COASTAL ENERGY IMPACT PROGRAM

City of Aransas Pass

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Prepared by

RPC, Inc.

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Preface

The purpose of the Coastal Energy Impact Program (CEIP) is to provide assistance to coastal communities and counties in planning for, managing, and mitigating the effects of growth that are induced by energy-related development. This study seeks to identify the types and magnitude of such development that have occurred in the city of Aransas Pass or could be expected to occur within the next five years, determine the effects that such development can have on the community, and establish recommended courses of action to meet the city's growth management issues.

The study methodology consisted of:(1) compiling an inventory of the existing conditions in the community, focusing on major public facilities and services such as water supply, sewage treatment system, solid waste, health care facilities, police and fire service, and other relevant factors such as housing and land use, and determining the present capacity of those facilities and services as well as the cost and revenues; (2) interviewing existing industries in the area and reviewing of secondary data sources to identify energy facilities that have located in the community since 1976 or that might be expected to locate there by 1985, including the employment and associated population increases that could be expected; (3) a comparison between the anticipated population, including that resulting from new energy facilities, and the existing or planned capacity of the city's public facilities and services to determine those facilities that might be utilized beyond their capacity; (4) based on the anticipated growth and population, projecting of the cost to the city of providing public services and facilities and additional revenues that could be expected

from that new population, to determine the fiscal impact of energy-related population growth; (5) reviewing the major growth management issues facing the community and establishing goals and objectives for both a short and a long-term management strategy.

While this study could not accurately be considered a comprehensive plan for meeting energy-related growth, it establishes some important data points and issues from which such a plan can be formulated and implemented. As is explained throughout the report, the process of predicting with accuracy the types and magnitude of energy facilities that might locate in a community, and the associated new resident population, is plagued with uncertainty: energy development and production are difficult to predict, thus the plans of the associated industries are not necessarily long-term and are subject to rapid change. To accomodate this uncertainty, a range of projected population growth is provided. It is important to understand, however, that the real utility of this study is in providing and understanding the cost of growth in the city, regardless of the actual projections. That is, for each unit of change in population, additional public facilities and services are required at an ultimate cost to the community. This information can be a vital planning tool.

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Section I

Inventory of Existing Conditions

Introduction

The purpose of this section is to provide a baseline inventory of the existing conditions in the city of Aransas Pass. This inventory will be used to help determine the extent to which the city can absorb new population growth resulting from coastal energy facilities and industries. The critical determinants will be those public facilities and services, housing, land use features, or economic factors that presently are being utilized at or near their capacity. By comparing the present capacity of public facilities and services to the projected population demands (Section II), the city will be provided with information that can be used to help anticipate impacts and manage energy related growth.

The factors studied in compiling the baseline inventory of existing conditions include the following:

1) Population
2) Employment and Income
3) City Revenues
4) Schools
5) Public Buildings
6) Health Care
7) Police Protection
8) Fire Protection
9) Water Supply
10) Sanitary Sewer System

11) Solid Waste Disposal System

12) Storm Drainage System

13) Transportation System

14) Recreation

15) Housing

16) Land Use

The methodology employed in inventorying these factors consisted of a review of a variety of secondary, published, data sources. Extensive interviews with city administrative staff were also conducted to supplement and verify the published data. Focus of the inventory included: (1) an accurate description of the existing facilities and their capacity; (2) an analysis of the current service ratio of the facility, that is, the number of residents served per unit, or conversely, the service demands placed on the system per unit population; (3) the present adequacy of the facility or service as determined by comparison to published service ratio standards and/or evaluations provided by the city administrative staff; (4) the city's plans to expand the capacity of a facility or service.

A summary of the results of the survey of existing conditions is presented in Table 1. In short, it can be concluded that the majority of the existing facilities and services in the city are adequate to serve the existing population and have a reasonable amount of reserve capacity. The factors that are presently most critical in terms of an ability to absorb additional population within the capacity of the public facilities and services include the elementary school system, hospital facilities, water

Table 1

Summary of Existing Conditions

Factor	Description/ Capacity	Current Service Ratio	Present Adequacy	Plans to Expand
Schools	116 teachers 2,204 students 102 classrooms	19 students per teacher average 19.7 students per classroom	Elementary is over-crowded Junior and Senior High are adequate for next 5 years	Considering bond issue for new Jr. High in anticipation of 5 yr. inadequacy; possible use of Jr. High & Administr. bldg. to alleviate crowding in elementary
Public Buildings	City Hall Police Dept. Fire Dept. Maintenance bldg.		Fire Station in need of improvement & repair	
Health Care	Lyman Roberts - 26 beds Aransas - 12 beds	Total 15.9 beds per 1000 people 1.5 doctors per 1000 people	Adequate at present with little or no reserve capacity	Study underway to determine whether to expand Lyman Roberts or construct new hospital
Police	14 police officers; 10 patrolmen 8 patrol cars	2 officers per 1000 persons; 1 patrolman per 643 persons 1 car per 800 persons	Adequate at present but will need 2-3 additional personnel with 1000 new population	Considering utilizing 2 reserve civilian policemen on weekends

