in which dune formation or revegetation is taking place which, when mature, would form part of the main fore-island dune ridge.

Barrier Flat

This unit is a nearly level plain lying between the dune complex and tidal flats on the bay side of the Island. Elevations range from sea level to approximately 15 feet, but generally less that 10 feet. Much of this area on Mustang Island had been heavily grazed in the past. The unit contains depressions of various sizes in which rainwater is received and transmitted to ground water, as well as some more permanent ponds.

Principal Components or Sub-units. While this unit has variable characteristics from one location to another, there are no discreet sub-units which comprise it. As the unit falls in elevation toward the bay, bay influences become stronger. In fact, the boundary between this unit and tidal flats may vary from one year to the next depending upon frequency and intensity of storms, stability of blowout and washover areas, etc.

Principal Processes

1. Collection of rainwater and transmission to ground water.

2. Periodic flooding at lower elevations.

3. Partial flooding during extreme storm surges; heavy flooding during hurricanes.

4. Movement of windblown sand, particularly during drought.

Characteristic Vegetation and Wildlife

1. Vegetation: Grasses are quite common and include bushy beard grass, broomsedge bluestem, wooly panic, sheep panic, roundseed panic, small panic, gulf dune paspalum, thin paspalum, seacoast bluestem and saltmeadow cordgrass. Other plants include partridge pea, dove weed, silver leaf sunflower, scratch daisy, Indian blanket, yellow-eyed grass. In wetter areas, one finds cattail, sedges, spike rushes, coffee bean, starrush whitetop, and saltmarsh fimbristylis.

2. Wildlife: Wildlife is very similar to that found in the dune complex, with the exception of the ghost crab, which is quite restricted to foredune and beach areas. Fiddler crabs are commonly found in barrier flats, but near the transition to tidal flats. Burrowing animals such as the Texas pocket gopher are also more common in the barrier flat than in the dunes.

Suitable Uses and Constraints. This unit is more suitable for development than any other unit on the barrier island. Roadways, homesites, recreational sites and limited commercial areas can be placed in this unit with limited adverse impact. The most significant constraints are that adequate provision be made for management of surface water, including limited incursions from wind tides, and that excavated or windblown areas be revegetated as quickly as possible. Marshes, small ponds and shallow depressions should be kept intact in order to accommodate stormwater in as natural a manner as possible. Some of these depressions are also linked to tidal flats and, therefore, represent important habitat for vegetation and wildlife species. Despite the ability of this unit to tolerate development, over development would be damaging.

Tidal Flats

This consists of low-lying areas with water cover varying from nearly continuous to very intermittant wind tidal influences. Surface elevations tend to vary between three feet below sea level and three feet above sea level. It is a large unit, having many components and varying considerably from one year to the next. It must be kept in as nearly natural a state as possible in order to protect conditions necessary to support fisheries and wildlife in the area.

Principal Components or Sub-units.

1. Grass flats - shallow subaqueous flats containing moderate to dense stands of marine grasses.

2. Salt marshes - with Spartina alterniflora dominant.

3. Salt flates - with Spartina alterniflora sparse or absent.

4. Local sand beaches and shell berms - these are particularly prominent in the Shamrock Island area.

5. Bay margin sand and shoals - these are generally quite shallow and subject to considerable erosion, transportation and redeposition of sandy materials.

6. Wind-tidal flats - inundated periodically by wind and storm tides but may otherwise be quite dry, depending upon the local hydrologic conditions surrounding each site.

Principal Processes

1. Dissipates energy delivered to the Island from the bay at continous low levels and during storms.

2. Participates in relatively large exchanges of sediment materials at the bay barrier island interface.

3. Provides habitat conditions suitable for a wide variety of wildlife species, including nursery conditions for many fish, water birds and vegetation which both stabilizes many sites and provides food and nesting opportunities for wildlife.

Characteristic Vegetation and Wildlife. This is a highly complex aspect of this unit and has been the subject of numerous specialized studies. A useful summary of findings has been prepared by the Center for Research in Water Resources, Volume II, edited by Robert S. Kier and E. Gus Fruh.

Suitable Uses and Constraints. The primary use of this area must continue to be the protection of critical natural resources contained in it. Uses related to development should be limited to the discharge of surface water from barrier flats in as nearly a natural way as possible.

Scale of the Environmental Units.

The section of the Island from the State Park, north to the Port Aransas city limits contains approximately 200 acres of beach, 1,100 acres of dune complex, and 3,700 acres of barrier flat. These approximate locations of the environmental zones and other environmental factors are shown on Plate 4.

Environmental Constraints on Population

The nature of ecological systems and our ability to understand them will probably never permit precise quantitative determinations of maximum allowable development. A certain level of uncertainity is the rule in dealing with systems with this complexity. It is frequently necessary, however, to establish development standards for the purpose of providing a suitable margin of safety and it is on this basis that analysis of ecological information leads to the suggested development parameters described below.

The first criterion that must be considered in determining a reasonable population level is the stability of the Island itself. On Mustang Island, this means that the dune system must be protected and the exchange of materials between the Dune System and various components of the beach must be allowed to take place as near naturally as possible.

Second major criterion, is the protection of vital ecosystem functions which take place on and near the Island. It is the technical consultant's opinion that the Island, excluding the city of Port Aransas, can support a density of roughly 20,000 - 30,000 people, properly located and well designed, without significantly disturbing basic ecological processes on which the Island stability and quality of life depend. If development is allowed significantly above this range, the direct and indirect stresses placed on ecological systems of the Island will increase substantially and the risk of ecosystem damage will increase in like manner.

Beach Use

The 18 miles of high quality Gulf beach along Mustang Island is the base for the Island's tourist economy, and any real or publicized degradation of the beaches, such as the oil spill which occurred in the summer/fall of 1979, can have a significant effect on the economy of the Island.

Chapter 61 of the Natural Resources Code of the State of Texas declares the right of the public to use of the beaches to be a matter of public policy. On Mustang Island, the Nueces County Commissioners' Court has the

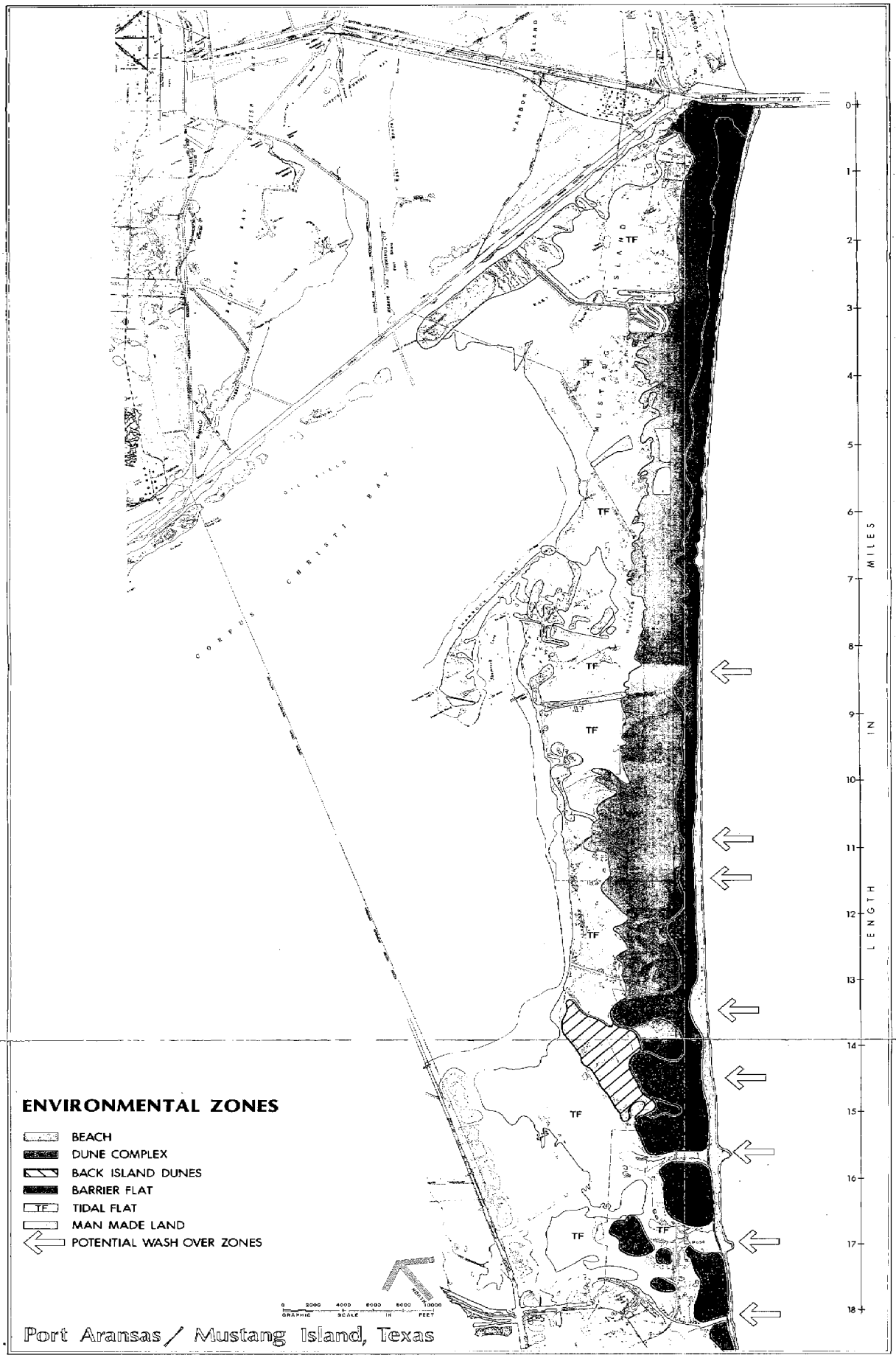

ENVIRONMENTAL ZONES
BEACH
DUNE COMPLEX
BACK ISLAND DUNES
BARRIER FLAT
TF TIDAL FLAT
MAN MADE LAND
POTENTIAL WASH OVER ZONES
TF
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
LENGTH IN MILES
0 2000 4000 6000 8000 10000
GRAPHIC SCALE IN FEET
Port Aransas / Mustang Island, Texas

PLATE 4

authority to regulate vehicular traffic, littering on the beaches and protection of the dunes. Port Aransas, by virtue of being a home rule city, may exercise broader authorities over beaches within its incorporated area. Nueces County and the City of Port Aransas are requred by the Code to clear and maintain the beaches, and Nueces County does this on Mustang Island (within the City by agreement) with the State expected to reimburse the County for around 20-25 percent of the costs. Move funding assistance by the state is needed to assist the county in this area.

Relationship between Beach and Dune Complex

The analysis of environmental considerations described the ecosystem interaction between all the environmental zones identified on the Island; however, the beach zone and dune complex are so closely tied together in the Island dynamics that it is difficult to discuss beach management without discussing the dune complex and its characteristics as well. Therefore, in focusing on the beach, its use, problems and future management, it is assumed that management of the dune complex is essential to beach management as well.

Characteristics of Beach Use

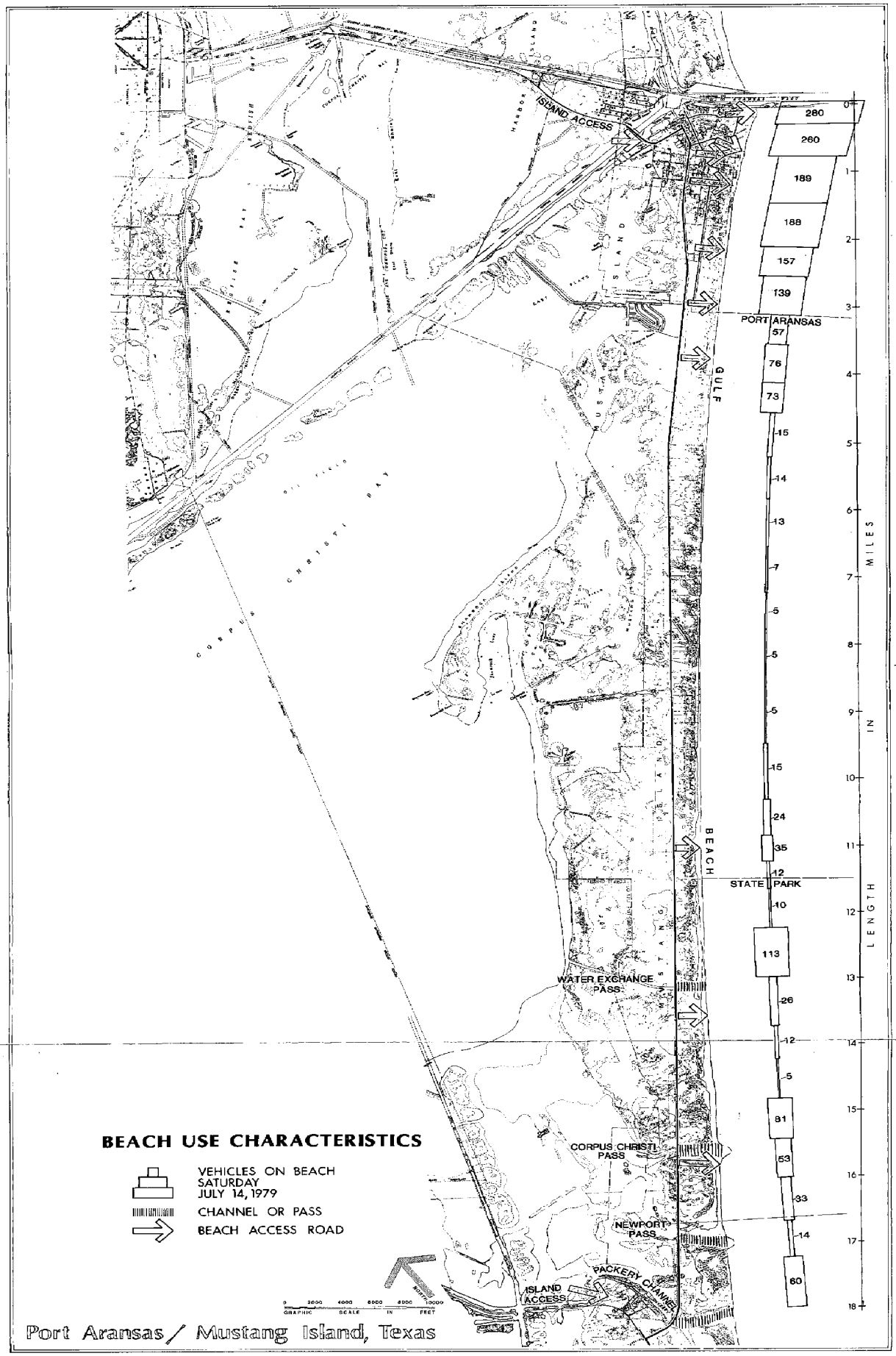
The Mustang Island beaches, exclusive of designated park areas, are used for a variety of activities including recreationing, driving, camping in a vehicle or tent, and living in a vehicle or tent. The more structured activities in a designated park area are varied also.

The volume of use can vary from many persons and vehicles jammed together on a Fourth of July, to only a few "snowbirds" in the dead of winter. The major tourist influx is in the summer, and that is the time when stress is placed on both the ecosystem and management program.

Very little information is available on the volume and distribution of beach users on Mustang Island. An aerial overflight made at the request of Nueces County Commissioner J. P. Luby on July 14, 1979, a Saturday, does provide some insight to the volume and distribution on an average weekend. (See Plate 5). Findings showed that of 1,977 vehicles on the beach during the overflight, 60 percent were located on beaches within the City of Port Aransas and 17 percent on Mustang Island park beaches. Principal determinants for location were: (1) close proximity to city services, (2) close proximity (within one mile of an access road), and (3) close proximity to a water pass or channel. The lowest number of vehicles occurred on the more remote stretches between Access Road 1 and Access Road 2, a distance of over seven miles.

Present Management Systems

Of the 18 miles of beach, Port Aransas presently manages approximately three miles, Nueces County manages 11 miles and the State of Texas manages approximately four miles within Mustang Island State Park.


ISLAND ACCESS
PORT ARANSAS
GULF
BEACH
STATE PARK
WATER EXCHANGE PASS
CORPUS CHRISTI PASS
NEWPORT PASS
PACKERY CHANNEL
ISLAND ACCESS
MUSTANG ISLAND
CORPUS CHRISTI BAY
LENGTH IN MILES
280
260
189
188
157
139
57
76
73
15
14
13
7
5
5
5
15
24
35
12
10
113
26
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81
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17
18
BEACH USE CHARACTERISTICS
VEHICLES ON BEACH SATURDAY JULY 14, 1979
CHANNEL OR PASS
BEACH ACCESS ROAD
NORTH
0 2000 4000 6000 8000 10000
GRAPHIC SCALE IN FEET
Port Aransas / Mustang Island, Texas

PLATE 5

The City presently provides access, utilizes barrels to channel vehicular traffic between the dunes and the beach, provides security, prohibits camping in the dunes, prohibits use of glass containers, prohibits littering, provides litter receptacles, and has an ordinance designed to stop long-term camping on the beach.

Nueces County provides access roads, uses barrels to keep vehicles from the dune complex at some points, provides litter receptacles, and provides security; as previously mentioned, the County cleans and maintains the beach.

The State Parks Commission staff, within Mustang Island State Park, manages access to and use of the beach in a much more structured manner than the rest of the Island.

Management Problems

From discussions with the various groups involved, the major problems are:

1. Safety and Security. The length of beach and its unrestricted access make it almost impossible to make it secure. The budget and staff of the City and County are limited. These problems are exacerbated by the uncertain authority of each jurisdiction to truly regulate the beach and its many activities.

People sleeping on the beach and driving on the beach present a special problem.

2. Environmental Damage. The major environmental damage occurs when vehicles drive along the coppice mounds, vehicles park in the foredune area, people camp in the foredune area, drive dune buggies or other such vehicles in the dune complex, unrestricted walking in the dunes, and littering on the beach or in the dune area.

3. Vehicles on the Beach. The tradition of permitting driving and parking of vehicles on the beach presents a sizeable problem of traffic control and parking control as the number of beach users increases.

4. Crowd Control on Major Holidays. The size of crowds on major holidays provides both the County and City, but particularly the City, with crowd control and littering problems difficult to solve.

5. Living on the Beach. People living for extended periods in tents, autos, R.V.'s, etc., not in designated camping areas with facilities, present a health and sanitation problem as well as an administration and image problem. Furthermore, unlimited living on the beach serves as competition to the motel, camping, and RV park operators.

The above problems are all interrelated. The cumulative effect of heavy public use of the beach by vehicles and people, damage to the foredune area, public spillover into the dune complex and resultant degradation of the dune complex, is significant. As public beach use continues to increase, the significance of the adverse impact will increase as well. Long- and short-range beach management policies are needed.

Hurricane Evacuation

Mustang Island, like the rest of the Texas Gulf Coast, is periodically affected by the passage of tropical storms of hurricane or near-hurricane intensity. These storms have in the past and will in the future, subject the Island to high winds, tidal surges and heavy, flooding rains. Such storms have had a significant impact on the physical character of the Island and on buildings and structures constructed on the Island and the development of the Island's resort economy. The likelihood of a hurricane making landfall at or near Mustang Island is estimated by the National Weather Service to be as high as 37 percent in any given year. In fact, a review of known hurricane events as compended by the National Weather Service during the last 100 years indicates that hurricane-force winds have affected Mustang Island at a rate of approximately once every five years, and that the interval between what are considered to be great hurricanes, that is, winds in excess of 155 m.p.h., is only 16 years. Research done by Dr. Armstrong Price notes west gulf hurricanes are cyclical with 8-9 quiet years followed by 8-9 hurrican rich years. The current cycle theoretically ended in 1979, and Dr. Price anticipates numerous hurricanes between 1980 and 1988.

Regardless, it is clear that it is merely a matter of time before the next hurricane strikes Mustang Island.

Hurricane Evacuation Potential

In the event that hurricane landfall is predicted at or near Mustang Island, every person on the Island should evacuate, regardless of the availability of on-island refuge. Even if "vertical evacuation" refuges are available on the Island, all persons should still be evacuated for a number of reasons. First, the predictability of hurricane intensity is not yet refined enough to warrant life-and-death reliance. A storm may veer or suddenly intensify, dramatically increasing its winds and tidal surge affecting the security of on-island refuges. More importantly, post-storm recovery activities will be unnecessarily complicated if persons isolated in on-island refuges must be located and served by emergency teams. Water, sewer, electric and telephone service are likely to be interrupted by a storm, and the provisions of refugee needs on the Island would exacerbate sufficient post-storm recovery operations. The isolation of refugees would be particularly undesirable if Mustang Island's future development includes additional retirement housing. The medical needs of the elderly during post-storm periods would be difficult if not impossible to meet. In some barrier island storm events, the recovery period for essential human services has been as long as three weeks, a period which would be intolerable for isolated refugees, particularly the elderly and the young.