Factor	Description/ Capacity	Current Service Ratio	Present Adequacy	Plans to Expand
Fire	5 paid & 25 volunteer firemen 3 - 750 gal. pumpers; 1 booster truck	4.6 firemen per 1000 people	Adequate at present with first key rate status	Planned purchase of 1000 gal. pumper
Water Supply	San Patricio W.D. via 12 in. main Total of 1,750,000 storage capacity	Max. usage 1,300,000 gpd or 202 gal. per person per day	450,000 gal. reserve capacity Adequate at present but need additional 500,000 gal. storage to correct surge problem	Considering additional 500,000 gal. overhead storage
Sanitary Sewer	Max. capacity of 2 million gpd but only 750,000 gpd can be treated properly	Max. 1,259,000 gpd 196 gal. per person per day Ave. 756,000 gpd; 118 gal. per person per day	System can only adequately treat 750,000 gpd; ave. daily flow exceeds capacity of system by 6,000 gal. Inflow-infiltration system in need of improvement	Plans submitted for new 1,500,000 gal. capacity plan; possible completion in early 1980s.
Solid Waste	Disposal Site in Gregory	2.33 lbs/person/day collected	Adequate at present but may not be operating at peak efficiency Distance to disposal site is costly	
Storm Drainage	Storm sewer and drainage ditches One lift station behind seawall		System is inadequate to prevent flooding behind seawall, north and east sectors of city	Considering additional lift station

Factor	Description/ Capacity	Current Service Ratio	Present Adequacy	Plans to Expand
Transportation	State Highways 361 and 35 are major thoroughfares; rail service, intracity bus service, charter air service; commercial lines in Corpus Christi municipal boat harbor		State Highway 35 creates heavy traffic parking and local transportation considered adequate	State is planning to reroute State Highway 35 around the city
Recreation	3 parks, totaling approx. 49 acres; playground, picnicking facilities; boat ranges Padre Island, Wildlife Sanctuaries, Goose Island State Park in vicinity salt water recreation	Approx. 6.2 acres per 1000 population	General standard is about 10 acres per 1000 population	Plan to spend $96,000 on improved park areas; 3.5 additional acres, will bring ratio to 6.8 acres per 1000 population
Housing	Few vacant units; no rental units available majority single family dwellings Federally subsidized retirement community and low income housing		Inadequate rental units; few owner-occupied units available	Additional federally-subsidized housing being considered

supply system, and the storm drainage system. The capacity of the sanitary sewer system is being exceeded with average daily flows at present, and presents a serious impediment to additional population growth. Additional police and fire protection personnel will be required in the near future.

Regional Setting

The city of Aransas Pass, on a peninsula formed by Corpus Christi Bay and Redfish Bay, is located in three counties: Aransas County, Nueces County, and San Patricio County. The majority of the population (88 percent in 1976) is located in San Patricio County. Thus, for the purposes of this study, data on San Patricio County will be used. Regionally, Aransas Pass is situated in a network of small communities surrounding Corpus Christi Bay, Redfish Bay and Aransas Bay including Rockport, Ingelside, Gregory, and Portland. The community, due to its proximity to Corpus Christi Bay and the Gulf of Mexico, is the home of a major shrimping fleet. It also is a major access point to Mustang Island in the city of Port Aransas, and is in close proximity to an ever-growing industrial nucleus forming on Harbor Island and in the Ingleside area.

A major transcoastal traffic artery, State Highway 35, places Aransas Pass in the mainstream of tourism traffic and regional commuting.

Population

The population of Aransas Pass has fluctuated since 1950. The city's estimated population was 6,434 in 1976. San Patricio County's population,

on the other hand, has been increasing steadily since 1950. (See Table 2) In 1950, the County's population was 35,842. By 1976 it was an estimated 51,499, an increase of approximately 44 percent. According to projections made by the Coastal Bend Council of Governments, it is anticipated that the population of Aransas Pass will increase steadily through 1995 (Table 3) when the population is expected to reach 8,544, an increase of approximately 33 percent over 1976.

Racial composition and age and sex distribution for Aransas Pass and San Patricio County are indicated in Tables 4 and 5. Ninety-five percent of the population in 1970 was white and five percent belonged to minority groups. This compared with a slightly lower percentage of minority groups (2 percent) for San Patricio County. In 1970, there were slightly more females (2,910) than males (2,903) in Aransas Pass. The County, on the other hand, has slightly more males than females. The median age of females was slightly higher than that of males, at 27.6 years and 26.0 years respectively. In San Patricio County, the median ages for males and females were about four years younger than for Aransas Pass.

Table 6 illustrates the education level attained by persons 25 years and older in 1970, for Aransas Pass and San Patricio County. The majority of the population of Aransas Pass (61 percent) and the County (56 percent) had some years of high school or college. Median school years completed for persons 25 years and older living in Aransas Pass in 1970 was 10.3, which was slightly higher than the County's 10.1 median school years completed. In general, then, the population of Aransas Pass and San Patricio

Table 2

Population Trends

Year	Aransas Pass	% Change	San Patricio County	% Change
1950[1]	5,396	---	35,842	---
1960[2]	6,956	+28.9	45,021	25.61
1970[2]	5,813	-16.4	47,288	5.0
1976[3]	6,434, est.	10.68	51,499, est.	8.9

Sources:

[1]Aransas Pass Comprehensive Plan, 1974

[2]U.S. Bureau of the Census, U.S. Census of Population: 1970, Number of Inhabitants, Final Report PC(1)-A45 Texas, U.S. Government Printing Office, Washington, D.C., 1971.

[3]1976 Population Estimates and 1975 and Revised 1974 per Capita Income Estimates for Counties and Incorporated Places in Texas P25 #782, January 1979.

Table 3

Aransas Pass
Population Projections

Year	Population
1982	7,170
1985	7,488
1995	8,544

Source: Coastal Bend Council of Governments

Table 4

Racial Composition

	Aransas Pass				San Patricio County			
	1960[2]	%	1970[1]	%	1960	%	1970	%
White	6,712	96	5,518	95	44,163	98	46,254	98
Minority	244	4	295	5	858	2	1,034	2
Total	6,956	100	5,813	100	45,021	100	47,288	100

Source: [1]U.S. Bureau of the Census, Census of Population: 1970, General Population Characteristics, Final Report PC(L)-B45 Texas, U.S. Government Printing Office, Washington, D.C., 1971.

[2]U.S. Bureau of the Census. U.S. Census of Population: 1960. Number of Inhabitants, Texas. Final Report PC(1)-45A. U.S. Government Printing Office, Washington, D.C., 1961.

Table 5

Age/Sex Distribution of Population, 1970

Age Group	Aransas Pass				San Patricio County			
	Male		Female		Male		Female	
	Number	% of Total Population	Number	% of Total Population	Number	% of Total Population	Number	% of Total Population
Under 18	1,159	20	1,081	19	10,134	21	9,900	21
21 and over	1,611	28	1,694	29	11,944	25	12,944	27
65 and over	256	4	280	5	1,608	3	1,753	4
Median Age	26.0		27.6		22.3		23.9	
Total Population[1]	2,903		2,910		23,248		24,040	

Source: [1]U.S. Bureau of the Census. Census of Population: 1970, General Population Characteristics, Final Report PC (1)-B45, Texas, U.S. Government Printing Office, Washington, D.C., 1971.

Table 6

Education Level Attained by Persons 25 Years and Older, 1970

Grade Level	Aransas Pass		San Patricio County	
	Number	Percent	Number	Percent
No. school years completed	128	4	2,491	11
Elementary: 1-4 years	281	9	2,750	12
5-7 years	465	15	2,911	13
8 years	340	11	1,724	8
High School: 1-3 years	702	23	4,000	18
4 years	751	25	4,877	22
College: 1-3 years	220	7	2,074	9
4 or more	135	6	1,702	7
Total	3,022	100	22,529	100
Median school years completed	10.3		10.1	

Source: U.S. Bureau of the Ceneus, Census of Population: 1970. Vol. 1, Characteristics of the Population, Part 45, Texas - Section 1, U.S. Government Printing Office, Washington, D.C., 1973.

County is over ninety percent white, with a median age in the mid-twenties and a median of ten school years completed.

Employment and Income

Due to its location on the Texas Coast, Aransas Pass is the location for two primary businesses: tourism and shrimping. Table 7 illustrates that in 1970 most of the employed worked as managers or administrators, craftsmen/foremen, equipment operators, or in clerical or service occupations. Combined, these jobs accounted for 76 percent of those employed. In 1977, the majority of the population still worked in private, nonfarm industries (Table 8).

In 1969, the median income of all families equalled $6,583 in Aransas Pass; in contrast, the median income of all families and unrelated individuals equalled $5,789 (Table 9). The per capita income was $2,352 (Table 10). While both median and mean incomes for Aransas Pass were lower than for San Patricio County, the per capita income was higher. By 1975, the estimated per capita income had increased for both the City and the County, to $4,304 in Aransas Pass and $3,656 in San Patricio County.