There are two routes of emergency evacuation from Mustang Island, Park Road 53 and the Aransas Pass Ferry. Under typical pre-storm conditions, it is predicted that the ferry could evacuate as many as 300 vehicles per hour; while Park Road 53 could handle from 600-700 vehicles per hour. Neither route, however, is an optimum evacuation route, and improvements should be made to ensure their usefulness during an evacuation. The utility of the ferry as an evacuation route will be reduced by high winds, and operations would cease when sustained winds reach 40 knots or tide level of +4 feet. In the past, there have been storms which have made landfall along the Gulf Coast that have been preceded by 40 knot winds, days in advance of actual storm arrival. The Park Road and the causeway to Corpus Christi are both susceptible to flooding by heavy rains and/or tidal rises. Under particular storm conditions, a forerunner tide could affect the Park Road or the causeway 24-36 hours in advance of storm arrival eliminating that route as a viable evacuation route.

Nevertheless, exigent circumstances like those described above which would preclude any evacuation are unlikely to be common events, and planning should be based on storm characteristics which are most likely to be encountered in any given year. It is not possible to plan for the arrival of a Camille-type storm of a 500 year return frequency. Rather, the "design" storm should be that storm which has the highest predictable return. This "design" storm would have moderate to moderate-severe characteristics and it is anticipated that approximately 12 hours would be available for evacuation before high winds and water have a significant impact on evacuation routes. The planning goal of the National Hurricane Center is to provide at least 12 daylight hours for evacuation, and they normally adjust their warning periods to compensate for the time of day and the remoteness of areas to be evacuated.

If storm approach to Mustang Island is preceded by a 12-hour daylight evacuation period, the total vehicle population that can theoretically be evacuated would be approximately 12,000 vehicles, or more than 12 times the number of permanent vehicles currently on the Island. Although this capacity far exceeds present needs for evacuating permanent and part-time residents from the Island, there are several factors that can reduce the actual evacuation capacity available for evacuees. Day-tripper vehicle population can far exceed the evacuation capacity of the Island. However, it can be anticipated that the imminency of a hurricane will deter some day-tripper visits. Nevertheless, positive action must be taken to ensure that vehicle population on the Island when a hurricane warning is issued does not exceed available capacity. Evacuation capacity may also be substantially reduced by adverse weather conditions. On the other hand, actual evacuation population will be less than total possible vehicle population because of early evacuees. Recent educational efforts by federal, state and local government appear to be having a significant impact on coastal residents' attitude toward hurricanes, and the hurricane events of 1979 in South Florida and along the Gulf Coast demonstrated that coastal populations are aware of the threat posed by hurricanes and will respond in a timely and responsible manner.

Evacuation capacity of the Island is not, therefore, at this time a significant limiting factor on the future development of the Island. If total permanent and part-time vehicle population approaches 10,000 - 20,000, or intervening hurricane events invalidate present evacuation capacity projections, then growth limitations may be necessary or additional public improvements for evacuation will have to be implemented.

Population Capacity Analysis

Factors influencing the future development capacity of Mustang Island include both infrastructural limitations, such as provision of sewers, as well as environmental and safety considerations. (See Table 4).

The initial incremental limitation facing the Island is sewage treatment capacity. The treatment plant has a capacity of serving 8,800 population equivalents and is presently near capacity for peak periods of less than 24 hours. (See Plan for Sanitary Sewers). The Water District has applied for a Step 1 grant as the first step in expanding the existing plant; however, a lead time of at least 4 to 5 years is usually needed before such an improvement can receive EPA approval and be constructed.

Present water system capacity is estimated at 24,000 population equivalent; however, the Water District is at the beginning of an ambitious program, in conjunction with the City of Corpus Christi, to expand its water service capacity.

When the Water District contracts to provide water and sewer service to a landowner on Mustang Island, it bases its design planning on serving water to and accepting wastewater from 10 persons per acre/4 dwelling units per acre. Thus, by its contractual agreements, the Water District allocates a share in its water source, supply and distribution system, and in its sewer collection system and treatment plant, and therefore places at least a theoretical limitation on property development.

Some of the limitations are quite flexible and require construction to increase capacity. Provision of both sewer and water service fall into this category. Limitations on hurricane evacuation capacity can be increased by construction of new access to the Island, something very difficult to achieve, or by constructing on-island capacity as a part of development, a poor, although essential, second choice. Environmental limitations, while more subjective, are not initially as restrictive as the others. However there is no way to increase the populations that can be accommodated without beginning to affect the very environment which allows high quality development to occur in the marketplace.

TABLE 4

Population Capacity Indicators

	Constraints	Present Level or Capacity	Method of Increasing
1.	Water system capacity	24,000 population equivalent[1]	Finance and Construct Improvements
2.	WCID#4 Service agreements	35,500 population[2]	Amend contracts with property owners
3.	Sewer system capacity	8,800 population equivalent[1]	Finance and Construct improvements
4.	Hurricane evacuation capacity	15,000-20,000 population[1]	Build on-island capacity. Construct highway improvements.
5.	Environmental limitations	20,000-30,000 population[3]	

[1]Includes City of Port Aransas (Port Aransas population estimate during peak period is in the range of 6,000 - 9,000 persons).

[2]Includes Mustang Island, north of Mustang Island State Park, and excluding the City of Port Aransas, the ± acre Mustang Bay Properties and the ± acre Edwin Flato Properties.

[3]Mustang Island, from Mustang Island State Park to the City of Port Aransas.

COMPREHENSIVE PLAN FOR MUSTANG ISLAND

The Comprehensive Plan outlined herein is applicable to all of Mustang Island including those portions of the Island within the City of Port Aransas and the City of Corpus Christi. Specific proposals for the City of Port Aransas, consistent with the Plan for Mustang Island, are contained in the next chapter.

Basic Assumptions

The Comprehensive Plan is based on the following general assumptions:

- Mustang Island is an environmental and recreational resource of regional, state and national significance.
- Mustang Island has significant potential for growth and development.
- Growth and development can be beneficial to Mustang Island and its environs as long as the resource values of the Island are not degraded or destroyed.
- Regardless of the outcome of the Deeport issue, the predominant economic sector of the economy will be the tourist and recreation sector. Major industrial development of the Island, in any form, is inappropriate.
- Five governmental entities exercise jurisdiction over a part or all of Mustang Island: Nueces County, City of Port Aransas, City of Corpus Christi, Nueces County Water Control and Improvement District 4 and the state of Texas. Each governmental entity will probably continue to exercise their powers during the 10 year planning period, although the land areas for each may grow or shrink.

Objectives

The Comprehensive Plan and its Development Guide have been developed to:

- Enhance the economic vitality of Mustang Island/Port Aransas.
- Promote the Corpus Christi region as a tourist resort area of national significance.
- Promote high quality development of various intensities and types.
- Preserve the environmental integrity of the Island including its beaches and dune system.

- Protect the Island's fresh water table and wetland areas that are the natural habitat of Island waterfowl.

- Maintain the character of Mustang Island as an attractive and desirable place for day visitors, tourists, seasonal residents and year-round residents.

- Ensure the availability of necessary public services.

Land Use Plan

The use of land and buildings on Mustang Island should be in accordance with the capacity of the natural and man-made systems and should be of a quality and character which will promote the economy and liveability of the Island.

The Comprehensive Plan designates land uses and intensity of development by environmental zones. In the City of Port Aransas, compatibility with existing and planned development, within the constraints of the natural and man-made systems, was utilized in determination of recommended land use and development intensity. (See Plate 6.)

Recommended Land Uses by Environmental Zone

The following list of recommended uses identifies those uses which are generally acceptable for the zone but for which additional judgment must be made as to its acceptability for a specific site, based on considerations discussed in Background Analysis, Environmental Considerations.

1. Beach

   - Recreation (does not include habitation)
   - Conservation

2. Dune Complex

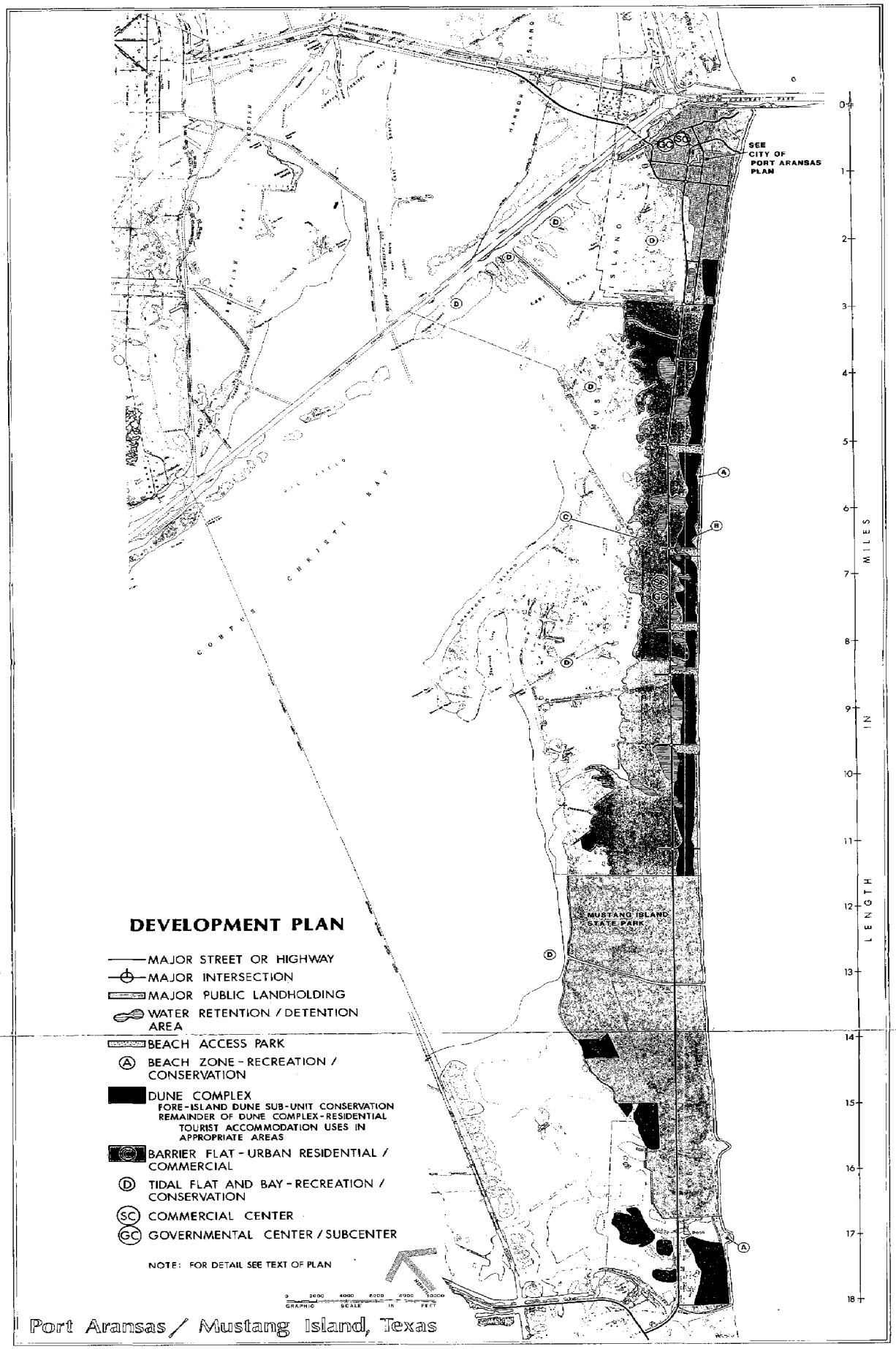
   (a) Between the beach and the pronounced fore-island dune ridge.

   - Conservation
   - Elevated walkways and viewing areas

   (b) Behind the pronounced fore-island dune ridge

   - Conservation

   - Recreation including tennis courts, swimming pools and other such facilities for recreation use


SEE CITY OF PORT ARANSAS PLAN
MUSTANG ISLAND STATE PARK
CORPUS CHRISTI BAY
MUSTANG ISLAND
HARBOR ISLAND
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MILES IN LENGTH
DEVELOPMENT PLAN
MAJOR STREET OR HIGHWAY
MAJOR INTERSECTION
MAJOR PUBLIC LANDHOLDING
WATER RETENTION / DETENTION AREA
BEACH ACCESS PARK
(A) BEACH ZONE - RECREATION / CONSERVATION
DUNE COMPLEX
FORE-ISLAND DUNE SUB-UNIT CONSERVATION
REMAINDER OF DUNE COMPLEX - RESIDENTIAL TOURIST ACCOMMODATION USES IN APPROPRIATE AREAS
BARRIER FLAT - URBAN RESIDENTIAL / COMMERCIAL
(D) TIDAL FLAT AND BAY - RECREATION / CONSERVATION
(SC) COMMERCIAL CENTER
(GC) GOVERNMENTAL CENTER / SUBCENTER
NOTE: FOR DETAIL SEE TEXT OF PLAN
NORTH
GRAPHIC SCALE IN FEET
Port Aransas / Mustang Island, Texas

PLATE 6

- Park areas with or without public facilities
- Multi-use projects including service and limited retail commercial and residential.
- Residential including single family detached or attached; multi-family.
- Tourist accommodations
- Elevated walkways
- Streets and roads

3. Barrier Flat (excluding wetlands)
   - Recreation and conservation
   - Public facilities and offices
   - Park areas with public facilities
   - Semi-public uses
   - Limited commercial
   - Limited commercial recreation
   - Multi-use projects
   - Residential including single family attached or detached; multi-family
   - Tourist accommodations
   - Streets and roads
4. Tidal Flat
   - Marina
   - Recreation
   - Conservation

The analysis of population capacity identified several population thresholds, two based on infrastructural improvements and one dependent on a policy decision regarding the environment. These increments have been further subdivided by major political jurisdiction as follows:

	City of Port Aransas(1)	Rest of Mustang Island	Total
Level 1 (Present)	7,200	300	7,500
Level 2	7,400	1,400	8,800
Level 3	10,000	14,000	24,000
Level 4	10,000	20,000-30,000	30,000-40,000

(1) Estimate of summer population probably ranging from 6,000 to 9,000 persons.

The timing of development on the Island is difficult to determine and dependent on the economic situation. Port Aransas should continue infilling with one or two projects each year, as long as financing is available; yielding a slight increase in summertime population each year. Barring a single large development, maximum development of the Island could be expected to proceed at an average rate of one to five projects, similar in size to those presently underway, and to possibly increase slightly thereafter for the decade. Any development is dependent upon the condominium market and available financing. This estimate of timing would yield a total summertime population in the range of 11,800 to 17,800 by the end of the decade. Almost any growth will put the Island over Level 2 and require additional wastewater treatment capacity.

For long-range planning purposes and for land use intensity allocation, an upper level of 30,000 to 40,000 persons was used, representing estimated total permanent and temporary residents. The share of the total increment for each property owner would depend on the property, amount of land in the various environmental zones and the ability of the site to accommodate storm drainage.

Land Use Pattern

The Comprehensive Plan provides for urban infilling and redevelopment in the City of Port Aransas. Between the City of Port Aransas and the Mustang Island State Park on the Gulf side, development would be segmented and separated into development units by eight to ten small open areas, parks or beach access areas. These areas would be purchased and developed by Nueces County. Within each segment a unified development could be undertaken if the landowners so desire, or each individual landowner could independently develop his parcel as is presently being done.

The major commercial center would continue to be Port Aransas, where city offices, financial institutions and the major retail and services would be located. A retail shopping and services area would eventually be provided near mid Island, the location for which could include a public facilities subcenter for fire and police protection. Multi use developments would also provide limited retail and specialty commercial stores.

Mustang Island State Park and other federal, state and county lands form a sizeable recreation and conservation area to serve the entire Island. The few private parcels located south of the State Park would be developed in a similar manner to those north of the State Park.

On the bay side of the Island, much less development is proposed. The required building elevation of +11 and environmental restrictions on excavation limit development opportunities. If the necessary permits, including the 404 permit, can be obtained, the opportunity does exist to create a storm drainage pond system and utilize the excavated material to build up some of the land for development.

Development Guides

Standards for development are provided in the final chapter of this report.

Circulation Plan

The Corpus Christi Metropolitan Area Transportation Planning Committee is the designated transportation planning agency for all of Mustang Island, except for the City of Port Aransas. Port Aransas has requested inclusion within the area and should continue to seek inclusion. Staff of the Transportation Planning Committee is presently preparing a circulation plan for Mustang Island and this plan has been coordinated with and is consistent with their preliminary recommendations.

Access to the Island would continue to be by way of the Kennedy Causeway and the Port Aransas Ferry. Means to increase the capacity of the ferry should be studied; however, it is clear that as the Island develops, increased use of the causeway is the only significant alternative. The Committee is presently studying a new bridge crossing from Corpus Christi to Padre Island, through Kleberg County. In addition, the Highway Department has investigated replacing the ferry at Port Aransas with a new bridge crossing. The height required for the structure, the approach lengths, together with decreasing highway and bridge funds and increased environmental requirements, will make it very difficult to obtain new a bridge crossing.

The Kennedy Causeway, the principal link to the mainland, needs further study by the Highway Department in the following areas: (a) methods of increasing capacity, (b) methods of raising low-lying sections of the road to provide continuous hurricane evacuation, and (c) determine the effect of the concrete divider (median) on ability to evacuate under hurricane conditions and proposed changes, if needed.

Park Road 53 would continue as the main traffic artery on the Island and, although there are compelling reasons to attempt to relocate the road, it does not appear to be feasible except when the road is within a single land holding. Beach access routes would develop as the major collectors and intersections with Park Road 53.

Subdivision of the Terramar and Flato properties, as well as the configuration of the dune complex, have blocked the opportunity to develop a continuous secondary arterial road west of Park Road 53. However, portions of the islands are such that a secondary road could be constructed and these opportunities should be pursued. Beach access roads and other cross-collectors can serve a valuable role in providing access to properties at a location other than on Park Road 53. On the bay side, collectors should intersect with the beach roads and a linked collector system should be sought.

State standards for rural streets and highways applicable to Mustang Island are shown on Plate 7. Park Road 53 would eventually be upgraded to a four-lane, divided facility with a median on a 200-foot right-of-way. (See Section J.) Turning lanes could be constructed at intersections where volumes are high. Major intersections would probably warrant a traffic signal.

Beach access roads and other collector roads would vary from Section Type B-R with a right-of-way of 60 feet to a more urban cross section depending on the development.

Park Road 53 is presently in need of storm drainage improvements and rebuilding in low areas to meet minimun flood requirements and these improvements should be programmed and completed.

Support Services and Facilities

The land use plan for Mustang Island was based on a series of incremental population levels from approximately 7,500 persons, the estimated average summertime population at present, to 30,000-40,000 persons, which represents full development of the Island at a density having minimal impact on the natural systems. The plan for support facilities and services identifies those changes that will be required in services and facilities for the three major incremental levels for Port Aransas and the remainder of Mustang Island, independent of future annexation.

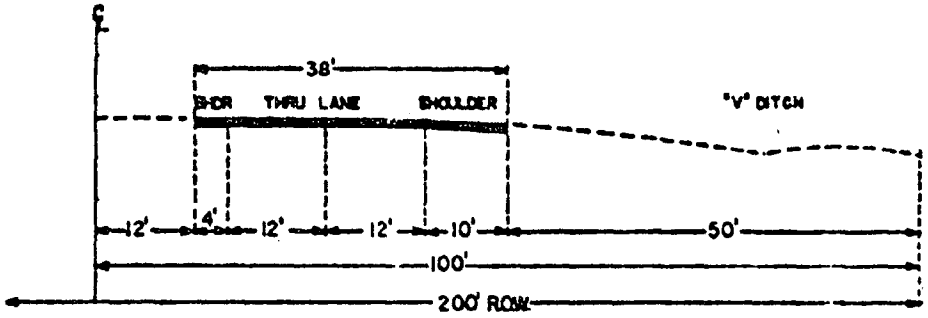
Needed Support Services and Facilities

The matrix of support services and facilities points out important issues which will need to be addressed as the Island grows. (See Table 5.)

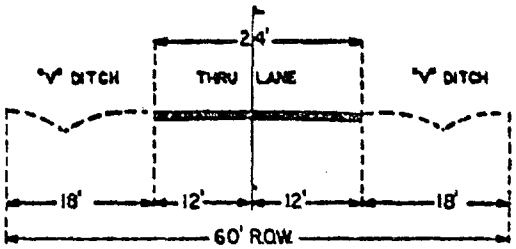
1. Local government will be needed on the entire Island somewhere between Level 2 and Level 3. This should be one or both of the existing incorporated areas.

2. There will be a need for local police and fire protection located in the newly developing areas of the Island between Level 2 and Level 3.

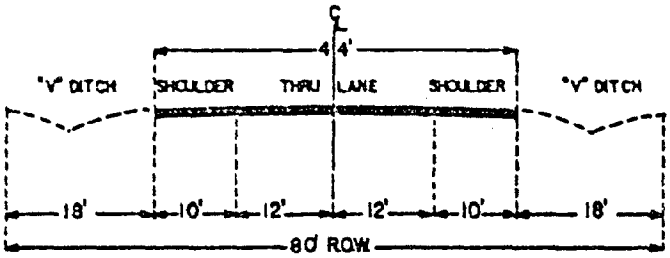
3. A considerable increase in local government staff will be needed to administer local government and its programs as the Island grows.



SECTION TYPE J (NEW)



SECTION TYPE B-R



SECTION TYPE E-R

STREET AND HIGHWAY STANDARDS

Source Texas Highway Department

Table 5

Estimate of Support Services Requirements by Incremental Level
Mustang Island/Port Aransas, Texas

	Level 1 and Level 2	
	7500 to ± 8800 Population	
Support Service	PA/7200-7400	Rest of MI/300-1400
Administration	City provides full services Some staff expansion needed	County/NCWCID#4/PA and CC in ETJ
Police	Staff - 7	Constable/City assist by contract
Fire	Staff - 2 PT, 20 Vol.	Served by PA/Flour Bluff
Streets/Road Maintenance	Staff - 8 (assistance on major streets)	County and State
Parks and Recreation	City/County - Limited City program just begun	State Park/County Parks
Civil Defense	City	County
Emergency Medical Service	Staff - 2 + 10 Volunteers	Serves Island
Health Services	Private - Nearest hospital/Aransas Pass	
Water	NCWC & ID#4 - Adequate for Island	
Sewer	NCWC & ID#4 - No change	NCWCID - Additional treatment capacity needed
Storm Drainage	Needs improvement	Drainage improvements for Park Road 53 needed
Solid Waste	Present site and method needs to be phased out and new site/technique instituted	Improve PA site/south part of island use Flour Bluff site

Table 5 Cont'd.

Support Service	Level 3 ± 24,000 Population PA/10,000	Rest of MI/14,000
Administration	No change	Unincorporated status inadequate - local government and staff required
Police	1 additional patrolman	Island auxiliary station * and staff of 10-14
Fire	No change	Island station and part time/volunteer force *
Streets/Road Maintenance	No change	Staff and equipment required
Parks and Recreation	Continuation of program with associated staff needs	Standard programs Staff and budget required
Civil Defense	No change	Additional program/staff
Emergency Medical Service	No change	Island station with crew *
Health Services	No change	Additional private
Water	No change	No change
Sewer	No change	Additional treatment plant capacity of 15,200 P.E. and expanded trunk system
Storm Drainage	No change	Increase in program
Solid Waste	Additional landfill capacity	Additional landfill capacity

* With a population of ± 14,000 on the island, it may be advantageous to have a small auxiliary public safety center located near the population center; however, the service could be provided from the present office, if desired.

Table 5 Cont'd.

Support Service	Level 4 ± 40,000 Population PA/10,000	Rest of MI/30,000
Administration	No change	Significant services/ staff increase
Police	1 additional patrolman	Additional force at ± 16
Fire	No change	Could require full time staff or at least 2 full time and volunteer staff, equipment
Streets/Road Maintenance	No change	Moderate increase in staff and equipment
Parks and Recreation	Continuation of program with associated staff needs	Broad program requiring staff, parks, and budget
Civil Defense	No change	Slight staff expansion
Emergency Medical Service	No change	Increase in program and staff
Health Services	No change	Additional private, possible public clinic or hospital
Water	No change	Additional capacity for 16,000 population
Sewer	No change	Additional capacity for 16,000 persons
Storm Drainage	No change	Increase in program
Solid Waste	Additional landfill capacity	Additional landfill capacity

Notes for all levels:

(1) Population splits between PA and the rest of Mustang Island are based on no change in corporate boundaries.

(2) Conclusions for each population level are relative to the preceding level.

(3) Estimates based on (1) City upgrading service to desirable level in all categories and (2) provision of a level of service on the rest of the Island similar to that in the City.

4. Emphasis on services may shift from security and development guidance to health services and recreation program as the Level 3 to Level 4 population increments are achieved.

5. Population growth in Port Aransas (present city limits) is projected to be far less than that on the lower reaches of the Island. With facilities and services in place, the city needs to direct its attention to upgrading those facilities where needed and strengthen the services to the community through adequate budget and staff.

6. There will be sufficient local governmental services requiring auxiliary offices in the developing portion of the Island to justify building or leasing a small governmental center. This could be located as a part of the retail/services center described in the Land Use Plan.

Other Considerations

1. Parks and Recreation. Present park lands (the County Park and State Park) are predominantly beach oriented. The plan calls for purchase of selected park areas in the Terramar and adjacent subdivisions as multi-purpose lands, to provide additional beach access and also to provide park land for the future. Locations of recommended properties are shown on the Land Use Plan.

Consideration has been given to a major park on the bay side of the Island. While the idea has merit, further study is needed. It may be that the better sites are already in public ownership. In addition, there is some concern that development of such a park may adversely affect the fish and shell fish habitat--major bay resources.

2. Medical and Related Facilities. As the permanent population grows, there will be an increasing need for a broader range of medical facilities and services. Provision of a major clinic or hospital may be required as a Level 4 population is approached. Such a facility should be located in Port Aransas.

3. Solid Waste. The present dump site is not satisfactory under present conditions, much less with anticipated growth. Unfortunately no easy solution is available. Solutions such as hauling to Flour Bluff, barging to Gregory or incineration are not presently considered feasible. This problem needs considerable study, probably on a metropolitan area basis, to determine a strategy for Port Aransas and the Island.

4. Provision of Services. As the Island grows, local government will be needed. The idea, presently under consideration, of Port Aransas serving that area of the Island from its city limits to the north boundary of the State Park, with the remaining portion of the Island served by Corpus Christi, has merit.

Beach Management

Assumptions

1. Holiday crowds are not normal. They require special management practices.

2. Volume of beach use will continue to increase, and congestion and problems of beach use will continue to grow.

3. There will continue to be a variety of types of beach users--from college holiday users to those who prefer the isolated, wilderness beach experience, and ways should be found to accommodate all.

4. The beach is of critical economic importance to the Island and possible management policies, at least in the short term, should be measured against economic impacts.

5. The tradition of free and unrestricted access to the beach is deeply rooted on the Island and in its visitors, and changes should be gradual and management programs phased.

6. The public impact of beach traffic and beach use on the island is significant, and management of beach use should be a priority governmental consideration.

Authorities

The basis for this mangement plan is the authority granted to counties and cities to regulate motor vehicle traffic and prohibit littering, and to protect and maintain the dunes.

Long Range Goals

1. Living on the beach should be prohibited.

2. Vehicular traffic and parking should be limited on the beach, or should be limited by beach segments as originally recommended in the 1961 Report to Nueces County by Lockwood, Andrews & Newman.

3. No access to property should be allowed from the beach in future subdividing. Where possible access rights should be purchased to properties presently having access in this manner.

4. Off-beach parking and pedestrian access should be provided to insure adequate access for the public.

Short-Range Policies

There is no easy solution for beach management. Most, if not all possible solutions, have no doubt been discussed on the Island. What is needed is a program and a commitment. The policies and programs which follow set forth initial steps and options.

Recommended short-range policies which follow are designed to take the first gradual steps toward eventually achieving the long-range goals. It is probable that all policies will be controversial and it is probably impossible to satisfy the many positions that exist relative to beach use. Nevertheless, it is a reasonable and gradual program for accomplishing long-range Island goals.

Living On the Beach:

1. No automobile or recreation vehicle shall be permitted to stay overnight on the beach, except in designated camping areas.

2. No overnight camping in tents shall be permitted except in designated camping areas.

3. Designated camping areas shall include the Port Aransas County Park, Mustang Island State Park and portions of the beach between the Port Aransas jetty and Access Road 1.

4. Within designated camping areas, the proper jurisdiction shall set a maximum length of stay, consisting of between two and six nights, and shall issue permits if deemed necessary for enforcement.

5. The construction of facilities to house those people who have previously lived on the beach shall be encouraged including campgrounds, RV Parks and motel accommodations.

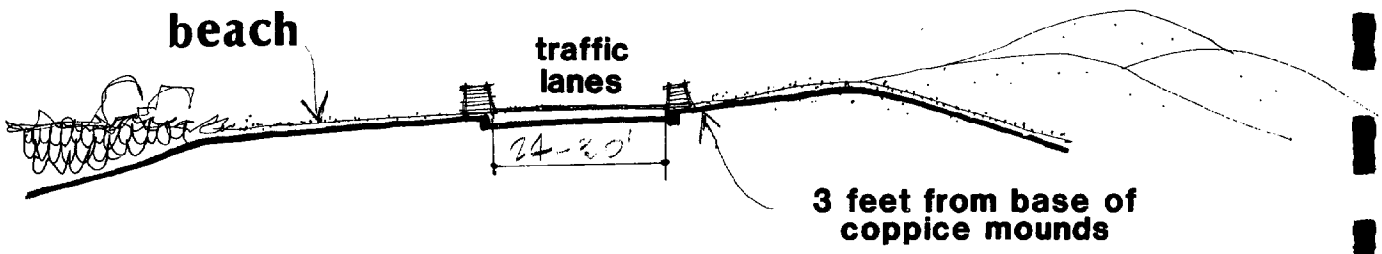
On Beach Traffic:

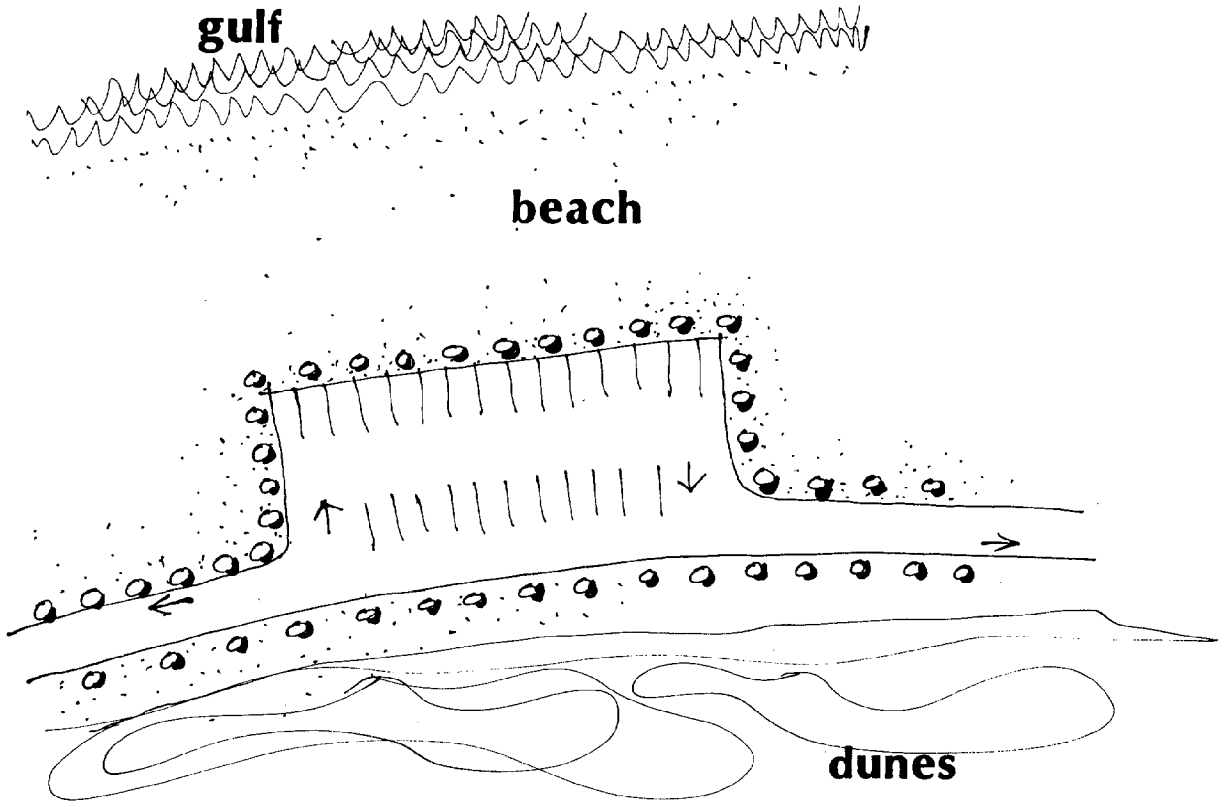
1. On-beach vehicular traffic, where permitted, shall be channeled, using barrels, bollards, or other similar structures, to a location which minimizes environmental impact on the dunes and beach. (See Plate 8.)

2. Study should be given to the potential for better traffic flow utilizing one-way traffic in all or part of an area of the beach from the jetty to Access Road 1-A.

On-Beach Parking:

1. A pilot program should be instituted in a segment of the beach, where adequate beach width exists, which would restrict on-beach parking to a defined area. (See Plate 8.)





BEACH MANAGEMENT CONCEPTS

PLATE 8

2. Expansion of the above policy should take place gradually over the decade from Access Road 1-A to the jetty.

Beach Access and Off-Beach Parking. Additional vehicular access to the beach will only succeed in making more difficult the long-range goal of limiting vehicles on the beach. While it is a clear option, increasing vehicular beach use in areas having poor access will only create the same problem at a later time.

Another option exits. That of developing off-beach parking and pedestrian access by way of elevated walkways and decks from the parking areas to the beach. The distance between Access Road 1 and 2 is over seven miles and is presently lightly used. Any pedestrian access point should have facilities, should be high quality and attractive, and offer a unique experience if it is to succeed. (See Plates 9 and 10.)

The following policies are oriented to this concept:

1. Multi-purpose, off-beach parking and facilities with pedestrian access to the beach should be developed between Access Road 1 and 2. Additional vehicular beach access should not be provided in this area.

2. All existing vehicular access roads should be retained.

3. A new vehicular beach access road should be provided north of the water exchange pass.

4. The natural segmentation of the beach created by the passes and the channels should not be bridged or cross access encouraged except at Park Road 53.

Protection of the Beach and Dune Complex:

1. The integrity of the beach and fore-island dune system should be preserved as a unit.

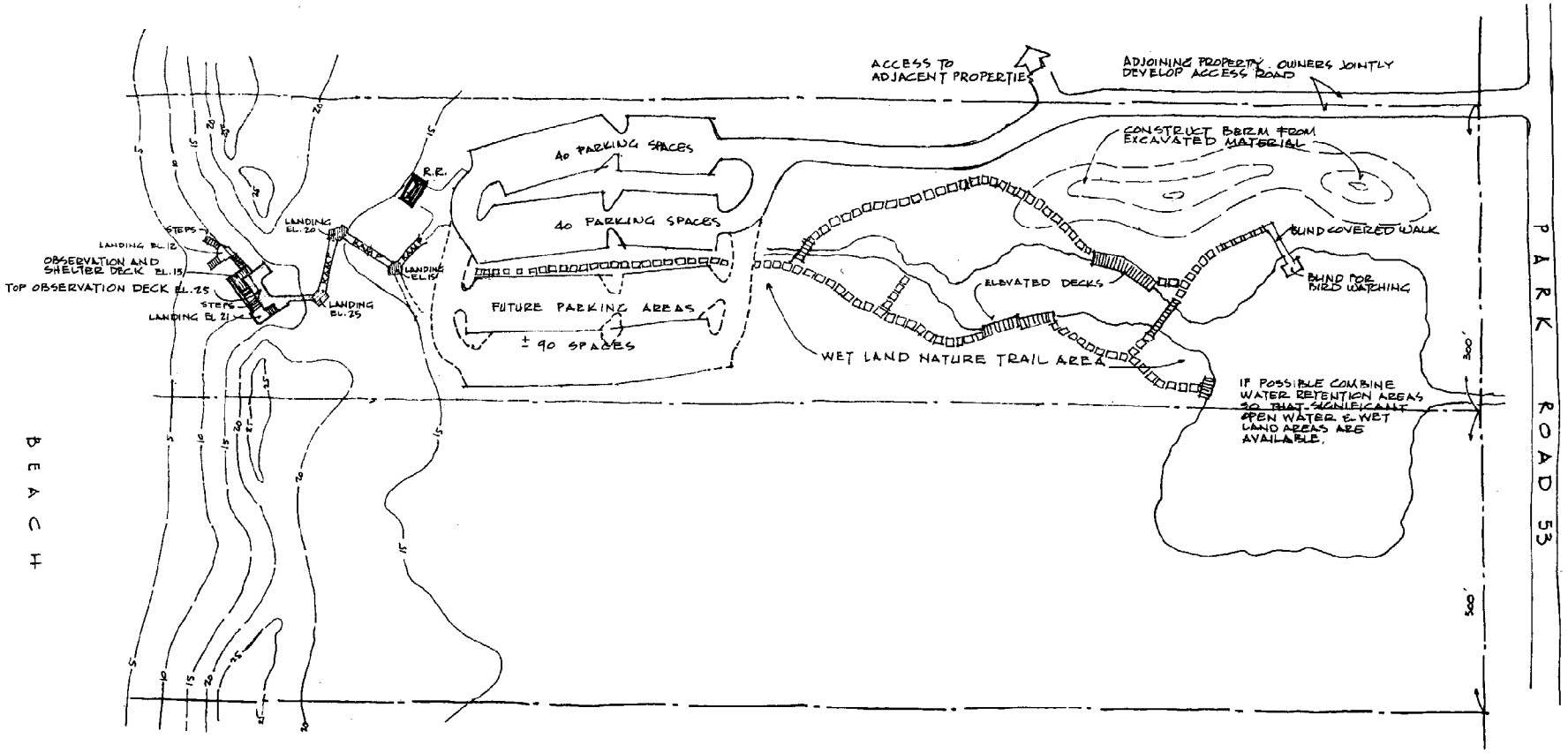
2. Fore-island dunes which have been "blown out" should be restored or be allowed to be restored naturally.

3. No sand should be removed from the beach.

4. There should be no excavation or removal of vegetation from the beach or dune system shoreward of the crest of the first stable dune.

5. Natural vegetation should be retained wherever possible; landscaping of "improved" areas should utilize native vegetation to the maximum extent practicable.

PLATE 9



TYPICAL BEACH ACCESS PARK

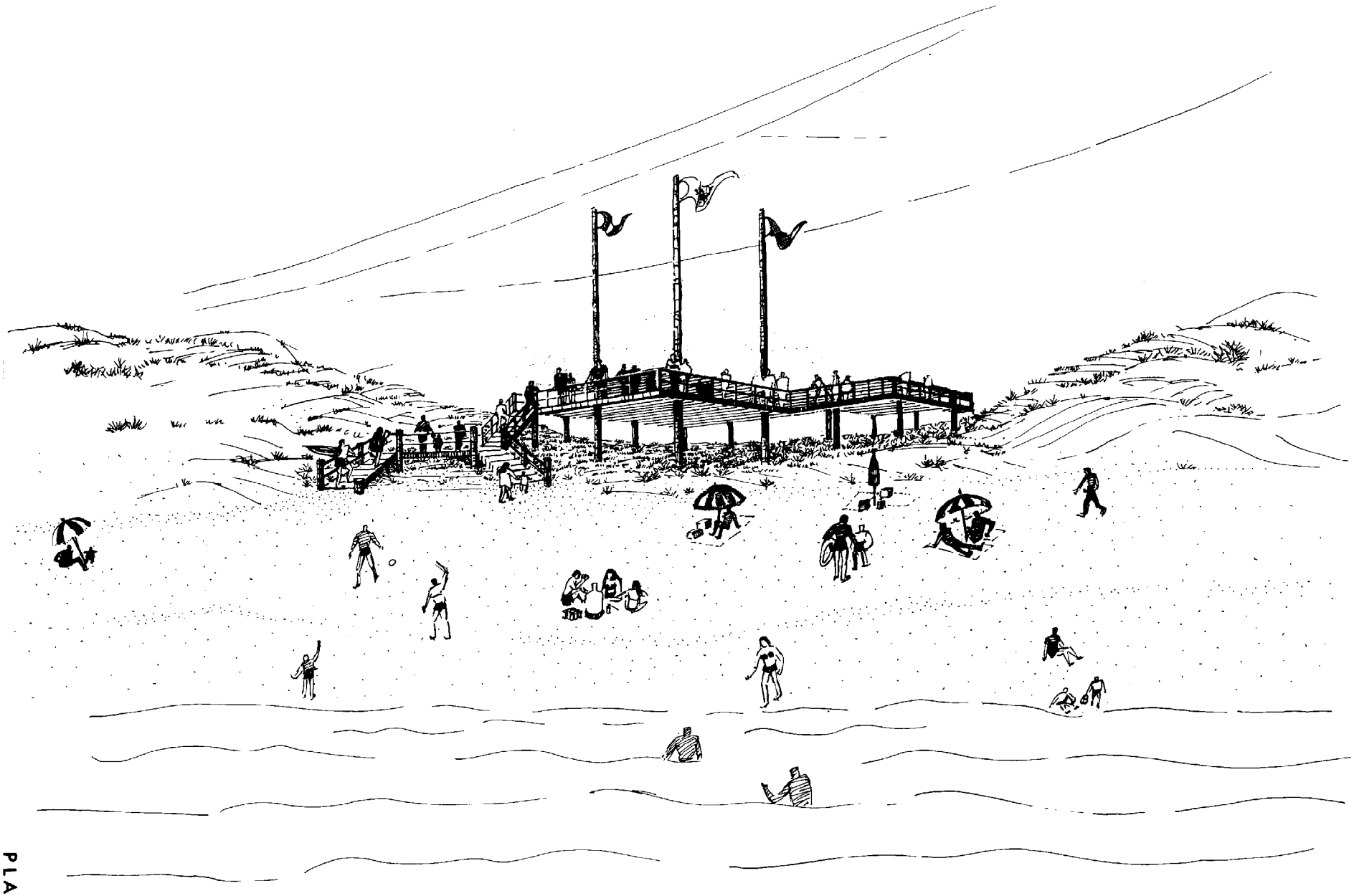


PLATE 10

SKETCH OF ELEVATED PEDESTRIANWAY AND DECK BEACH ACCESS PARK

6. Motorized vehicles should be excluded from the entire dune complex including coppice mounds which are at or near the transition between the back beach and the dune.