Revenues

City of Aransas Pass. Revenues for the City of Aransas Pass are divided among six areas: General Fund and Debt Service, the Water and Sewer Fund, the Harbor Fund, Revenue Sharing, Community Development Program and Capital Improvement Program.

Table 7

Comparative Employment by Occupation: 1970

Occupation	Aransas Pass		San Patricio County	
	Number	Percent	Number	Percent
Professional/Technical	157	8	1,673	12
Managers/Administrators, except farm	317	16	575	4
Sales	96	5	876	6
Clerical	235	12	1,950	14
Craftsmen/Foremen	382	19	2,538	18
Operatives	306	16	1,913	14
Laborers, except farm	183	9	1,200	9
Farmers, Farm Managers, Laborers and Foremen	14	1	1,316	9
Service, except private household	248	13	1,490	11
Private household	21	1	469	3
Total (16 years and older)	1,959	100	14,000	100

Source: U.S. Bureau of the Census, Census of Population, 1970.

Table 8

Employment by Industry: 1977
San Patricio County

Total Employment by Place of Work	14,184
Number of Proprietors	2,296
Farm	711
Nonfarm	1,585
Total Wage and Salary Employment	11,888
Farm	692
Nonfarm	11,196
Private	8,706
Government	2,490

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Employment by Type and Broad Industrial Sources, computer printout, 1977.

Table 9

Income of Families and Unrelated Individuals: 1969

	Aransas Pass		San Patricio County	
	Number	Percent	Number	Percent
All families	1,522	100.0	11,150	100.0
Less than $1,000	44	2.9	518	4.6
1,000 - 1,999	57	3.7	683	6.1
2,000 - 2,999	133	8.7	823	7.4
3,000 - 3,999	187	12.3	935	8.4
4,000 - 4,999	125	8.3	901	8.1
5,000 - 5,999	138	9.0	692	6.2
6,000 - 6,999	132	8.8	799	7.2
7,000 - 7,999	129	8.5	842	7.6
8,000 - 8,999	104	6.8	737	6.6
9,000 - 9,999	80	5.3	688	6.2
10,000 -11,999	168	11.0	1,207	10.8
12,000 -14,999	95	6.2	1,130	10.1
15,000+	130	8.5	1,195	10.7
Median Income	$6,583		$7,266	
Mean Income	$8,365		$8,181	
All families and unrelated individuals	1,886	100.0	13,007	100.0
Median Income	$5,789		$6,444	
Mean Income	$7,348		$7,419	

Source: U.S. Bureau of the Census, Census of Population: 1970.

Table 10

Income and Earnings

	Aransas Pass	San Patricio County
Per Capita Income		
1969[1]	$2,352	$ 2,039
1975[2]	$4,304	$ 3,656
Total personal income by residence[3]	---	$272,993,000

Source: [1]U.S. Bureau of the Census, Census of Population: 1970.

[2]1976 Population Estimates and 1975 and Revised 1974 per Capita Income Estimates for Counties and Incorporated Places in Texas, P25 #782, January, 1979.

[3]U.S. Department of Commerce, Bureau of Economic Analysis, Personal Income by Major Sources, computer printout, 1977.

Within the general fund and general debt service, ad valorem taxes and city sales taxes are the major contributors of revenues. Table 11 lists receipts from selected sources, as well as total receipts for 1973-1978. Taxes make up the largest percentage of the revenues. In 1977, 62 percent of the total receipts were from taxes. Of the taxes, ad valorem taxes make up the bulk. In 1977, ad valorem taxes comprised 54 percent of the taxes. Revenues from sales taxes equalled 27 percent of total tax revenue collected.

Principal tax roll listings and valuations, and total assessed valuations are shown on Tables 12 and 13. The two principal taxpayers are Mobil Oil Company and McMoran Exploration Company. Assessed valuations for the two companies were $1,782,130 and $1,541,090, respectively; these accounted for 12 percent of the city's total assessed valuation.

Selected general fund expenditures, including bonded debt service, are listed in Table 14. More revenue is spent on public works and public safety than on any of the other categories. Twenty-eight percent of all expenditures in 1977 went toward public works and 27 percent toward public safety. Bonded debt service comprised 19 percent of total expenditures.

Waterworks and sewer system income and expenses are shown in Table 15. From 1974 to 1977, annual income exceeded annual expenses by at least $135,000. Expenses did increase at a faster rate than income, however, with expenses in 1977 24 percent greater than in 1974 and income 14 percent greater in 1977 than in 1974.