7. Neither vehicles should be parked nor tents located on the coppice mounds or any part of the area behind the beach.

8. Traffic lanes on the beach should be located so as not to cause damage to the dune complex.

9. Dumping or litter should be prohibited.

10. Future public access to the beach should be limited to carefully located access roads, and elevated pedestrian walkways.

11. No vehicle access to private property should be from the public beach.

General:

1. The appropriate jurisdiction(s) should initiate a sign program and an educational program to provide clear explanation of the beach management policies and regulations.

2. Penalities should be set for violation of regulations and the regulations well enforced.

Hurricane Safety

Policies for Future Development and Redevelopment

All future development of Mustang Island, including redevelopment after the next hurricane, should take into account future hurricane events. The following policies should be implemented:

- Development of Mustang Island should be accompanied by public improvements so that every person on the Island, when a hurricane warning is issued, will have an opportunity to safely evacuate from the Island.

- Development on the Island should be designed and constructed so that persons who do not evacuate from the Island will have an opportunity for safe refuge during storm passage.

- Development of the Island should be designed and located so that the capacity of the Island's beaches, dunes, and other natural resources to withstand hurricane events will not be reduced.

- All new buildings and structures should be designed and constructed so that they can withstand winds of 165 to 180 mph and meet provisions of the flood hazard insurance ordinance.

Evacuation

The Park Road elevation should be augmented so that the elevation of the route exceeds 4.5 feet msl along its entire length. Similarly, the Kennedy Causeway should be elevated in the course of its next major reconstruction.

When a hurricane watch is issued which includes Mustang Island, non-residents should be encouraged not to visit the Island. Public service announcements should be made through all available media discouraging trips to Mustang Island during hurricane watch periods. In addition, weather resistant signage should be available for erection along access routes to the Island indicating that a hurricane watch is in effect and recommending that non-residents do not go onto the Island.

To the extent that authority is available, non-residents should be prohibited from visiting the Island. After a hurricane warning is issued, all available public authority should be exercised to prohibit access to the Island except for necessary emergency vehicles.

On-Island Refuge

Every person should be evacuated from Mustang Island in the event a hurricane warning is issued for the Island. However, it can be anticipated that a portion of the population will not heed hurricane warnings and evacuation orders. In addition, it can be anticipated that a portion of the potential evacuation population will be unable to evacuate because of equipment failures, poor personal planning or severe weather. Those persons who remain on the Island must have access to vertical evacuation refuges.

In order to ensure the availability of adequate on-island refuge, all new residential and office buildings and structures containing greater than 10,000 square feet should include an emergency refuge area which is stocked with emergency medical supplies and sufficient water and food for a period of five days. The refuge area and supplies should be large enough to accommodate at least one person per 300 square feet of floor area in the building or structure. Each emergency refuge should be equipped with a battery-operated radio, and a signaling device which can be used to communicate with emergency recovery teams. Such device can be comprised of a refuge center flag that can be flown to indicate the location of refuges in the post-storm environment.

Development Location

Mustang Island has a substantial capacity for new development. However, physical alteration of the Island must be carried out in a fashion so that the

capacity of the Island's physical elements to withstand hurricane forces is not reduced. The role of beaches and sand dunes during storm events are chronicled in the portion of this report entitled, "Environmental Considerations," as are the surface water retention needs of the Island. Development should be located so that the natural beach-dune complex system can respond to storm energies as the Island's natural line of defense. Beach and foredune modifications and construction of buildings in those areas had a significant impact on the capacity of the beaches at Panama City, Florida to withstand the wind and waves generated by hurricane Eloise. Mustang Island must avoid similar circumstances, not only to protect the Island's vital natural resources from unnecessary and potentially irremedial modification or destruction, but also to avoid the adverse economic impacts of building damage and destruction.

In addition to beach and dune protection, buildings and structures should not be located in areas of blowout, or significant tidal intrusion. Even if such areas were to be modified through seawalls or filling, the natural forces which initially precipitated the blowout are likely to eliminate the improvements during a storm event. Major modifications and improvements in South Florida areas have been completely destroyed during hurricane events.

Finally, the surface water retention capacity of the Island should not be reduced. Effective site planning should permit the perpetuation of natural retention areas, both as aesthetic resources and as surface water retention elements. The Island is already subject to extensive flooding, and the heavy rains which accompany hurricane passage could do substantial damage if existing retention capacity is not preserved and additional drainage measures implemented.

Building Standards

New development on the Island should be designed and constructed so that buildings, structures and other improvements can withstand the high winds and water of a hurricane event. There are a variety of codes which are available for implementation. The South Florida Building Code and the Model Minimum Hurricane Resistant Building Standards for the Texas Gulf Coast are but two of the available codes. Whatever building code is enforced, it should ensure that all new construction can withstand winds in excess of 165 mph and flooding to an elevation of 14 feet msl. All structures should be constructed on pilings and all roofs and other coverings should be tied to the foundation of the building.

Mobile homes are not a prudent housing form on a barrier Island like Mustang Island. They are very susceptible to wind and water damage and generally suffer severe to total destruction during hurricane events. It is understood, however, that economic circumstances may compel the Island to accept mobile homes. Positive steps should be taken to provide alternative housing which can be better storm-proofed; however, new mobile homes located on the Island should at least meet or exceed the National Mobile Home Construction and Safety Standards published at 24 C.F.R. part 280. In addition,

such homes should be tied down to their pads, and their pad elevations should exceed the requirements of the National Flood Insurance Program.

Utilities

Nueces County Water Control and Improvement District 4 (NCWCID #4) has jurisdiction for water and sewer service over most of Mustang Island. The District is quite large and extends from the Flour Bluff Padre Island Area on the south, three miles north of the northern edge of Mustang Island and includes much of Corpus Christi Bay. All of Mustang Island, except the portion from Corpus Christi Pass south, are within the Water District.

The District was originally formed to provide water to the City of Port Aransas. In the early years, some of the landowners, contending that as rural areas they would not expect to receive water and sewer service from the District and thus should not be included within the District, petitioned to the Courts for exclusion. Some were granted, one of which was the Wilson family, which owned a large portion of Mustang Island. Thus as the Wilson properties have been subdivided and sold for development, they have had to negotiate with the District, for reinclusion in the District. Presently only the Franklin Flato property (approximately 875 acres) is not in the District.

Water Facilities and Service

NCWCID #4 provides water service to developed lands from the north boundary of Mustang Island State Park north, and including Harbor Island. By agreement with the City of Corpus Christi, Corpus Christi has responsibility for providing water from the north boundary of Mustang Island State Park to the south.

Present System

The present system serving the Island is supplied with treated water purchased from the San Patricio Municipal Water District and transmitted through a 12-inch line on Harbor Island to the Corpus Christi Ship Channel. A 20-inch line carries the water under the ship channel to the Island. In the south, the Island obtains water from the City of Corpus Christi by a 24-inch line from the Flour Bluff area to the pump station and a 12-inch line from the pump station to Park Road 53. From Park Road 53 a newly constructed 20-inch line and then a 16-inch line carries the water to the NCWCID system at the north end of Mustang Island State Park.

The transmission system on the Island consists of 14-inch and 16-inch lines to Port Aransas where they connect to a 20-inch main.

Storage on the Island totals 1.95 million gallons, 650,000 elevated storage and 1,300,000 ground storage. The major concentration of water storage (1.2 million gallons) is located on the north end of the Island near the ferry landing.

Should the deep port project be approved, the line under the channel would be phased out and all supply would come to the system from the south. Under this arrangement, this storage would be positioned on the north end of the system.

Water System Plan

The Padre and Mustang Islands Water Transmission Plan (1976) prepared by Urban Engineering, consultant to the City of Corpus Christi and the NCWCID #4, sets out a master plan for water facilities based on incremental levels of water use. Phase I improvements for Mustang Island, including the water line along Park Road 53 from the Park Road 22 intersection to the north end of the State Park and the pump station and ground storage, are now completed.

The only Phase I improvement remaining for Mustang Island is the proposed 16-inch line from the north boundary of the State Park to the elevated storage in Port Aransas.

The Phase II improvements are proposed in accordance with the following timing:

Phase I Projects	Timing
1. Improvements to pump station at north end of State Park	When delivery in 16-inch line reaches 2.0 MGD
2. New pump station at north end of Terramar tracts	When delivery in 16-inch line reaches 2.0 MGD

Phase I Projects	Timing
3. Second 16-inch line from north end of State Park to north end of Terramar tracts	When delivery in 16-inch line reaches 2.0 MGD
4. A 24-inch line from Park Road 22 to north end of State Park	When delivery in 16-inch line reaches 4.0 MGD

The plan proposed additional transmission lines and storage in Phase III to adequately provide for the projected "ultimate" demand of 9.8 MGD. Plans for provision of supply to the Island involve a considerable commitment in facilities construction on the part of Corpus Christi.

The water plan is based on incremental use levels and these can be easily coordinated and used with the Development Plan as development occurs.

Sanitary Sewer

The District maintains a treatment plant located in Port Aransas with a capacity of 0.88 MGD (average daily treatment capacity). The plant discharges to the nearby marsh. This plant has a design capacity to serve 8,800 full-time residents. While the Island's population is currently below that figure, infiltration into the lines during the rainy periods produces flow to the treatment facility in excess of its daily treatment capacity. The plant has the hydraulic capability to handle 1.76 MGD. However, at levels over 0.88 MGD, it is not providing required treatment.

The Terramar tracts to the south of Port Aransas are served by four lift stations and eight-inch gravity lines flowing to these lift stations. The last lift station (the most northern) pumps sewage through approximately 3.8 miles of 12-inch force main to convey the sewage from that portion of the Island northward to the Port Aransas wastewater treatment plant.

The four lift stations serving the Terramar tracts have different size pumps and force mains determined as a function of their physical location and the area they are serving. These lift stations are as follows:

Lift Station	Pump Size	Approximate Number Of Dwelling Units That Can Be Served By Station
#1	2 - 179 GPM Pumps	400
#2	2 - 350 GPM Pumps	1,000
#3	2 - 274 GPM Pumps	700
#4	2 - 860 GPM Pumps	2,500

Inasmuch as the four pump stations will ultimately serve subdivided Terramar and Mustang Bay properties, with a design population of approximately 12,000 persons, it can be seen that the present capacity will need to be expanded. In addition, future development west of Park Road 53 would be added to that population. The need for increased capacity in the lift stations and force mains can be provided in a number of ways ranging from construction of additional lift stations and force mains to increasing pump sizes and impellers to provide additional pumping capacity. The latter, it should be noted, can permit existing lift stations to be used if certain capacities are available without changing the physical dimensions of the pump station but merely changing the pumps impeller sizes and other pumping characteristics. It has the disadvantage, however, of increasing operation costs inasmuch as greater pumping losses are incurred which are reflected in increased electrical rates.

Completion of the sewer improvement program in Port Aransas will provide an adequate system for the city. Following that construction, the

District plans to turn its activities to the expansion of the treatment plant and its capacity. A number of options exist to provide the necessary treatment capacity for the Island including expansion of the existing plant, construction of a new treatment plant near the middle of the Island, or both. The District has submitted an application to the State of Texas and the Environmental Protection Agency for a Step I grant to initiate the planning phase of the three-step EPA program to construction of new facilities.

Storm Drainage

Local flooding and ponding of water is common throughout the Island during and after moderate rainfalls because of the high groundwater table, low ground elevation with little topographic relief, and the absence of well-defined streams or drainage ways. Flooding of Park Road 53 represents an evacuation hazard during heavy storms.

Assumptions

1. While hurricane and intense tropical storms constitute a major flood hazard, there is no feasible plan for drainage which can fully accommodate surface water generated during storms of this intensity.

2. The water table on Mustang Island varies in elevation from the ground surface (it is even above ground at certain locations) to six or seven feet below ground, depending on frequency and intensity of rainfall on the Island locations.

3. Groundwater throughout the Island is brackish. A fresh water lens of varying thickness is perched above the dominant salt water table at higher ground elevations. The quality of water in this upper lens varies with rainfall frequency and intensity, with lens thickness, and with degree of mixing of salt and brackish water in the ground.

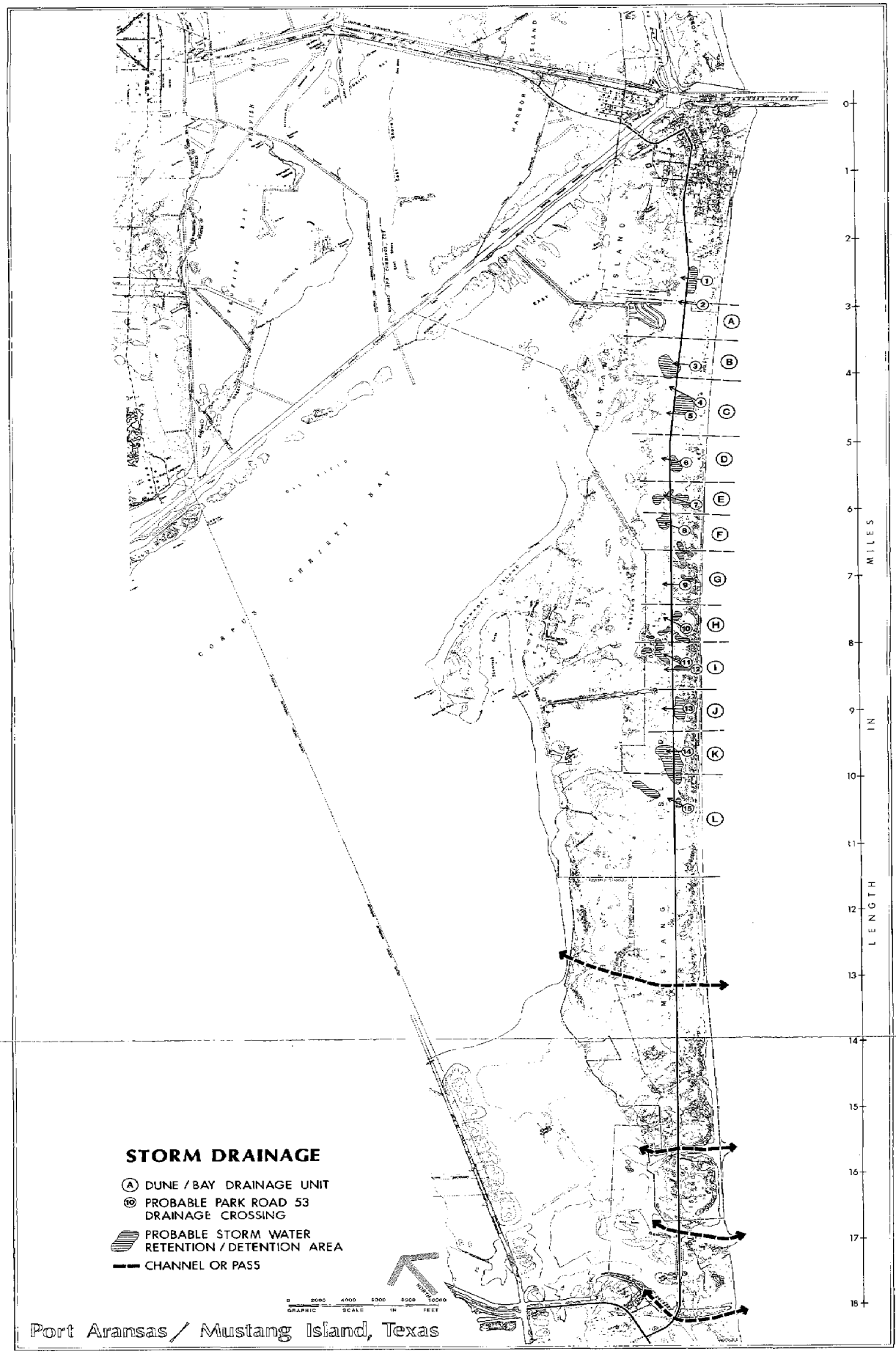
4. A high percentage of stormwater now received on the Island is dissipated by infiltration to the ground. This proportion of groundwater infiltration should not be changed significantly in the course of further development.

5. Surface drainage through much of the Island is by gradual sheet flow from the dunes to the Bay.

Storm Drainage Plan

General Approach. The management guides for storm drainage were based on the following:

1. Since Park Road 53 is a continuous barrier to surface drainage and shallow groundwater movement, infrared photographs were utilized to



Port Aransas / Mustang Island, Texas

PLATE 11

locate 15 sites along Park Road 53 in which water tends to collect, and at which culverts or other suitable structures should be placed to allow movement of water under the road.

2. Land areas between Park Road 53 and the dunes, which could be treated as "drainage units," were identified. (See Plate 11.) These units were defined roughly by the mid-points between possible culvert locations. These drainage units may be referred to as "dune units" in contrast to the "bay units," which are described later. Since lateral movement of water at some locations may take place, the boundaries of drainage units should be refined in the field, as soon as possible.

3. A plan should then be prepared for each drainage unit prior to construction or other alteration of the land. The plan should include:

   a. Designation of unaltered open space or other pervious surfaces which allow infiltration of surface water.

   b. Provision for retention or gradual drainage of excess runoff from the unit. The net runoff from the unit after construction or alterations should be the same as before construction.

   c. Suitable provision should be made to transmit excess runoff from the drainage unit to the culvert or other structure carrying water under Park Road 53.

4. Land areas between Park Road 53 and the Bay which corresponds to the "dune units" described above were then designated as "bay units." A specific plan for drainage in each bay unit should be developed so that each bay unit accommodates its own runoff and excess runoff from the corresponding dune unit. To the maximum extent possible, transmission of surface water from the Bay unit to the bay should be in a dispersed fashion rather than through an artifically maintained channel.

Management Policies

The policies listed below should be followed in development of a storm drainage plan for a unit and an individual property:

1. Standards should be set regulating the amount of impervious surface cover at maximum development, consistent with the plans for storm drainage.

2. Each drainage unit should have or obtain retention capacity for "excess runoff," that is capacity to retain all runoff increases caused by development, using the five-year recurrent storm as a reference where appropriate.

3. All proposals within a given drainage unit should show how the drainage from its site relates to the drainage plan for the entire unit.

4. Excavations to increase capacity for stormwater should be limited in depth so as to prevent anoxic conditions in salt water intrusion.

5. Delivery of runoff from "bay-side units" to the bay should take place in a gradual and dispersed manner. It should be directed in some instances to enhance marginal wetlands and submerged grass flats.

6. No drainage should be directed toward the Gulf.

UPDATE OF THE COMPREHENSIVE PLAN FOR PORT ARANSAS

The Comprehensive Plan for Port Aransas-1971 has been the most recent planning document for the City of Port Aransas, and recent city projects have often developed from the plan. With only a few major changes, the Plan remains valid for the city today. At the same time, the horizons of the city have expanded. The corporate limits have been extended and the city has taken a larger role in the metropolitan community, particularly in regard to working with Nueces County on policies for all of Mustang Island. Specifically, the element of civic design as provided in the 1971 Plan, is addressed in this Plan Update. With the economy so important to Port Aransas, civic design is one of the major things the city can do to improve its economy and to improve the quality of life for all residents as well. The report which follows identifies major needs of the City, updates the Land Use and Major Street Plan as a framework for the future, and provides recommendations on civic design and redevelopment programs for the city. The remaining elements of the 1971 Plan are retained. The existing plan and this report are designed to be used together.

As a part of Mustang Island, Port Aransas should follow the basic guides for the Island. However, much of the city is already developed at urban densities and most of the future development will consist of infilling or redevelopment. Emphasis in the future should be placed on improving the economy of the city and the Island by: (1) promoting the image of Port Aransas as a unique, but attractive fishing village; (2) encouraging and supporting redevelopment projects which will facilitate this image; (3) improving the appearance of the city; and (4) concentrating on those public improvements which will improve the economy by making Port Aransas/Mustang Island more inviting to the tourist.

Analysis of Needs

Port Aransas is one of the unique areas of the Gulf Coast. Vacationing in Port Aransas is a tradition for many families. The city has a tremendous background to build on and the opportunities are great. As with any community, the potential can be realized only by recognizing the needs and opportunities, and responding to them.

Based on the background analyses for the Island, together with more detailed discussions and investigations in the City of Port Aransas, the following represents the major needs and opportunities of the city from a planning perspective. (See Plate 12.)

1. Economy. The city needs to take the lead role in developing and implementing programs for strengthening the economy, with particular focus on marketing the Island, influencing investment, and coordinating tourist/recreation programs.