Revenue sharing funds available to the city in 1978-1979 are $97,434, a decrease of $11,000 from 1977-1978. The funds will be used for items in

Table 11

General Fund/General Debt Service
Revenues and Receipts

Year	Tax Receipts			Licenses & Permits	Charges for Services	Total Receipts[1]
	Ad Valorem	City Sales	Total Taxes[1]			
1973	$216,466	$122,141	$422,772	$11,820	$ 84,871	$ 664,538
1974	213,843	119,928	444,265	8,947	100,185	754,194
1975	254,885	129,880	536,264	10,069	105,684	836,274
1976	272,374	187,534	586,452	20,794	135,241	974,055
1977	355,276	176,354	653,581	23,608	143,544	1,059,401
1978[2]	397,425	168,682	691,907	10,750	174,803	1,135,884

[1]Total Receipts and Total Taxes are greater than the sums listed. The revenues and taxes listed are not all revenues and taxes.

[2]1978 and 1979 figures are amounts estimated in the Budget, not those actually received.

Source: City of Aransas Pass, General Budgets, 1975-1976; 1977-1978; 1978-1979.

Table 12

Principal Tax Roll Listings and Valuations
City of Aransas Pass

Principal Taxpayers

Name	Type of Property	1977 Assessed Valuations
1. Mobil Oil Company	Oil Property	$1,782,130
2. McMoran Exploration Company	Oil Properties	1,541,050
3. General Telephone Company	Telephone Utility	1,072,770
4. Central Power & Light Company	Electric Utility	1,020,280
5. First State Bank	Bank	919,499
6. L.W. Richardson Construction Company	Commercial Property, Boats, Docks, Dredges	476,869
7. Herndon Marine Company	Docks & Warehouses	477,784
8. Jackson Square Inc.	Apartments	378,159
9. Coastal Freezing Inc.	Ice Plant	296,504
10. Aransas Shrimp Co-op	Plant, Docks, Warehouse & Supplies	222,188
TOTAL		$8,157,233

Source: Municipal Advisory Council of Texas, 1978

Table 13

Assessed Valuation, Aransas Pass

Tax Year	Assessed Valuation	Tax Rate
1973	$20,893,090	1,36
1974	22,596,619	1.36
1975	22,985,734	1.36
1976	24,594,157	1.66
1977	27,789,161	1.66
1978	46,820,210*	1.15

*As of 2-28-78

Source: Municipal Advisory Council of Texas, 1978.

Table 14

General Fund Expenditures

Year	General Government	Public Safety	Public Works	Parks and Recreation	Bonded Debt Service	Total[1] Expenditures
1973	$ 84,462	$163,515	$165,287	$ 9,845	$139,832	$ 664,891
1974	101,599	164,655	176,029	12,689	181,434	784,972
1975	104,571	204,558	190,003	17,704	199,348	786,779
1976	130,383	237,938	257,959	24,810	198,795	918,138
1977	122,654	273,313	286,166	40,732	195,500	1,023,882
1978[2]	172,039	310,576	317,507	28,702	188,910	1,135,884

[1]"Total Expenditures" is greater than the sum of the expenditures listed. The expenditures listed are not all expenditures

[2]1978 figures are amounts estimated in the Budget, not those actually received.

Sources: City of Aransas Pass, General Budgets, 1975-1976; 1977-1978; 1978-1979.

Table 15

Aransas Pass
Waterworks and Sewer System
Income, Expenses

Year	Income	Expenses	Customers	
			Water	Sewer
1974	$414,661	$271,740	2,007	1,864
1975	421,785	286,257	2,135	1,764
1976	427,582	262,268	2,162	1,817
1977	473,680	336,832	2,239	1,877

Source: Texas Municipal Advisory Council, 1978.

the general budget such as public safety, environmental protection and public transportation.

Aransas Pass I.S.D.. The Aransas Pass Independent School District obtains approximately 5 percent of its money from the federal government, 60 percent from the State and 35 percent from local taxes. Tax revenues and principal tax roll listings are shown in Tables 16 and 17. In 1977, assessed valuation for the district was $48,427,470, with an estimated tax revenue of $847,481. Of the principal taxpayers, Central Power and Light Company and Mobil Oil Corporation made the largest contributions. They each paid approximately three percent of the tax revenue.

The school district has a general obligation debt of approximately $1,911,008. The debt service requirement for these bonds in 1978 was $168,463. Thus, the fiscal year 1978 debt service requirement constitutes about 20 percent of the school district's ad valorem property tax revenue.

Public Buildings

Public buildings in Aransas Pass include the City Hall, the Police Building, the Fire Station, the Maintenance Shop and the Water Department Structure. In addition, there is a library, and the Aransas Pass School District district office is located in the city. The City Hall, Police Building and Library are in excellent condition. The Maintenance Shop and Water Department Structures are in good condition. The Fire Station is in fair condition. It will require some capital improvements and normal maintenance, and the roof needs attention.