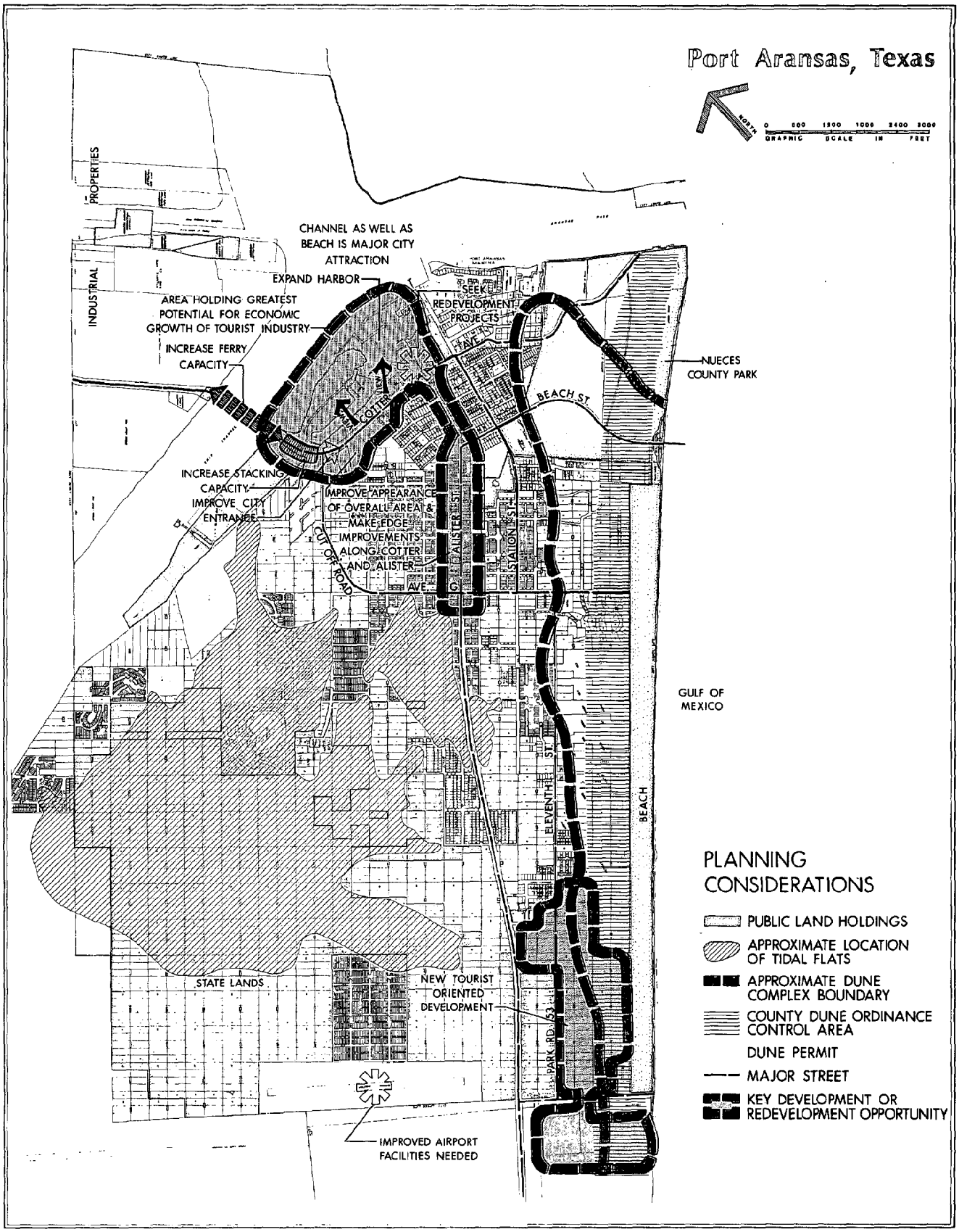

Port Aransas, Texas
NORTH
0 500 1500 1000 2400 3000
GRAPHIC SCALE IN FEET
PROPERTIES
INDUSTRIAL
CHANNEL AS WELL AS BEACH IS MAJOR CITY ATTRACTION
EXPAND HARBOR
AREA HOLDING GREATEST POTENTIAL FOR ECONOMIC GROWTH OF TOURIST INDUSTRY
INCREASE FERRY CAPACITY
SEEK REDEVELOPMENT PROJECTS
NUECES COUNTY PARK
BEACH ST.
COTTER AVE.
ALISTER ST.
STATION ST.
INCREASE STACKING CAPACITY
IMPROVE CITY ENTRANCE
IMPROVE APPEARANCE OF OVERALL AREA & MAKE EDGE IMPROVEMENTS ALONG COTTER AND ALISTER
CUT OFF ROAD
GULF OF MEXICO
ELEVENTH ST.
BEACH
STATE LANDS
NEW TOURIST ORIENTED DEVELOPMENT
PARK RD. 53
IMPROVED AIRPORT FACILITIES NEEDED
PLANNING CONSIDERATIONS
PUBLIC LAND HOLDINGS
APPROXIMATE LOCATION OF TIDAL FLATS
APPROXIMATE DUNE COMPLEX BOUNDARY
COUNTY DUNE ORDINANCE CONTROL AREA
DUNE PERMIT
MAJOR STREET
KEY DEVELOPMENT OR REDEVELOPMENT OPPORTUNITY

PLATE 12

2. Island Access. Studies by the State Highway Department have shown continuation of the ferry to be the only feasible access to the Island on the north end. Continued attention to possible alternatives is needed. Over the short range, more stacking space for the present ferry operation is a critical need.

3. The harbor is the focal point of Port Aransas and one of the main opportunities for development of facilities to improve the economy. The harbor needs to be continually improved and expanded.

4. The commercial area along Alister Street needs attention. Much can be done to increase its economic viability and attractiveness, within the traditional fishing village setting.

5. Both Cotter Avenue and Alister Street need to be improved, along with the adjacent land edges. These are the entrances to the city and the main trafficways in the city, and the city needs to put its best foot forward here.

5. The city needs to develop and implement a program of residential and commercial rehabilitation of less than standard structures.

6. The city needs to find additional answers to its solid waste disposal problems.

7. The city needs to continue and to expand its storm drainage improvements program using natural drainage patterns.

8. The city needs to improve recreation opportunities along the channel and on the bay side of the island, as well as the Gulf. Facilities already existing, including public fishing piers, bulkheads and park areas along the channel, and the boat harbor itself, should be kept in good repair for both the tourist and the resident.

The Land Use and Major Streets Plan Framework

The Land Use and Major Streets Plan framework is shown on Plate 13.

Policies of the Land Use Plan

1. All major industrial uses, excluding some selected and compatible uses such as boat building, boat repair, etc. should be encouraged to locate in the Harbor Island area.

2. The wetlands/tidal areas should be conserved.

3. Tourist accommodations/multi-family development should be encouraged to continue development in a corridor along Park Road 53 and to infill areas along the channel.

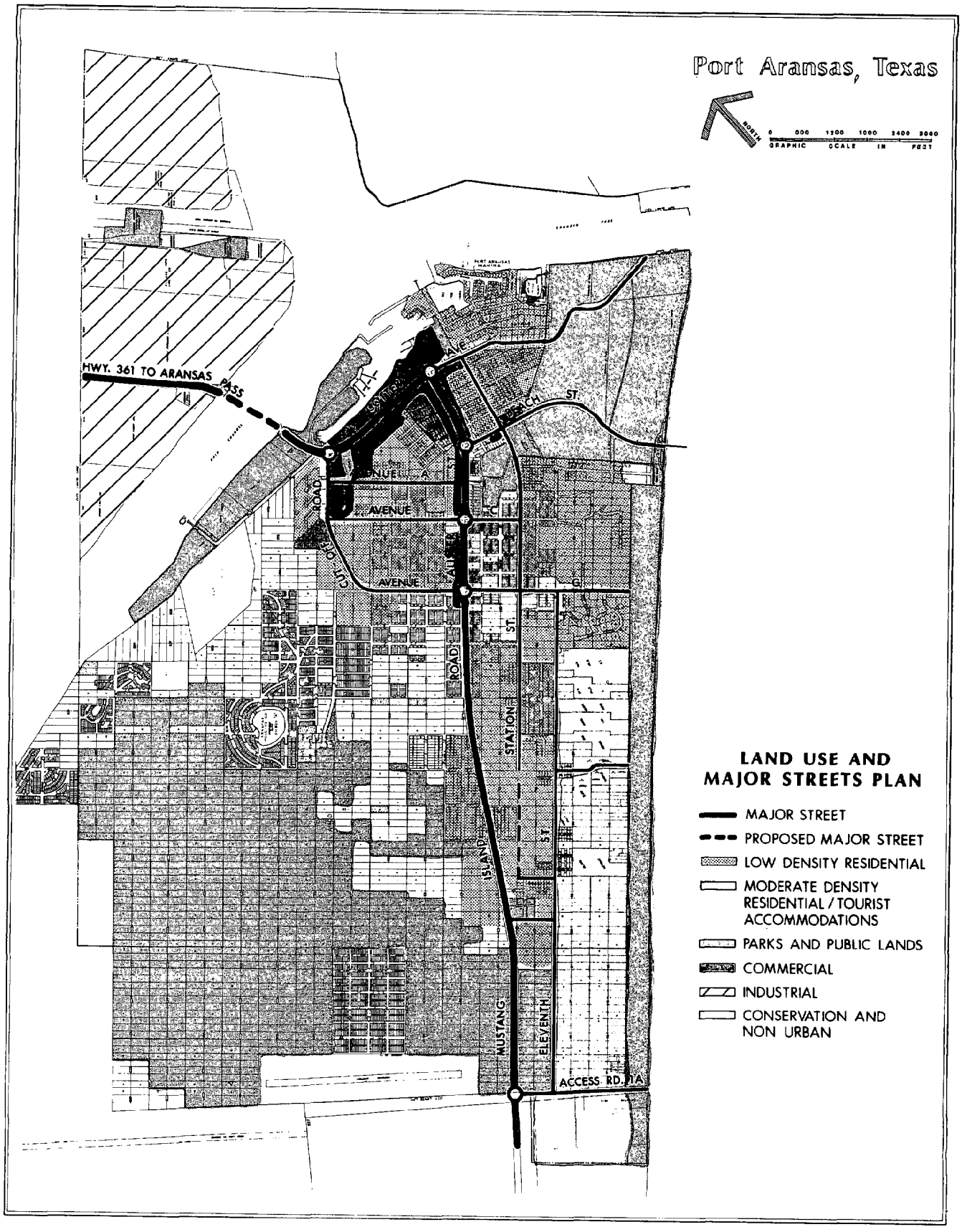

Port Aransas, Texas
NORTH
0 600 1200 1800 2400 3000
GRAPHIC SCALE IN FEET
HWY. 361 TO ARANSAS PASS
AVENUE
AVENUE
ROAD
ROAD
STATION
ST.
ISLAND
MUSTANG
ELEVENTH
ST.
ACCESS RD. 1A
LAND USE AND
MAJOR STREETS PLAN
MAJOR STREET
PROPOSED MAJOR STREET
LOW DENSITY RESIDENTIAL
MODERATE DENSITY RESIDENTIAL / TOURIST ACCOMMODATIONS
PARKS AND PUBLIC LANDS
COMMERCIAL
INDUSTRIAL
CONSERVATION AND NON URBAN

PLATE 13

4. Major commercial uses should continue to be concentrated along Alister Street, Cotter Avenue and at the harbor.

5. Single-family residential areas on the plan include mixed use development as is traditional in Port Aransas.

6. To protect the residential neighborhoods and the tourist industry, undesirable and nuisance uses such as junk yards and outdoor storage should be regulated by the city.

7. The Port Aransas harbor should serve the entire Island and should be continually improved and expanded for that purpose.

Policies of the Major Streets Plan

1. Park Road 53/Alister Street should continue as the principal north-south arterial. Proper expansion of Alister Street to four lanes to accommodate peak traffic is hindered by inadequate right-of-way and infringement by adjacent properties into the right-of-way, and other methods of increasing capacity should used.

2. Cotter Avenue should continue to serve east-west traffic to the ferry. A proposal for providing stacking capacity off Cotter is contained in the harbor civic design section.

3. Remaining segments of the arterial system include Cut Off Road, Avenue C, Avenue A, Eleventh Street, Station Street, and the four major beach access roads, Cotter Avenue, Beach Street, Avenue G, and Access Road 1-A.

4. Standards contained in the 1971 Plan shall be utilized, together with current and projected traffic volumes and turning movements to determine future laneage and intersection design.

5. All future development shall be required to set back an adequate distance from street right-of-way to allow for future street expansion in accordance with the Plan.

6. The city should enact a curb cut ordinance to direct access on major streets.

7. The city should enact parking regulations which include standards for design, as well as sufficient spaces for each use.

Civic Design

Civic design has been broadly defined to include the image and appearance of the entire city, and including those programs or individual projects which contribute to the city's image and appearance.

The image of the city over the years, shared by both residents and visitors alike, has been that of a typical fishing village and beach resort, where the pace is slow and relaxed and vacationers can enjoy the beach and the friendly "laid back" atmosphere. Recent years have seen the construction of modern condominiums and motels, the Coast Guard Center, the Marine Sciences Institute, a small modern strip shopping center, a growing demand on the part of visitors for quality restaurants, and a concurrent change in the tourist mix. From our discussions with city residents, some object to the newer buildings while others do not. At the same time, from an economic standpoint, the newer buildings are a valuable addition to the economy in that they bring in those tourists who may not have come in past years. The mix of old and new can provide a stronger image for the city, if capitalized on. No city has more successfully taken advantage of the old and new than San Antonio, and Port Aransas can do the same.

General Policies

1. The city should continue to use and build on the Port Aransas fishing village and beach resort theme.

2. Traditional architecture which contributes to the above theme should be continued.

3. New modern buildings should be encouraged, in accordance with the development standards, where the project is reasonably compatible with adjacent older significant uses.

4. The city should develop a specific program, with costs and priorities, based on the Port Aransas theme, to improve the image and appearance of the city.

5. Alister Street and Cotter Avenue should be improved to a more urban standard, and should include appearance improvements along each.

6. Other streets, particularly beach access roads, should remain as they are with shoulders and walkways, and the typical open, Port Aransas beach road appearance should be continued.

Projects

The following projects, either presently underway, or as proposed, are recommended to gradually begin to implement the civic design policies.

1. Civic Center. The Civic Center represents an action by the city to improve both the economy of the city, and its appearance. The Center building and site have been designed to provide an attractive project and a tourist generator to anchor the entrance to the city by way of the ferry.

Completion of the Center is only the first step. Management of it, development of a regional conference clientele, and development of supportive facilities over the next decade, will determine its success for more than city offices. The city, in conjunction with business interests on the Island, should provide a full-time professional staff person to manage and promote the Center. It is important that the Civic Center function well from a physical standpoint also. Sufficient defined parking, easy vehicular access, and good pedestrian links are essential, and the city should evaluate use of the Center and make improvements as needed.

2. The Harbor. As the most important economic resource in the city, the harbor provides three major redevelopment opportunities, which the city, with the help of the Navigation District, should pursue. (See Plate 14.)

a. Use of the west end of the harbor to provide stacking space for cars waiting for the ferry by bulkheading and filling in the area beside the ferry landing. This concept has been suggested by citizens and is shown on the harbor plan.

b. Open up the harbor to the channel visually by relocating the spoil dumping area and redeveloping as a park (as suggested in the 1971 Plan) or for construction of a high-quality restaurant/mixed use area.

c. Redevelop the harbor area at the intersection of Cotter and Alister for a major hotel/condominium project building on the harbor theme. This would be a long-term project, that if successful, would mutually reinforce the Civic Center and the entire tourist industry.

With the above improvements, the city should maintain sufficient dockage for resident and transient boats in the harbor.

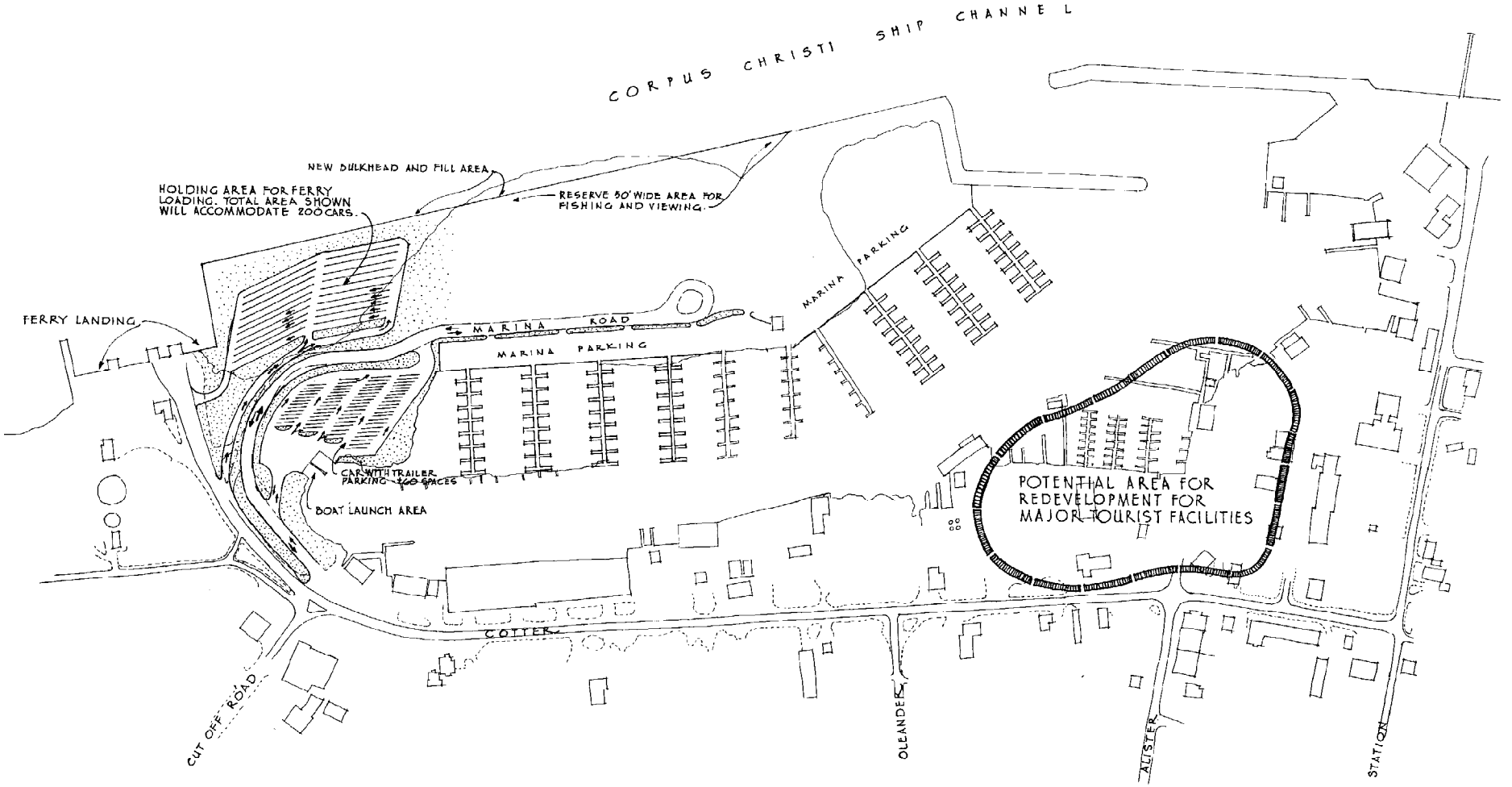
3. Streets

a. Cotter Avenue. Cotter Avenue should be improved to a three- or four-lane street with curbs, defined access points, adjacent parking, lighting, plantings in the right-of-way where possible, and pedestrian/bicycle ways where needed.