Table 16

Aransas Pass ISD Tax Revenues

Tax Year	Assessed Valuation	Tax Rate	Estimated Revenues
1973	$29,947,488	2.10	$628,898
1974	32,923,971	2.10	691,402
1975	34,897,663	2.10	732,852
1976	46,467,851[1]	1.75	813,187
1977	48,427,470	1.75	847,481
1978	47,293,000[2]	1.75	827,627

[1]Basis of assessment was increased from 60 percent to 80 percent, beginning in this year.

[2]From the Budget document.

Source: Municipal Advisory Council of Texas, 1978.

Table 17

Aransas Pass ISD Principal
Tax Roll Listings and Valuations

Principal Taxpayers

Name	Type of Property	1975 Assessed Valuations
1. Central Power & Light Company	Electric Utility	$ 1,461,128
2. Mobil Oil Corp.	Oil Properties	1,455,100
3. L.W. Richardson Construction Company	Land Improvements & Floating Equipment	1,369,771
4. McMoran Exploration Co.	Oil Properties	1,237,906
5. First State Bank	Bank	1,227,714
6. General Telephone Co.	Telephone Utility	1,192,120
7. Herndon Marine Products, Inc.	Land Improvements & Floating Equipment	860,294
8. Tenneco Oil Co.	Oil Properties	694,850
9. Jackson Square Apt.	Apartments	504,212
10. Entex	Gas Utility	293,454
Total (21.26 percent of Total Assessed Valuations)		$10,296,549

Source: Municipal Advisory Council of Texas, 1978.

Sanitary Sewer System

Existing sewer lines provided by the City are all domestic (residential). There are no industrial sewer lines. Waste that is not domestic, such as shrimp processing waste, is received by Conn Brown Harbor. There are eleven lift stations throughout the town. Treatment facilities were constructed in 1965. The sewer plant has a capacity of 750,000 gallons. Other equipment includes compressors, chlorination equipment and sludge drying beds. Average daily peak flow is 756,000 gallons/day and maximum daily peak flow is 1,259,000 gallons/day. On a per capita basis, approximately 118 gallons/day are used on the average and 196 gallons/day are used at the maximum.

At present, the sewage treatment system has no reserve capacity. In fact, an average of 6,000 gallons/day more than the treatment plant can accomodate passes through the system. As much as 2 million gallons/day can pass through the system. However, any amount over 750,000 gallons/day is not treated properly. This results in pollution of the receiving stream, Redfish Bay.

The City is presently applying for an EPA sewer grant to aid in the construction of a new 1,500,000 gallon treatment plant. Facility plans have been submitted and the City is presently 12th in line for funding approval. When the treatment plant is completed, hopefully in the early 1980s, it will accomodate industrial as well as domestic waste. In addition, the inflow infiltration system is in need of improvement.

Rates for connection with the city sanitary sewer system, per month, are as follows: residential rates are $3.50 minimum for the first four fixtures and $0.25 each additional fixture. Commercial rates are $4.25 minimum.

Water Supply System

The water supply of Aransas Pass is pretreated and comes from the San Patricio Municipal Water District. The water is pumped through a 12-inch transmission main to a master meter. The present water supply seems to be adequate and there is no reason to assume that future supply may not be adequate. The maximum daily water used is approximately 1,300,000 gallons per day or 202 gallons per person per day. The storage system consists of two ground storage units, one storing 1,000,000 gallons and one 250,000 gallons, and there is also a 500,000 gallon overhead storage tank. Thus, there is a reserve capacity of about 450,000 gallons.

In the future, it is hoped that another 500,000 gallon storage tank will be built. Need for that is already felt, not because of a lack of water, but because of a surge problem. At present, the water pumps are connected to the main line as well as to the storage units. Thus, the water pressure fluctuates drastically in the main lines, creating problems with sprinkler, and other systems. Also, when the water pressure is low, that is, when the pump has not been operating, alarms which are meant to indicate a shortage of water engage automatically in prime locations such as at the hospital. If a new overhead storage facility were built, those pumps presently connected to the main line would be hooked up to the storage

facility, thus eliminating the surge problem, by allowing the water to be distributed evenly over the town.

City water system rates are set by Ordinance No. 1866. Fee for the first 2,000 gallons is $4.00, minimum. Thereafter, $1.15 is charged per 1,000 gallons.

Storm Drainage System

The storm drainage system in Aransas Pass consists of drainage ditches and a storm sewer system. It was built to handle one inch of rain per hour. A recent rainstorm, which flooded the police station and a retirement home, resulted in more stormwater than the design capacity of the system and proved the present system to be inadequate. One large lift station pushes the water from "the flats" behind the seawall into Conn Brown Harbor. The seawall, ranging from 12 to 18 feet in height, provides protection from the surge wave of hurricanes. The City would like to build another lift station to aid with storm drainage in areas behind the seawall.

Aransas Pass has a particular drainage problem in the north and east sectors of town. There, drainage from Aransas County drains into the City and places a burden on the storm drainage system.

Solid Waste

Solid waste (garbage) from Aransas Pass is disposed of at the land fill at Gregory. In addition, the city has a dump licensed for brush. There are three garbage trucks and one designated trash truck which

collect refuse throughout the city. The city is also utilizing dumpsters. Commercial and apartment pick-ups are scheduled three or more days a week. Household collections are made twice weekly. Each household averages 44 lbs. of garbage per week. With 2,349 households in 1976 and a population of 6,434, this amounts to 2.3 lbs. per person per day.

Household rates are $4.25 per month, minimum for two 30 gallon garbage cans. The minimum monthly charge for all business collection, except for dumpster, is $6.00 per month. Those businesses using dumpster are charged $37.50 each per month. The city budgets about $20,000 per year for disposal fees at the landfill.

Aransas Pass is particularly interested in reevaluating its present collection system and rates to determine if it is operating at maximum efficiency. A preliminary evaluation indicates that the primary need for improvement in the system is a formalization of the collection routes to improve efficiency and reliability. At present, the frequency of collection and the number of vehicle trips appear to be adequate.

Health Care

Two hospitals are located in Aransas Pass: Lyman Roberts Hospital and Aransas Hospital. Lyman Roberts is a 26 bed hospital and is usually filled to capacity. The hospital has had numerous applications from doctors who would like to become on the active staff. With the number of applicants it has had, the hospital could keep 70-75 beds. At present there are 6 active staff, 15 surgical and courtesy staff, 4 doctors with anesthesia privileges, and 2 physician's assistants. Consultants are already at work in deciding on whether to expand Lyman Roberts or to build a new hospital.

Aransas Hospital has 12 beds and is 80 percent full, on the average. It is expected to be of adequate size for only a couple of years, at most. There are four doctors on the active staff, and there are also numerous consultants.

Between both Lyman Roberts and Aransas Hospital, the number of active staff is ten, which is a ratio of approximately 1.5 doctors per 1,000 population. With 38 beds, total, the ratio of beds is 5.9 per thousand population. According to administrators at both hospitals, facilities are barely adequate, at present. Compared to both the Texas state average number of beds per 1,000 population and federal guidelines for the number of beds to be available in general hospitals, the facilities are adequate at the present time. The 1976 state average was 5.2 beds per 1,000 population. Federal guidelines recommend four beds per thousand population.

Fire Protection

The Aransas Pass Fire Department is centrally located at 338 S. Arch Street. Five paid and 25 volunteer firemen serve the city. The fire department tries to maintain an average of one paid fire protection personnel per 1,000 population. The present ratio is slightly lower, at 1 per 128 persons (1976 population). Including volunteers, the present ratio is 1 firefighter per 214.5 persons (1976 population). According to city representatives, if the population of Aransas Pass continues to increase at its present rate, more paid firemen will be needed, perhaps even twice the present number. Funds are not sufficient to hire another fireman at present, however.

The fire department's equipment includes three 750 gallon pumpers and one booster truck. The City hopes to add another 1,000 gallon pumper in

the near future to replace one of the 750 gallon pumpers. This should maintain the existing key rate which is set by the State Board of Insurance and is an indicator of the adequacy of fire protection service. Key rates from 0 to 40¢ fall in the category of first key status and indicate good fire protection. Aransas Pass, with a key rate of 27¢, has first key status.

Police Protection

There are fourteen officers on the Aransas Pass police force, or 2 officers per 1,000 population. These include the chief, 2 detectives, and one patrol sargeant. The rest are patrolmen. In the past there have been two reserve civilian volunteer policemen as well, working on weekends. The city plans to utilize these personnel again in the near future to help alleviate the need for weekend enforcement. The city also maintains eight patrol cars, including one for the harbor master. This amounts to 1 car per 804 population. At present, the police protection and jail facilities are considered to be adequate. The jail has 16 bunks and is usually not full. According to city representatives, the present police force, while adequate, will need at least two or three additional personnel should the population increase by another 1,000 people. These personnel could be utilized at present but are not a necessity, and the City cannot afford them at this time.

Schools

The Aransas Pass Independent School District (APISD), located in San Patricio County, is the school district which serves Aransas Pass. The

district consists of four campuses. Faulk Elementary houses kindergarten through third grade, Kieberger Elementary houses fourth through sixth grade, Aransas Pass Junior High houses seventh and eighth, and Aransas Pass High School houses grades nine through twelve.

As of March 16, 1979, the APISD had an enrollment of 2,009 students (Table 18). The overall student/teacher ratio is 17:1. The District has 166 employees, approximately 116 of which are classroom teachers. The average number of students per classroom, for all schools in the district, is 19.7, ranging from 32 students per classroom in Faulk Elementary to 19 students per classroom in Aransas Pass Junior High. The expenditures per pupil in APISD averages $1,000.