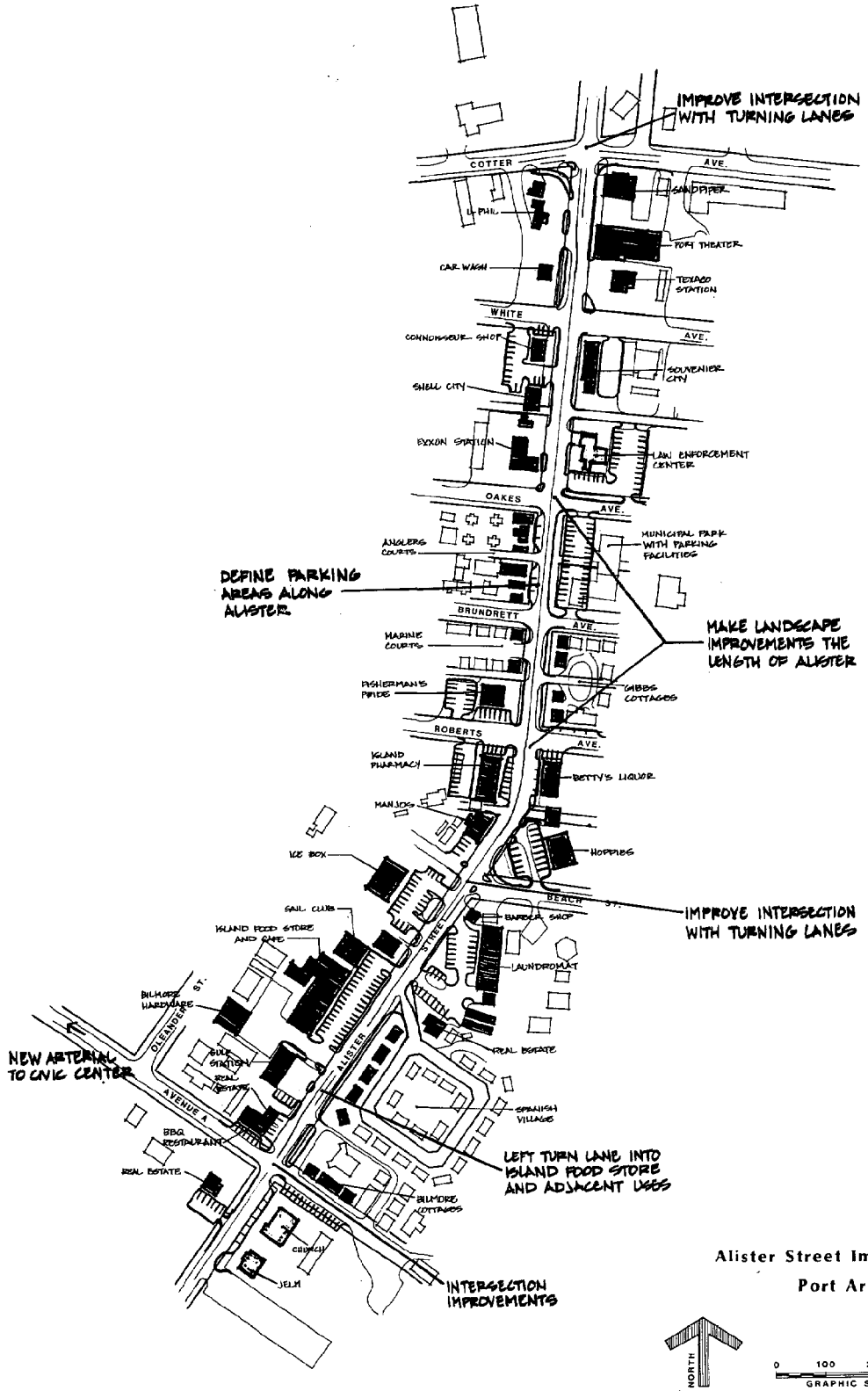
b. Alister Street. Alister should be improved to provide better traffic flow and improved appearance between Avenue G and Cotter Avenue. This improvement should include traffic improvements, defined access points for adjacent parking, plantings in the right-of-way where possible and pedestrian/bicycle ways. A possible concept is shown on Plate 15.

4. Commercial Areas. In conjunction with the street improvements, uses along both Alister and Cotter should surface and define parking lots, landscape where possible, and undertake exterior improvements utilizing rehabilitation funds as described under the following section.

PLATE 14



HARBOR PROJECTS



Alister Street Improvements

Port Aransas, Texas

Prepared by
Harland Bartholomew and Associates, Inc.

PLATE 15

5. Housing Rehabilitation. Some of the housing in the city (and commercial outlets) is badly in need of exterior and interior renovation. Granted the harsh weather makes it difficult to keep the appearance of structures up, the problem seems to be equally one of money. Other communities with similar problems are making great strides in this area and Port Aransas should as well.

Two avenues, at least, should be investigated for housing (and commercial) rehabilitation. These include: (1) obtaining federal loan and grant funds under neighborhood strategy funding programs, SBA loans and other funding sources; or (2) creation of a revolving fund, utilizing sale of bonds to make rehabilitation monies available.

6. General Appearance

a. Parking Lots. Standards for parking lots should include surfacing, marking of spaces, space size, internal circulation, and where possible, screening.

b. Signs. A public signing program of directional and other signs should be developed following the Port Aransas theme. Although probably not possible now, some general program to encourage the private sector to replace inappropirate signs would be of benefit.

c. Pedestrian/Bicycle Ways. A system of pedestrian ways and pedestrian/bicycle ways should be developed particularly to facilitate pedestrian and bicycle traffic between the city and the beach areas.

d. Utilities. Where major redevelopment projects are undertaken, utilities should be placed underground.

7. Property Standards. Regulations prohibiting or requiring screening of nuisance on-site exterior storage which detracts from the appearance of the community should be developed and enforced.

Organizational Needs

Most of the above programs would be initiated and carried out by the city. However, the scale of the redevelopment projects proposed is such that a partnership between the private and public sectors may be more effective. The city should consider formation of a non-profit local development corporation (or similar organization) made up of local leaders and citizens-at-large, which can work together with the city on economic development projects.

Overview

The above recommendations involve a myriad of small, individual actions, as well as large projects. Nevertheless the small, individual actions are very important. For "over the long run" these individual actions will make a vast

improvement in the perception of Port Aransas to those who visit the Island and choose whether or not to return.

MUSTANG ISLAND DEVELOPMENT GUIDE

PART 1

GENERAL PROVISIONS

Section 2-101. Purpose.

The Mustang Island Development Guide contains a series of principles and guidelines for the future development of Mustang Island. These principles and guidelines are designed to ensure that Mustang Island, including the City of Port Aransas, continues to grow and prosper and develop a sound and enduring economic base. Development of the Island, by either the private or the public sectors, without regard for the land management practices prescribed by these principles and guidelines could diminish the Island's attractiveness to tourists, visitors and future residents undermining the value of public and private investment in the Island.

The Development Guide itself is not technically a land use regulation because it depends for its implementation on enforcement by at least four independent governmental entities and on the voluntary compliance of the private sector. The importance of implementing the Guide should not be underestimated because of its non-mandatory character, and each governmental entity and the private sector should make every possible effort to ensure its implementation for the general good of residents, landowners and visitors. The Guide contemplates implementation through a coordinated development review by a newly created review body, called the Mustang Island Review Board.

The Review Board is not really a new governmental entity or level, but is a voluntary joint review process that combines existing review procedures currently employed by Nueces County, the City of Port Aransas, the City of Corpus Christi and the Nueces County Water Control and Improvement District #4. In so combining the review process of these agencies the objective is to reduce delay and costs, mitigating the effects of the existing multi-level permitting process.

Section 2-102. Definitions

1) Barrier Flat Environmental Zone

That portion of Mustang Island which lies along the center of the Island between the Dune Complex Zone and those lands affected by tidal inundation from Corpus Christi

Bay as depicted on the Environmental Zones Map, Plat 4, at p. 29 of this Plan.

2) Beach Environmental Zone

That portion of Mustang Island which lies seaward of the line of permanent vegetation as depicted on the Environmental Zones Map, Plate 4 at p. 29 of this Plan.

3) Board

The Mustang Island Development Review Board described in Section 2-401 of this Development Guide.

4) Building

Any structure designed, built or intended for use by persons.

5) Developer

Any person, including any governmental agency, undertaking or proposing to undertake any development.

6) Development

The carrying out of any construction or other building operation, including but not limited to, excavation, grading, clearing or filling, or the making of any material change in the use, appearance, topography, elevation or composition of any structure or land or the division of land into two (2) or more parcels.

7) Dune Complex Zone.

That portion of Mustang Island which lies landward of the line of permanent vegetation but seaward of the Barrier Flat Environmental Zone as depicted on the Environmental Zones Map, Plate 4 at p. 29 of this Plan. This zone is characterized by mature and stable sand dunes.

8) Dwelling Unit

A self-sufficient area for residence or habitation, with or without a kitchen, which is designed for or used as a single housekeeping or housing unit without regards to whether the residents are permanent, seasonal or transitory.

9) Environmental Zones Map.

The Environmental Zones Map shall be that map which delineates environmental zones on the Island which is set Plate 4 at p. 29 of this Plan.

10) Floor Area

The sum of the gross horizontal areas of all stories of a building measured from the exterior walls.

11) Grade

The average level of the surface of the ground adjacent to the exterior wall of a building or proposed building.

12) Height

The vertical distance between grade and the highest point of any structure.

13) Impervious Surface

Any material applied to the surface of land which prevents the natural infiltration or passage of surface water into the ground.

14) Land

The earth, water and air above and beneath the surface, including all improvements or structures.

15) Parcel

Any quantity of land capable of being described with such definiteness that its location and boundaries may be established, and which is designated by its owner as a unit.

16) Person

An individual, corporation, governmental agency, business, trust, or any other legal entity.

17) Plan

The Comprehensive Plan for Mustang Island, Port Aransas, Texas, of which this Development Guide is a Part.

18) Property Proposed for Development

That unit of land proposed by a developer for development.

19) Residential Use

Permanent or temporary use of a structure or building for habitation or shelter.

20) Structure

Anything constructed or erected with a fixed location on the ground or attached to something having a building.

21) Tidal Flat Zone.

That portion of Mustang Island which is affected by tidal inundation from Corpus Christi Bay as depicted on the Environmental Zones Map, Plate 4, at p. 29 of this Plan.

PART 2

POLICIES

Section 2-201. Public Values on Mustang Island

The beach and its associated amenities constitute the primary environmental and economic values of Mustang Island which attract tourists and residents to the Island. The topography and vegetation of the sand dunes are the predominant visual characteristic of Mustang Island and are an essential element of the Island's attractiveness.

Section 2-202. Relationship of Sand Dunes to the Beach

The gulf-side sand dune system is an integral element of Mustang Island beach system in both a hydrological, geological and biological sense.

Section 2-203. Protection of Public Values and the Island's Economic Base.

1) Development of Mustang Island must be of a location, character and magnitude that will not impinge upon the Island's essential characteristics and values which make Mustang Island and the City of Port Aransas attractive to visitors, tourists and part and full-time residents.

2) Development within the gulf front dune system should be designed and located so that the functional and visual integrity of the dune system is maintained.

3) Development on Mustang Island should be designed and located so that the visual character of the Island and its improvements are consistent with the appearance and perception of the Island with which visitors have related.

Section 2-204. Drainage Control

Development on the Island should be designed and located so that surface water run-off generated by a development will not flood adjacent public and private properties.

Section 2-205. Visual Compatibility.

1) Development should be designed and located so that the visual character of all development does not produce an urban or suburban appearance such as a continuous line or wall of buildings.

2) The design and location of all structures should, to the maximum extent possible, be of a color, composition and scale which is consistent with the predominant visual character of the Island.

Section 2-206. Availability of Public Services.

1) Development must be coordinated with the availability of essential public services and no development should be undertaken unless adequate water, sewer, schools, roads and other essential services are available to serve the users of the proposed development.

2) All available public resources should be employed to enhance the developability of the Island, provided that such development is consistent with this Plan.

Section 2-207. Preservation of the City of Port Aransas.

1) The City of Port Aransas and its character and atmosphere represent important resource and cultural values that contribute significantly to the attractiveness of Mustang Island to visitors, tourists and residents.

2) The character and atmosphere of the City of Port Aransas should be preserved, protected and enhanced through:

a) encouraging private investment in the maintenance, repair and supplementation of existing residential and commercial structures;

b) the investment of public monies in the maintenance, repair and supplementation of existing residential and commercial structures;

c) continued improvement of the harbor and its attendant and support commercial uses; and

d) development which contributes to the visual character and atmosphere of the City of Port Aransas.

Section 2-208. Protection of the Environment.

The environmental character of Mustang Island as a natural, rural locale contributes to the attractiveness of Mustang Island to visitors, tourists and residents and should be preserved, so that wildlife will continue to support its attractiveness to visitors, tourists and residents of the Island.

Section 2-209. Hurricane Protection.

Development on Mustang Island must be designed, located, and coordinated to provide safe and effective on-island refuge from hurricanes for each person on the Island as well as providing each person who is on the Island in the event of a hurricane approach with the opportunity to safely evacuate from the Island.

Section 2-210. Coordinated Implementation.

The consistency of proposed development with this Development Guide should be evaluated in a coordinated and efficient procedure which will protect the interests of the public and private sectors on the Island.

PART 3

COORDINATED DEVELOPMENT REVIEW

Section 2-301. Availability of Coordinated Development Review

The consistency of proposed development with the principles and guidelines of this Development Guide and the applicable regulations and requirements of the City of Port Aransas, the City of Corpus Christi, Nueces County, and the Nueces County Water Control and Improvement District #4 should be evaluated through the Coordinated Development Review Process prescribed in this Article.

Section 2-302. Administration of Coordinated Development Review

The Coordinated Development Review Procedure prescribed by this Article should be administered by the Mustang Island Development Review Board described in Section 2-401.

Section 2-303. Development Which is Eligible for Coordinated Development Review.

Development proposals involving more than one (1) acre of land, five (5) dwelling units or ten thousand (10,000) square feet of floor area are eligible for development review at the developer's option under the Coordinated Development Review Procedure prescribed in this Article.

PART 4

MUSTANG ISLAND DEVELOPMENT REVIEW BOARD

Section 2-401. Membership of the Mustang Island Development Review Board

The Mustang Island Development Review Board shall be composed of official representatives of the following governmental entities:

1) City of Port Aransas
2) City of Corpus Christi
3) Nueces County
4) Nueces County Water Control and Improvement District #4

Section 2-402. Chairman of the Mustang Island Development Review Board

The membership of the Mustang Island Review Board shall elect one of their number to serve as Chairman of the Review Board.

Section 2-403. Meetings of the Mustang Island Development Review Board.

1) No meeting of the Mustang Island Development Review Board shall be an official meeting unless all members of the Board are in attendance.

2) The Mustang Island Development Review Board shall hold at least one official meeting annually, and is empowered to hold official meetings as are necessary to discharge its responsibilities under this Article.

3) All meetings of the Mustang Island Development Review Board shall be public and shall be held at a location on Mustang Island. Notice of each meeting of the Mustang Island Development Review Board, together with the proposed agenda of

the meeting shall be published in a newspaper of general circulation in the City of Port Aransas and the City of Corpus Christi.

4) Meetings of the Mustang Island Development Review Board shall be called no earlier than 5:00 p.m.

5) Minutes of all official meetings of the Mustang Island Development Review Board shall be promptly recorded and available for public inspection at the following locations:

a) City Hall, City of Port Aransas
b) City Hall, City of Corpus Christi
c) Nueces County Court House, and
d) Offices of the Nueces County Water Control and Improvement District #4

Section 2-404. Official Acts of the Mustang Island Development Review Board.

No act of the Mustang Island Development Review Board shall be effective unless three members of the Board have voted in favor of the action.

Section 2-405. Legal Status of the Mustang Island Development Review Board.

The Mustang Island Development Review Board shall be considered an administrative entity with no separate legal or corporate existence. The obligations and debts of the Board shall be the obligations and debts of the member entities, except that no action of the Board which exceeds the responsibilities and authorities prescribed herein shall be considered the action of the member governments.

Section 2-406. Powers of the Mustang Island Development Review Board.

The Mustang Island Development Review Board shall have no authority or power of its own and its actions shall be considered to be the actions of the member governments or the advisory actions of an intergovernmental compact.

Section 2-407. Financial Support of the Mustang Island Development Review Board.

The activities of the Mustang Island Development Review Board shall be financed by the collection of the development review fee prescribed in Section 2-501 of this Article. In the event that fee collections are insufficient to cover all activity expenses, the four member entities shall provide the necessary funds, each entity contributing one-fourth of the necessary funds.

Section 2-408. Mustang Island Development Review Board Hearing Examiner.

1) The Mustang Island Development Review Board is encouraged to discharge its responsibilities for receiving applications for coordinated development review through a qualified Hearing Examiner designated by the Board in order to expedite and coordinate land use decisionmaking on the Island.

2) The Hearing Examiner may be designated by the Board to serve generally or on a case-by-case basis. In the event the Board chooses to designate a Hearing Examiner on a case-by-case basis, the Board should prepare a roster of qualified Hearing Examiners from which the selection shall be made. If a Hearing Examiner is designated to review an application for development approval, his proposed findings and recommended order shall constitute the proposed findings and recommended order of the Board and they shall be forwarded to the appropriate member jurisdictions without any deliberation by the Board itself.

3) Candidates for Hearing Examiner shall be persons with training and/or experience in one or more of the following fields: law, administrative procedure, land development, engineering or environmental sciences. No person should be qualified as a Hearing Examiner unless that person has demonstrated familiarity with the orderly conduct of adversarial proceedings and the terminology and concepts of planning, law, real estate development and the environment.

4) The Hearing Examiner shall receive and examine the application for development approval and any other information provided him, conduct public hearings and prepare a record and proposed findings and a recommended order as the proposed findings and recommended order of the Mustang Island Development Review Board.

Section 2-409. Staff for Mustang Island Development Review Board.

1) The staff of the Mustang Island Development Review Board shall be responsible for receiving applications for development and distributing the application to appropriate agencies which are members of the Board, and setting the public hearing.

2) The City Planner for the City of Port Aransas shall serve by contract as the staff for the Mustang Island Development Review Board.

PART 5

APPLICATION FOR COORDINATED DEVELOPMENT REVIEW

Section 2-501. Submission of Application for Coordinated Development Review.

An application for development review shall be submitted to the Mustang Island Development Review Board, or its designated representative, accompanied by a non-refundable fee, as established from time to time by the Board, to defray the actual cost of processing the application.

Section 2-502. Form of Application

The application shall be in such form and shall contain such information and documentation as shall be prescribed from time to time by the Board, and shall contain at least the following information:

1) Name and address of applicant;

2) Legal description, street address, block or lot number and subdivision name, if any, of the property which is the subject of the application;

3) Statement of ownership;

4) Names and addresses of all owners of property, as appear on the last approved city or county tax roll, located within 200 feet of any boundary of the property proposed for development approval, excluding public lands, easements or rights-of-way;

5) Size of the subject property;

6) A written statement describing in general terms the development for which approval is sought;

7) A site plan drawn to a scale of not less than 60 feet to the inch, on one (1) or more sheets, illustrating the proposed development and use, and including the following:

   a) Location of the property by lot number, block number, and street address, if any.

   b) The boundary lines of the property, the dimensions, easements, roadways, and public right-of-way on or adjacent to the property.

c) That portion of the property located 1,000 feet landward from the mean high tide.

d) The location and dimensions of all proposed lots, open space, and other improvements.

e) The location, height and use of all proposed and existing buildings and structures.

f) All existing and proposed surface and subsurface drainage facilities and other utilities.

g) Location, size and arrangement of all existing or proposed signs and lighting.

h) Location, number, and proposed construction materials for parking spaces to be provided.

i) All existing development located within 200 feet of any boundary of the property, if any.

j) Construction materials and elevations for proposed structures.

k) If the proposed development is located in the dune complex zone, existing contours at two (2) foot intervals.

l) Proposed contours for the final grade.

m) Landscaping plan, including plans for dune stabilization and revegetation.

n) Scale of drawing and north arrow.

8) A statement showing the calculation of the storm water runoff which will be generated by the proposed development.

9) A plat, in accordance with the City of Corpus Christi or the City of Port Aransas, whichever City has jurisdiction over the site of the proposed development.

10) All materials required by the Nueces County Water Control and Improvement District #4 in order to obtain water and sewer services.

11) All materials required by the City of Port Aransas Flood Hazard Prevention Ordinance.

12) All materials required by the City of Port Aransas in order to obtain a building permit.

13) Such other information and documentation as may be necessary or appropriate to a full and proper consideration and disposition of the application.

Section 2-503. Determination of the Completeness of an Application for Development Review

Within ten (10) days after an application for coordinated development review has been submitted to the Mustang Island Development Review Board, the Board's staff shall determine whether the application is complete. If it is determined that the application is not complete, a written statement specifying the application's deficiencies shall be sent to the applicant by certified mail. No further action shall be taken on the application unless the deficiencies are remedied.

Section 2-504. Review of Applications

Applications for development review shall be referred to the individual staffs of each member of the Development Review Board. Applications for development review within the dune complex zone shall also be referred to the General Land Office of the State of Texas for review and comment. If other governmental agencies have jurisdiction over a pending application, including but not limited to, the Army Corps of Engineers, the United States Fish and Wildlife Service, or the Nueces County Navigation District, the application shall be referred to that agency for review and comment.

Section 2-505. Hearing Procedures for Applications for Development Review

1) Setting the Hearing.

When it has been determined that an application is complete, the staff or designated representative of the Development Review Board shall consult with the members of the Board and shall select a time and place for a public hearing.

2) Notice.

Notice of the public hearing shall be provided as follows:

a) Content of Notice.

Every notice shall include the date, time and place of the hearing, and a description of the application.

b) Publication.

Notice of all hearings shall be published in a newspaper of general circulation in the City of Port Aransas and the City of Corpus Christi not more than thirty (30) days nor less than fifteen (15) days before the date of the hearings.

c) Mail.

In addition to the publication requirement above, notice shall be provided by mail individually to all owners of property, as shown on the last approved City or County tax roll, within 200 feet ofthe property which is the subject of tthe hearing, provided that in measuring the 200 feet, public lands, easements or rights-of-way shall not be considered.

3) Examination and Copying of Application and Other Documents.

After notice has been provided, any person upon reasonable request may examine the application and material submitted in support or opposition to the application in accordance with the provisions of the Texas Open Records Act. Any person shall be entitled to obtain copies of the application and other related materials upon reasonable request and payment of a fee to cover the actual cost of such copies.

4) Conduct of the Hearing.

a) Oaths

All testimony and evidence shall be given under oath or by affirmation.

b) Rights of all Persons.

Any person may appear at a public hearing and submit evidence either individually or as a representative of any organization. Each person who appears at a public hearing shall identify himself, his address and

state the name and mailing address of any organization he represents. The Hearing Examiner may exclude evidence that he finds to be irrelevant, immaterial or unduly repetitious.

c) Rights of Parties.

Persons entitled to be parties to a public hearing shall include the applicant, the owner of the property, any officer, department, board or commission of the City of Port Aransas, the City of Corpus Christi or Nueces County. In addition, any other person who, in the opinion of the Hearing Examiner, has demonstrated a special interest in the outcome of the matter which is distinct from the interests of the general public, may be permitted to intervene as a party. In addition to the rights granted to all persons above, all parties shall have the following rights:

(i) to present witnesses;

(ii) to cross-examine all witnesses;

(iii) to examine and reproduce any documents produced at the hearing;

(iv) to be granted, upon request, one continuance for the purpose of presenting evidence to rebut evidence introduced by any other person. Such rights shall at all times be subject to the sound discretion of the body conducting the hearing and may be limited if unwarranted or undue delay will result or where no new evidence will be presented.

d) Continuance of Hearing.

The Hearing Examiner may, on his own motion or the motion of any party, continue the hearing to a fixed date, time and place. The Hearing Examiner shall notify all parties, all members of the Development Review Board and other persons originally entitled to notice of the date, time and place of such hearing.

e) Record.

(i) The Hearing Examiner shall record the proceedings by any appropriate means which shall be transcribed at the request of any person upon application and payment of a fee to cover the cost of transcription, or the record may be transcribed on order of a majority vote of the Development Review Board. If a sound recording is made, any person shall be entitled to listen to the recording at any reasonable time, or make copies at his own expense.

(ii) The transcript of testimony; the minutes of the Hearing Examiner, if any; applications, exhibits and papers submitted; the reports and comments submitted by any individual or reviewing agency; and the decision and report, or reports, of the Hearing Examiner shall constitute the record.

(iii) All records shall be public records, open to inspection at reasonable times and upon reasonable notice in accordance with the Texas Open Records Act.

f) Contacts Outside of the Hearing.

(i) The Hearing Examiner may base his deliberations and decisions only on:

(aa) The record;

(bb) Argument offered at the hearing;

(cc) Site inspections when all interested parties or their representatives are present, or when no such parties or their representatives are present.

(ii) If the Hearing Examiner receives a communication from any party outside the hearing, he shall prepare a notice of circumstances and substance of such communication which shall be transmitted to all parties and members of the Development Review Board.

5) Findings and Recommended Order.

The Review Board, or if a Hearing Examiner has been designated, the Hearing Examiner shall,upon conclusion of the public hearing, transmit the record, his proposed findings and his recommended order to the City of Port Aransas, the City of Corpus Christi, Nueces County and the Nueces County Water Control and Improvement District #4. The proposed findings shall specifically relate the application for development review to each policy set forth in Part 2 of this Article and each standard set forth in Part 6 of this Article.

6) Action by Relevant Member of the Board.

Upon receipt of the proposed findings and recommended order, the member agencies of the Development Review Board from which the applicant requires approval, shall consider the proposed findings and recommended order and approve or disapprove the application.

PART 6

MUSTANG ISLAND DEVELOPMENT STANDARDS

Section 2-601. Application

All development on the Island, public and private, should be consistent with the principles and guidelines set out in this Development Guide.

Section 2-602. Standards Not Exclusive

The principles and guidelines of this Development Guide are not intended to be exclusive and all development should also comply with the separate and independent requirements of all applicable regulations promulgated by any unit of government.

Section 2-603. Distribution of Uses

1) Residential dwelling units should be a permitted use for all land on Mustang Island.

2) Non-residential uses should be located in close proximity to Park Road 53 or elements of the circulation system of the City of Port Aransas which do not pass through residential neighborhoods, provided, however, that no non-residential use should be located within fifty (50) feet of Park Road 53.

3) Non-residential uses should be clustered in order to facilitate ease of access and convenience of service.

Section 2-604. Residential Density

1) Except as provided in Section 2 below, residential development on Mustang Island should not exceed the following densities for the environmental zone in which the property proposed for development is located:

a) Beach.

No residential development should be located in the Beach Environmental Zone.

b) Dune Complex.

(i) No residential development should be located in that portion of the Dune Complex Environmental Zone which is seaward of the ridge of the first stable dune.

(ii) Residential development in that portion of the Dune Complex Environmental Zone landward of the ridge of the first stable dune should not exceed 1 dwelling unit per acre.

c) Barrier Flat.

Residential development in the Barrier Flat Environmental Zone should not exceed:

(i) East of Park Road 53, 5 dwelling units per acre, and

(ii) West of Park Road 53, 3 dwelling units per acre.

d) Tidal Flat.

Residential development in the Tidal Flat Environmental zone should not exceed 1 dwelling unit per 2 acres.

2) Notwithstanding the residential densities set out in Subsection 1 of this Section, the density of residential development may be increased as follows:

a) in the Barrier Flat Environmental Zone to 15 dwelling units per acre if the property proposed for development extends from Park Road 53 seaward to the line of public ownership of the beach and no structures, except elevated walkways and elevated observation or patio decks, are to be constructed on any portion of the property proposed for development which is located in the Dune Complex Environmental Zone; or

b) in the Barrier Flat Environmental Zone east of Park Road 53 to 15 dwelling units per acre if the developer owns the development rights from property located in the Dune Complex Environmental Zone in a ratio of 2 acres of Dune-Complext Environmental Zone land for each acre of Barrier Flat Environmental Zone land which is proposed to be developed at a density greater than that which is permitted in Section 2-504 (1) above, or

c) in the Barrier Flat Environmental Zone east of Park Road 53 to 15 dwelling units per acre if the developer owns the development rights from property located in a Washover Zone of the Dune Complex Environmental Zone in a ratio of one acre of Washover Zone land for each acre of Barrier Flat Environmental Zone land which is proposed to be developed at a density greater than that which is permitted in Section 2-504 (1) above, or

d) In the Barrier Flat Environmental Zone east of Park Road 53 to 15 dwelling units per acre if the developer owns the development rights from property located in the Dune Complex Environmental Zone in a ratio of five acres of Tidal Flat Environmental Zone or Barrier Flat Environmental Zone west of Park Road 53 land for each acre of Barrier Flat Environmental Zone land which is

proposed to be developed at a density greater than that which is permitted in Section 2-504 (1) above, or,

e) in the Dune Complex Environmental Zone up to a percentage of 15 du/acre at the same ratio of the percentage of the Dune Complex Environmental Zone on the parcel proposed for development that will not be developed with structures, except elevated walkways and elevated observation or patio decks. The percentage shall be calculated dividing the distance from the seawardmost structure proposed to be developed to the ridge of the first stable dune by the depth of the Dune Complex Environmental Zone as measured from the ridge of the first stable dune landward on a line perpendicular to Park Road 53, to the boundary between the Dunes Complex Environmental Zone and the Barrier Flat Environmental Zone.

3) No increase in density for land in the Barrier Flat Environmental Zone should occur until the owner and/or developer has:

a) recorded a charge on the title of the land located in the Dune Complex Environmental Zone from which the development rights are derived for eligibility for the increase in density in the Barrier Flat Environmental Zone,

b) dedicated the land located in the Dune Complex Environmental Zone from which the development rights are derived for eligibility for the increase in density in the Barrier Flat Environmental Zone to a public agency or non-profit organization, or

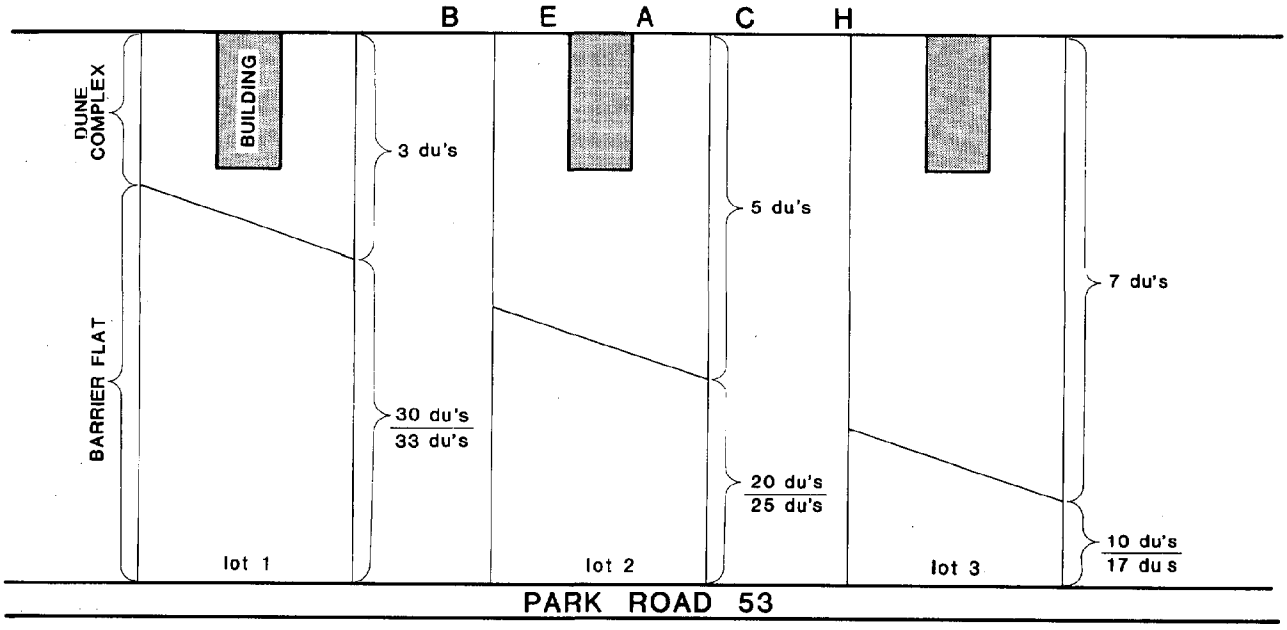
c) otherwise ensured that the land located in the Dune Complex Environmental Zone from which the development rights are derived for eligibility for the increase in density in the Barrier Flat Environmental Zone will not be developed.

Section 2-605. Site Location of Buildings and Structures

1) Buildings and structures should be located on the property proposed for development so that all portions of each building or structure are set back from all property or

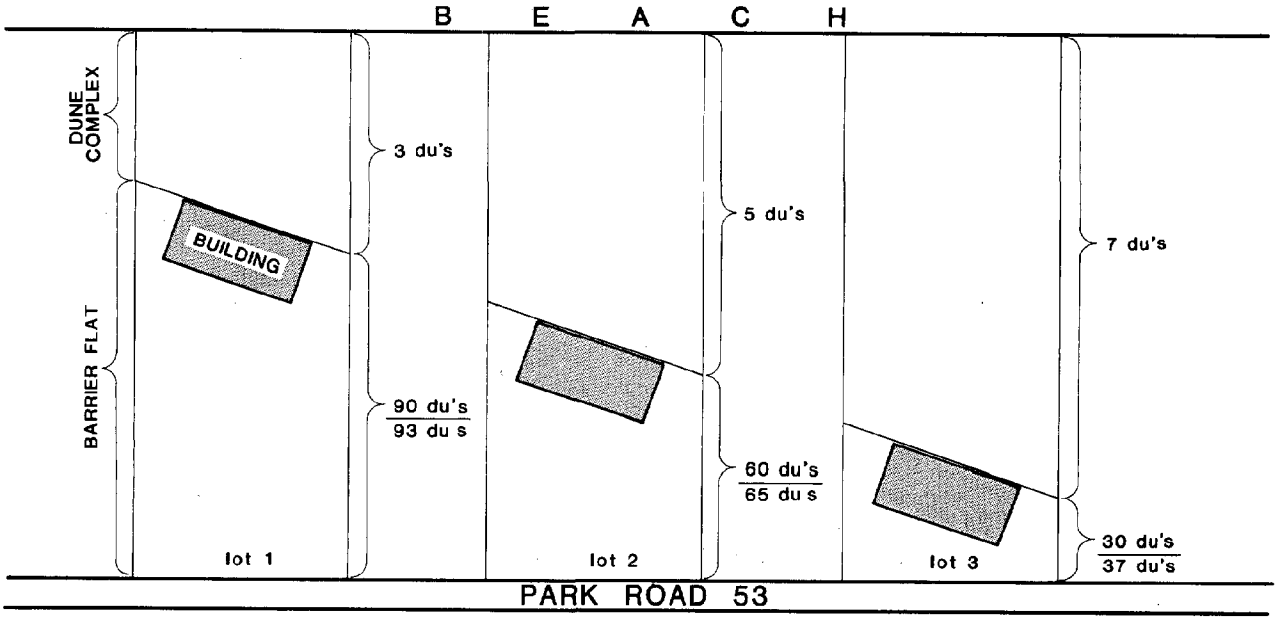
EXAMPLE OF DENSITY CALCULATIONS UNDER DEVELOPMENT REGULATIONS

WITHOUT BONUS



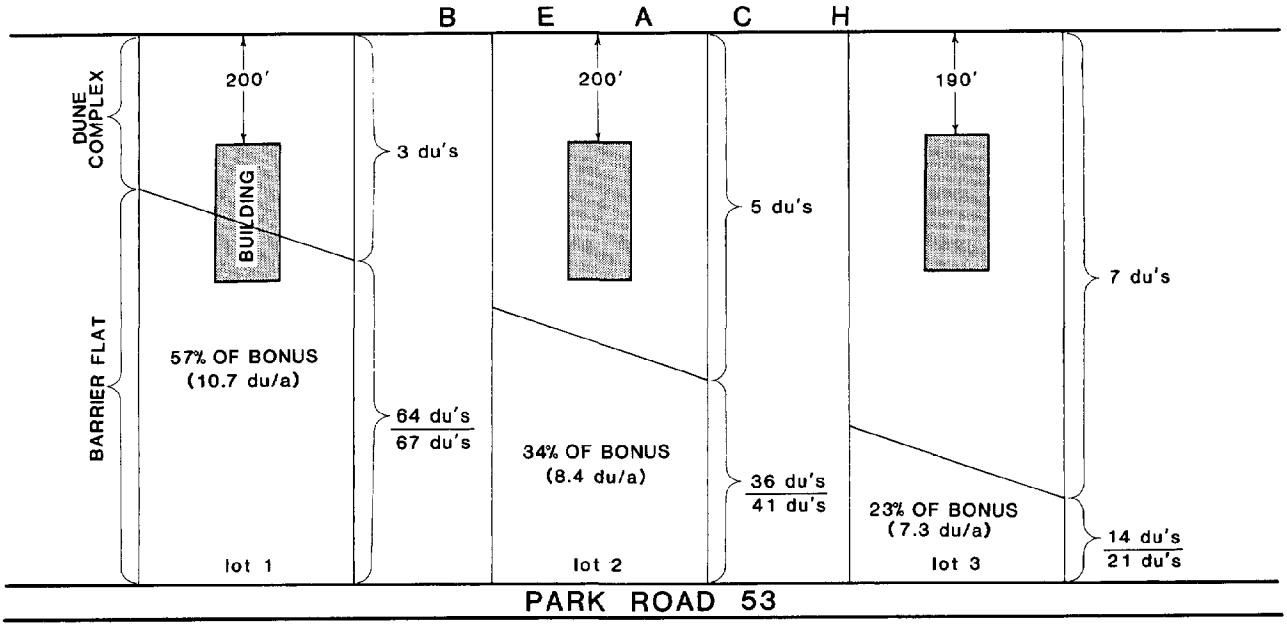
LOT 1		LOT 2		LOT 3	
TOTAL ACREAGE	- 9.18a	TOTAL ACREAGE	- 9.18a	TOTAL ACREAGE	- 9.18a
DUNE COMPLEX	- 3.17a	DUNE COMPLEX	- 5.19a	DUNE COMPLEX	- 7.21a
BARRIER FLAT	- 6.01a	BARRIER FLAT	- 3.99a	BARRIER FLAT	- 1.97a

WITH BONUS



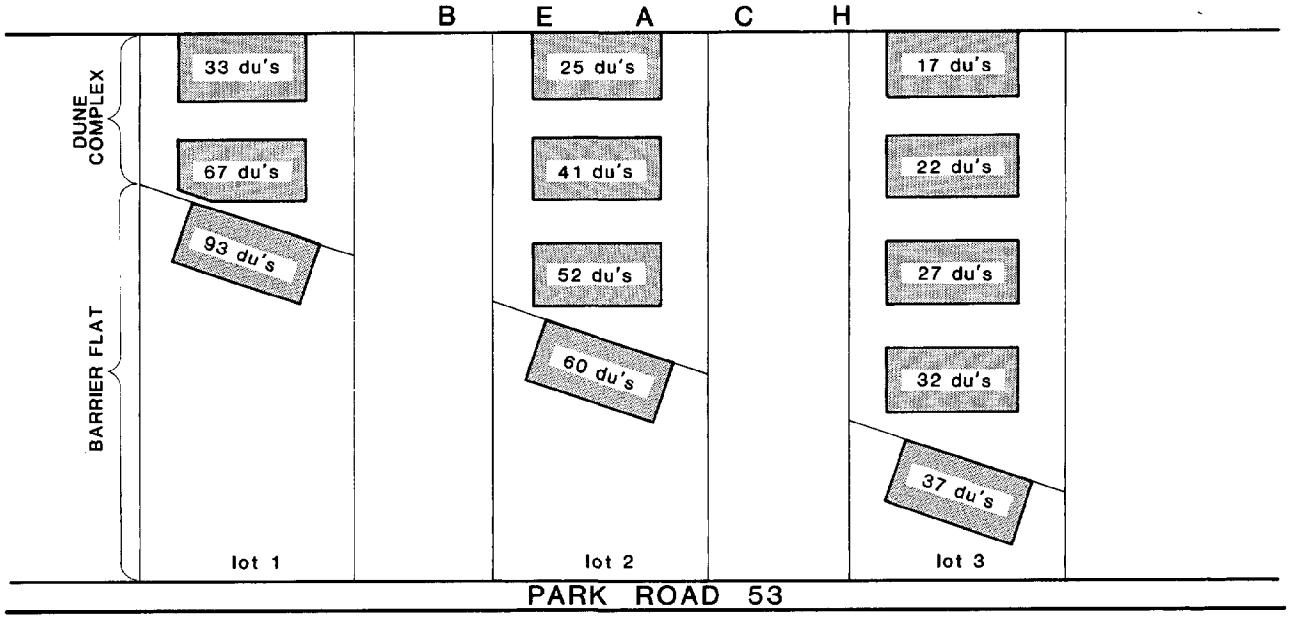
EXAMPLE OF DENSITY CALCULATIONS UNDER DEVELOPMENT REGULATIONS

SLIDING BONUS

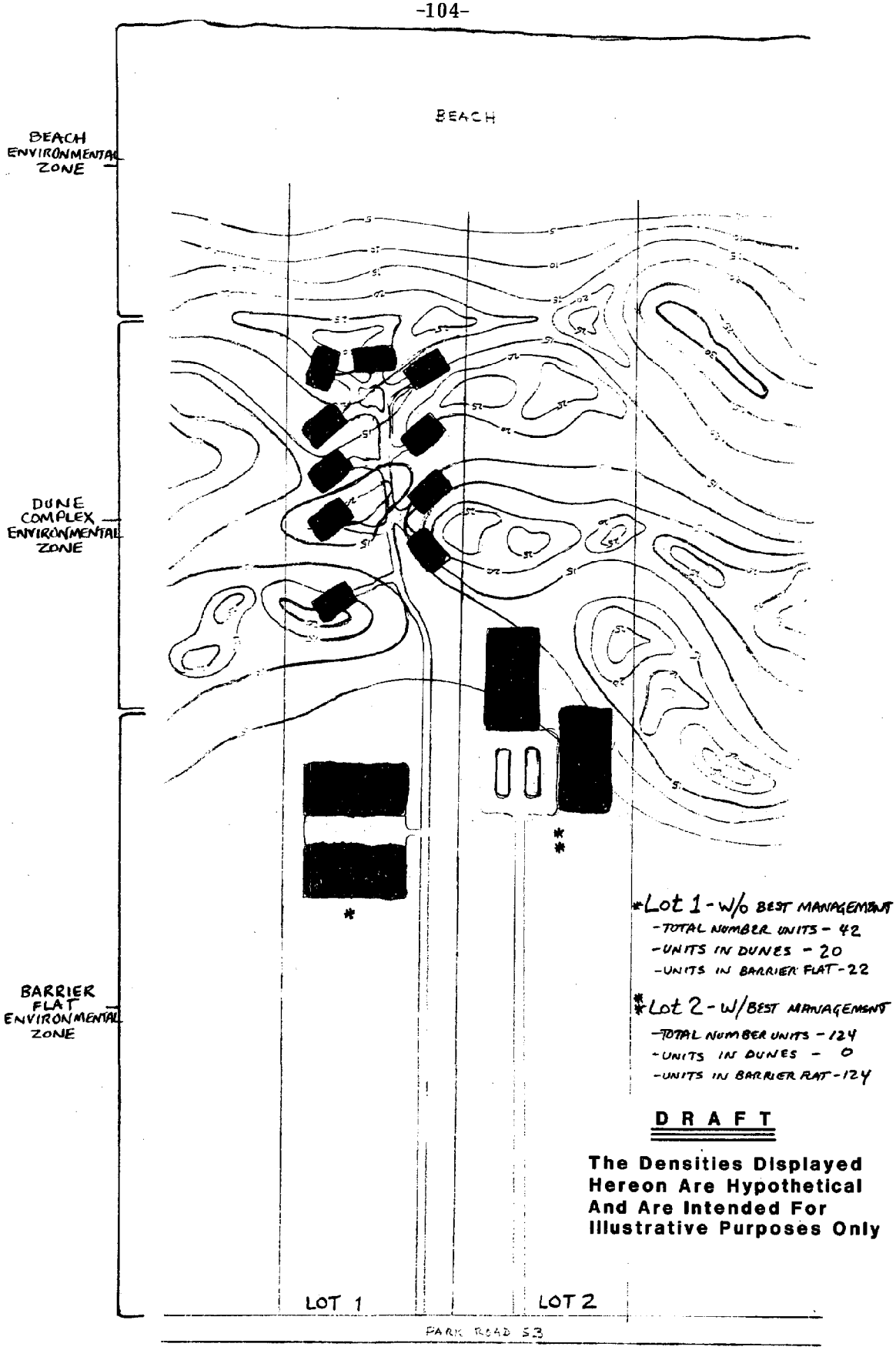


LOT 1		LOT 2		LOT 3	
TOTAL ACREAGE	9.18a	TOTAL ACREAGE	9.18a	TOTAL ACREAGE	9.18a
DUNE COMPLEX	3.17a	DUNE COMPLEX	5.19a	DUNE COMPLEX	7.21a
BARRIER FLAT	6.01a	BARRIER FLAT	3.99a	BARRIER FLAT	1.97a

EFFECT OF MOVING SEAWARD-MOST BUILDING LANDWARD*



* The numbers indicated in the box are total du's (dwelling units) if the seaward most building is set back the approximate distance shown.



HYPOTHETICAL DEVELOPMENT W/ & W/O BEST MANAGEMENT

boundary lines of the property at least one (1) foot for each two (2) feet of height of the proposed building or structure.

2) Notwithstanding any provision of subsection 1) of this Section, no building or structure greater than thirty-six (36) feet shall be located within forty (40) feet of any property line.

Section 2-606. Dune Complex Construction Standards.

All development in the Dune Complex Environmental Zone should meet the following standards:

1) Buildings and structures should be elevated on pilings or posts such that wind and water, together with wind and water-driven sand, can flow through and around the buildings and structures, and

2) Impervious surfaces, other than pilings or footings for buildings and structures, should not exceed 10% of the surface area of that portion of the property proposed for development which lies within the Dune Complex Environmental Zone, and

3) Modification of sand dunes should not result in a reduction in the total volume of sand in the dunes complex or the lowering of the elevation of any portion of the property proposed for development within the Dune Complex Environmental Zone.

Section 2-607. Landscaping.

All development should be landscaped with native plants or other halophytic plants with demonstrated capacity to stabilize sand, withstand periodic salt water inundation, and with reproductive capacity equal to that of native plant species.

Section 2-608. Drainage.

All development should provide for the control and retention of surface water run-off in the following manner:

1) Surface water run-off from the property proposed for development should be controlled so that rate, volume and direction of flow from the property proposed for development approximates natural surface water run-off;

2) Retention of storage capacity should be available for surface water run-off generated by a storm of a five year return period;

3) Surface water retention ponds should be no more than five (5) feet in depth, and should be designed and oriented to maximize wind circulation of water in the ponds;

4) No surface water run-off should be directed to the Beach Environmental Zone from any proposed development; and

5) Surface water run-off directed to the Tidal Flat Environmental Zone or the Bay should be delivered in a gradual and dispersed fashion.

Section 2-609. Coverage.

No development should be permitted which proposes impervious surfaces in excess of thirty (30) per cent of the property proposed for development.

Section 2-610. Mobile Homes.

1) Mobile Home Construction Standards.

No mobile home shall be permitted for residential or commercial purposes unless the applicant can demonstrate that the proposed mobile home will comply with all other standards and requirements of this Guide, the National Mobile Home Construction and Safety Standards, and

a) has walls, frames, roofs and other structural components which are capable of withstanding the impact of wind and wind-driven water at a velocity which would accompany a 100 year storm;

b) has electrical, plumbing and sanitary components installed in a fashion such that they would not result in an electrical shock hazard or be a source of untreated effluent during a storm of a 100 year intensity.

c) otherwise complies with Ordinance No. 78-306 of the City of Port Aransas.

2) Existing Mobile Homes.

Any mobile home which is in legal use on Mustang Island on the effective date of this Guide shall not have to comply with the requirements of this part, except that any such mobile home which is subsequently removed from and returned to Mustang Island shall not thereafter be used for residential or commercial uses unless such home complies with all the standards and requirements of this Guide, including specifically the provisions of this part.

3) Temporary Construction Offices.

Mobile homes may be used for temporary construction offices at construction sites but not for residential purposes, and the use shall be limited to the period of construction. Further, such mobile homes shall be tied down in the manner prescribed in Ordinance No. 78-3 of the City of Port Aransas.

Section 2-611. Flood and Storm-Proofing.

1) Flood-Proofing.

All development applications shall demonstrate that the proposed development:

a) provides for the elevation of the lowest floor to be used for habitation or commercial purposes of all new construction or substantial improvements of existing buildings;

(i) to or above 11 feet mean sea level in all areas within five hundred (500) feet of Corpus Christi Bay and the Gulf of Mexico.

(ii) in all other areas of the Island above the elevation specified by the Administrator of the Federal Emergency Management Agency as the level of the 100 year flood.

b) provides that any portion of any new construction or substantially improved building required to be elevated to or above 11 feet mean sea level, which is below 11 mean sea level will only be used for parking, storage, utility rooms, workshops and other uses normally associated with accessory buildings;

c) provides that any portion of any new construction or substantially improved building required to be elevated to or above 11 feet mean sea level which is below 11 feet mean sea level with the exception of support pilings, shall be constructed of "breakaway" or other material which will allow storm-driven wind and water to pass through the lower portions of such build-

ings without threatening the integrity of the elevated portions of the building;

d) provides that in any new construction or substantially improved building required to be elevated to 11 feet mean sea level, all utility service systems shall be flood-proofed to at least the first habitable floor;

e) provides that all utility facilities be flood-proofed to at least 11 feet mean sea level.

2) Emergency Shelter Space.

All residential structures containing more than five dwelling units and all commercial structures greater than 10,000 square feet of floor area shall be designed and constructed insofar as practical so that hallways, lobbies, lounges and utility areas can be used as emergency shelter during hurricanes.

3) Emergency Water.

Each emergency area shall have tanks or other storage facilities for 500 gallons of emergency potable water.

4) Non-Residential Structures.

Notwithstanding any other provision of this part, non-residential structures which can not be elevated because of the character of their use may be constructed below the levels described in Section 1) above provided that the structures and attendant utility and sanitary facilities are flood-proofed up to the levels described in of the U.S. Army Corps of Engineers publication entitled "Flood-Proofing Regulations," 1972 Edition.

Section 2-612. Parking.

All uses on the Island shall provide the following number of parking spaces:

1) Residential Uses.

a) One (1) parking space per single family detached dwelling unit;

b) One and one-half (1.5) parking spaces per residential unit other than single family detached;

2) Non-Residential Uses

Resturant:

a) One (1) parking space for every two seating places. If drive in service is also provided, 1 space for every 50 square feet of floor area.

Auditorium:

b) One (1) parking space for every five (5) seats.

Community or Convention Center:

c) One (1) parking space for every 100 sq. ft. of assembly area.

Outside Commercial Amusement areas:

d) One (1) parking space for every 200 sq. ft. of the site.

Theaters

e) One (1) parking space for every five seats.

Medical and Dental Clinics

f) four (4) parking spaces for each 1,000 sq. ft. of net floor area plus 1 for each employee or professional on duty at at any one time.

Food Stores, General Retail:

g) One (1) parking space for every 500 square feet of floor area.

CHECKLIST FOR IMPLEMENTATION

Implementation of the plan requires a number of individual actions by each of the four jurisdictions involved -- Nueces County, NCWC & ID #4, city of Port Aransas and the city of Corpus Christi.

General

1. Agreement among the four jurisdictions to utilize the Coordinated Development Review Process.

2. Meeting to formalize procedures and role of the Development Review Board, staff responsibilities and other necessary agreements.

Nueces County

1. Approval of Plan as policy guide for county decisions regarding island. Principal use would be for beach access, parks, highways, dune protection and beach management.

2. Amend Dune Protection Permit process to include use of the plan as a resource in the process.

3. Development of an implementation program for park acquisition and beach access.

Nueces County Water Control and Improvement District #4

1. Adoption of Plan as policy guide for District.

2. Use of development guide, and additional standards of the District, as basic standards for sewer and water contracts and expansion of service under present contracts.

3. Continue to work with Port Aransas, through intergovernmental agreement, to enforce standards for the island.

City of Port Aransas

1. Adopt Plan for Port Aransas (1971 Plan as amended by the Updated Plan for Port Aransas).

2. Adopt Development Guide (and any additional regulations).

3. Initiate formation of economic development organization.

4. Initiate recommended projects.

5. Adopt parking ordinance.

6. Adopt curb cut ordinance.

City of Corpus Christi

1. Adopt Plan for development of the island.

2. Adopt Development Guide.

3. Utilize both for subdivision regulations and approval of water and sewer agreements.

State of Texas

1. Approval by General Land Office as policy guide for state recommendations/decisions regarding development of the island.

APPENDIX A

bennett & associates

April 15, 1980

Messrs. Wendy U. Larsen
and Charles L. Siemon
Ross, Hardies, O'Keefe, Babcock & Parsons
One IBM Plaza
Suite 3100
Chicago, Illinois 60611

Gentlemen:

The purpose of this letter is to comment on behalf of the Mustang Island Property Owner's Association in reference to the Comprehensive Plan for Mustang Island/Port Aransas, Texas, prepared by Harland Bartholomew & Associates, Inc., and Ross, Hardies, O'Keefe, Babcock & Parsons.

Our Technical Committee has reviewed your Draft report and has discussed certain aspects of said plan with persons of specific expertise. Though we find a limited number of faults in your surveys, analysis and conclusions, we prefer to restrict our comments of this letter to the major factors relevant to your Draft "Comprehensive Plan".

If your report is truly to be a comprehensive plan for Mustang Island, it should analyze those factors which impact Mustang Island objectively. The total thrust of your Draft is geared most assuredly to the impact of development on the island and draws certain inferences and conclusions which could lead many individuals to conclusions regarding the future of the island which are not an accurate assessment of the status of Mustang Island.

PUBLIC IMPACT ON MUSTANG ISLAND

Though your report deals primarily with the impact of construction and development on Mustang Island and touches only sparingly on the public's impact, we feel that this public use is presently having a significant effect on the environment and the stability of the natural processes on the island in a far greater degree than any development on the island at this time.

REAL ESTATE-INVESTMENT Brokers · Developers · Lenders the 600 bldg., corpus christi, texas 78473 512-884-2421

The public impact should be approached in your study as a primary topic instead of being only slightly addressed. Do you recognize that of the tens of thousands of visitors to Mustang Island approximately 95% are spending 95% of their time on only 5% of the land? Obviously this large concentration of people and vehicles is now having detrimental effects on the beach and dune areas. We recognize that the public should at all times have the right of access and use of all portions of our beach area. It is our belief that that public access should not be infringed upon, however your Comprehensive Plan should provide certain guidelines and limitations as required to protect this unique recreational area.

We are confident that your research as shown that automobiles, motorcycles and pedestrian traffic heavily concentrated on our beach and foredune area, strip the fragile but important seaward most vegetation, allowing substantial wind erosion. The effects of destroying this protective cover on the beach and dune area can be plainly seen on a number of areas and proven beyond question. Unfortunately this area of the beach and land seaward of the foredunes is some of the most sensitive, fragile and important portions of the island. It only seems reasonable that you would address this question in detail, analyzing reasonable limits as to amount of human activity that takes place on the beach and reasonable allocation as to specific uses of the beach.

In a number of locations in your report you expressed concern about the foredune ridge. The impact by the public on this ridge has been, and is far greater than the impact of any development whatsoever on the island.

On page 52, plate 8, you show traffic lanes and beach parking facilities. It is our feeling that your plans are impractical and would primarily serve to make the beach a repository for junk barrels, bollards or other similar structures to restrict parking and the flow of traffic on the beach. The maintenance and expenditures of maintaining these areas over a long period of time would be extensive and we believe sound beach management, taking into account all the environment factors, does not warrant this approach.

DEVELOPMENT IMPACT ON MUSTANG ISLAND

In a number of areas in the report you mention or infer that construction development in the dune area would be detrimental.

There is no evidence, that we are aware of, that properly designed and constructed improvements in the dune area would have a detrimental effect on storm resistance of the island. Increasing heights of the dune ridge and the stabilization of this mass through construction or revegetation can significantly aid the storm resistance capability of the dunes.

We assume your desire to reduce development anywhere within the dunes is no more than to retain the aesthethics of undeveloped property as a buffer between developed lands and the public beach. If this is the case, as we suspect it is, it is a significant restriction of private lands for someone's aesthetic opinion. If this is to be accomplished, we suspect that it would require acquisition of this portion of our properties. In any event, if it is "aesthethics" lets call it aesthethics.

You spend considerable verbage with diagrams, discussing limitations of existing water, sewer and transportation facilities relative to development on Mustang Island. Since nearly all municipal service expansions in any city or municipality are in response to the need, why do you give the impression that some physical limitations exist? It is our understanding that the systems on Mustang Island are under no physical limitations and can be expanded as the needs arise.

In reference to your coordinated development review process, we do not feel that we can endorse any such plan. It appears that this process is both more time consuming, confusing and less advantageous to the development community than even our present system. It would shed more heat than light and create another bureaucratic layer. The Transfer of Development Rights concept is not sufficiently clear to respond, except to say it will not likely work.

In summary your Draft Compreshensive Plan does not seem to accurately analyze all of the major impacts on Mustang Island. It is without question a fact that the public impact on Mustang Island is far more detrimental than the private development and construction of improvements. If you spent as much

time analyzing and giving detailed recommendations as to the public's usage of the island which involves both condominium owners and day trippers, we may then have a truly beneficial plan. As it stands now, the vast majority of your report deals only with the limitations or restrictions of construction and development which has very little bearing as compared with the public's impact, existing and future.

We appreciate the opportunity to comment on your plan and would like to continue to take part in anyway possible.

If you have any other questions whatsoever, don't hesitate to call.

Yours truly,

S. Charles Bennett, III
President, Mustang Island
Property Owners Association

SCB:kb

PADRE ISLES PROPERTY OWNERS' ASSOCIATION
P. O. BOX 8649 • PADRE ISLAND • CORPUS CHRISTI, TEXAS 78412 • (512) 933-8597

April 3, 1980

Wendy U. Larsen
Ross, Hardies, O'Keefe, Babcock & Parsons
One IBM Plaza Suite 3100
Chicago, IL 60611

Dear Ms. Larsen,

We have attended the various meetings you have held on the Comprehensive Plan for Mustang Island/Port Aransas as a neighboring Property Owners Association. Although we have no direct interest in Mustang Island or Port Aransas per se, we would like to comment on some areas of common concern.

1. Hurricane Evacuation. The potential population of the Padre Island-Corpus Christi subdivision is in the range of 30,000 - 40,000, not counting visitors within our subdivision or those on Malaquite Beach. The John F. Kenedy Causeway is the only evacuation route. Our hurricane preparedness program emphasizes early evacuation. Even so, we believe the causeway would be hard pressed to handle traffic from North Padre Island much less Port Aransas and Mustang Island. As you know, a shift in the direction of a hurricane as it nears landfall could leave very little time for evacuation. We believe additional highway capacity is imperative. Your report should emphasize the total problem in a more positive manner.

2. Public Access. We share the sentiments of the Mustang Island Property Owners on public access to beaches expressed at the March 31, 1980 meeting. We believe firmly that beaches should be accessible to the public; however public access has come to mean access by vehicles and people, making a freeway of the beach. Obviously, two incompatible ingredients under such conditions. We believe access to everything is access to nothing; that the enjoyment that people want from the beach is being denied; that the beach itself will be destroyed by insensitive human use. Your report should state this problem in a stronger and more positive manner.

3. Control of Development on the Island. As a matter of interest, we have an excellent working relationship with the City of Corpus Christi and Nueces County with respect to zoning, building codes, control of construction permits and inspection. The relationship is both formal, in terms of signed agreements, and informal, in terms of day-to-day contact to resolve problems. We suggest the same relationship should prevail on Mustang Island, especially with the formation of the Mustang Island Property Owners' Association.

We would appreciate having a copy of your final report.

If we can be of assistance please let us know.

Sincerely,

PADRE ISLES PROPERTY OWNERS ASSOCIATION

David R. Coggins

DAVID R. COGGINS
Executive Coordinator

DRC/tf

APPENDIX B

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PERSONAL CONTACTS

Mr. Fred Alger; Alger & Company, Inc., New York.

Judge Robert N. Barnes; County Judge, Nueces County.

Mr. J. C. Barr; Corpus Christi.

Mr. Pete Basquin; Harmeson Manufacturing Company, Inc., Frankfort, Ind.

Beach Committee; City of Port Aransas.

Mr. Robert Beggs; Corps of Engineers.

Mr. Charlie Bennett; Corpus Christi.

Mr. Thomas S. Bennett; Corpus Christi.

Dr. Arthur P. Benton; Remote Sensing Center, Texas.

Mr. Cecil L. Bradford and Mr. William Stewart, Texas.

Mr. Richard Bullock, and other staff; Coastal Bend Council of Governments.

Mr. Kent Butler, Texas.

Mr. C. L. Castor, Jr.; MB, Ltd., Corpus Christi.

Mr. David Clark; Corpus Christi.

Mr. J. H. Clement; Kingsville, Texas.

Mr. David R. Coggins; Corpus Christi.

Mr. Ralph J. Cook; Luthern Mutual Life Insurance Co./Iowa, Corpus Christi.

Councilmen - Port Aransas.

Mr. George B. Craig; Ace Sales Company, Corpus Christi.

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Mr. Ralph Durden; Dunes Condominium, Port Aransas.

Mr. John Elliff, Director; Nueces County Parks and Recreation.

Mr. Bill Ellis; Port Aransas.

Mr. Don Ferferman; Corpus Christi.

Mrs. Grace Flato; Corpus Christi.

Mr. Franklin Flato; Corpus Christi.

Mr. John French; U.S. Dept. of the Interior, Fish & Wildlife Service, Ecological Services, Corpus Christi.

Mr. Steve Frishman; Port Aransas.

Mr. Bill Gaskins; Port Aransas.

Mr. G. T. Gilluly; Port Aransas

Mr. Gene Graham; Corpus Christi.

Mr. William Green; Nueces County Surveyor, Corpus Christi.

Mr. Maxwell Hancock; U.S.Dept. of the Interior, National Park Service, Corpus Christi.

Mr. Gordon Harrington; Corpus Christi.

Mr. George Hawn and Mr. Don Roy Farley, Nueces County Water Control and Improvement District No. 4.

Mr. Hayden Head, Jr.; Corpus Christi.

Mr. Bob Kipp; Kipp & Winston Architects, Corpus Christi.

Mr. J. K. Kothmann; Port Aransas.

Mr. Paul Kutchinski; Texas Department of Water Resources.

Mr. Youssef Nassimi Levi; Montreal, P.Q. Canada.

Mr. Melvin M. Littleton; Island Construction Inc., Port Aransas.

Mr. J. P. Luby; Commissioner, Corpus Christi.

Mr. Jerry McAtee; General Land Office, Austin.

Mr. Dick McCracken; United Savings Association, Corpus Christi.

Mr. William McNair; Terramar Corporation, Corpus Christi.

Mr. Ray Mims; Texas State Highway Department.

Mr. Bill Minor; Texas State Highway Department.

Mr. Kenneth R. Olive, Jr.; Energy Reserves Group, Houston.

Dr. Carl Oppenheimer; The University of Texas Marine Sciences Institute, Port Aransas.

Mr. Duane Orr; Corpus Christi.

Mr. Thomas F. Piper; Piper Land Company, Port Aransas.

Mr. Jack Ponton; Dunes Corp., Corpus Christi.

Ms. Gloria Ritchie; Texas Natural Resources Information System, Austin.

Mr. Don Rodman; Nueces County Navigation District, Corpus Christi.

Ms. Janet Sanders; Corpus Christi.

Mr. Buddy Scalf; Corpus Christi.

Mr. Bill Sellers; Kingsville, Texas.

Ms. Winifred Simon; Austin.

Mr. Roger Spencer; Texas State Highway Department.

Mr. & Mrs. Tom Stanley; Port Aransas.

Mr. A. Floyd Strickland; R. E. Broker, Corpus Christi.

Mr. Sam Susser; Corpus Christi.

Mr. James S. Swan; Terramar Corp., Corpus Christi.

Mr. Bob Thorpe; City Attorney, Port Aransas.

Mr. Marvin Townsend; City Manager, Corpus Christi.

Mr. Jack R. Turner; Corpus Christi.

Mr. Gene Urban; Urban Engineering.

Mr. Larry Wenger and Mr. Michael Gunning, Planning Department, Corpus Christi.

Mr. Bill Whitten; Islander Real Estate, Port Aransas.

Mr. Charles W. Zahn, Jr.; Condotel, Inc., Corpus Christi.

Mr. John Zimmerman; Great Gulf Corp., Corpus Christi.

Mr. Clifford Zarsky; Corpus Christi.

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