Present elementary school facilities are not adequate, according to the Superintendent of Schools. The required student/classroom ratio for Title I federal programs is 25 or less students per classroom; this standard is used by the District to judge adequacy. New families brought in by such companies as Brown and Root and Dupont have increased the burden on school facilities and personnel. Faulk Elementary has 75 more students now than last year. It is expected that there will be a continued increase in students of elementary age by at least 75 students per year for the next 5 years.

In 1980, the kindergarten will be housed in previous administrative offices. The next step may be to move the 6th grade into the Junior High School temporarily.

Table 18

Number of Students, Classrooms, and Teachers

School	Number of[1] Students	Number of Classrooms	Students per Classroom	Number of Teachers
Faulk Elementary	667	32	20.8	
Kieberger Elementary	499	24	20.8	
Aransas Pass Junior High	340	19	17.9	
Aransas Pass High School	503	27	18.6	
Total	2,009	102	19.7 average	116

[1]As of March 16, 1979

As far as future adequacy is concerned, the high school and junior high school will be adequate for at least the next 5 years. Enrollment at the high school, built for 800 students, is a little over 500 and enrollment is expected to remain about the same for the next 5 years. The junior high can accomodate 500 students, maximum. Approximately 350 students are presently enrolled there. It is anticipated that enrollment for the next 5 years at the junior high school will remain about the same.

In about five years, the present large elementary school population will shift to junior high school, at which time that facility will become crowded.

The School Board is presently considering a bond issue for a new junior high school within the next year or so; the new school would contain 3 grades. The School Board already owns 20 acres next to the new high school. If a new junior high school is built, the existing facility will be used to house some of the elementary grades.

Transportation

The primary mode of transportation in Aransas Pass is the automobile. Two state highways, 361 and 35, pass through the town. Highway 361 links Aransas Pass with Port Aransas, and Highway 35 is the major artery feeding into Aransas Pass from the rest of the state. Traffic through Aransas Pass on this highway is often heavy.. The Texas Highway Department is considering a bypass to route the traffic from Route 35 around Aransas Pass, as well as around the nearby towns of Fulton and Rockport.

Many of the local streets need improvements and, until funding to make those improvements can be secured, the major effort of the Public Works Department will be to keep them passable.

Parking in the Central Business District does not appear to be a problem, in spite of the occasional heavy traffic. Parking in the downtown area is regulated by parking meters.

There are no local buses in Aransas Pass. Continental Trailways does serve the town, linking it with major cities throughout the United States. The Aransas County Airport, which is utilized by chartered and private planes, is located in Aransas Pass. There is a Municipal Boat Basin, and Southern Pacific Railroad has a line through the town for freight transportation.

Recreation

Recreation opportunities in Aransas Pass are varied. Aransas Pass has three parks. Newberry Park is a primary location for picnics and playground facilities. Two other parks, one on the city hall grounds, have playground equipment.

Recreation facilities in the city are not considered adequate for the present population, using 10 acres of open space/1,000 population as a standard. The City should have 60-70 acres available for recreation. In actuality, there are roughly 40 acres available. To help alleviate the recreational demand in the area, a second boat-launching ramp was completed recently on the bay front. There are plans to spend $96,000 on a park, Harbor Park and Recreation Area, near the boat ramps, if funding is approved. This park will add about 3.5 acres to the city's total park land. Approval

looks imminent, subject to an Environmental Impact Statement and a bulk-heading permit from the U.S. Army Corps of Engineers.

In addition to the recreational facilities offered by the City itself, numerous other recreational opportunities are available. These include fishing, boating, skiing, swimming and beachcombing. Padre Island is 7.5 miles driving distance from the City and Goose Island State Park is 15 miles away.

Housing

Available housing in Aransas Pass is minimal and vacant rental units are nonexistent. Table 19 shows housing characteristics for 1970. At that time, there was only one vacant unit of seasonal housing. Approximately 13 percent of year-round units were vacant. A more recent survey was done in 1976 (Table 20). At that time, two percent of owner-occupied, and two percent of renter units were vacant.

The majority of houses in Aransas Pass are single family. There is a federally-subsidized, retirement community in the northwest part of the city. In the northeast developed part of the city is a low income housing development. Another federally-subsidized housing development is being considered for the south-central portion.

In 1976, 2 percent of all housing units were considered for rehabilitation. Map 1 divides the City by sectors and shows general areas of dominant (over 50 percent) standard and substandard housing.

Table 19

1970 Housing Characteristics, City of Aransas Pass, Texas

Housing	Number	Percentage
Total Housing Units	2,023	100%
Vacant - Seasonal and migratory	1	0.05%
All year-round housing units	2,022	99.95%
All occupied units		
Owner occupied	1,191	58.87%
White	1,146	56.64%
Negro	39	1.927%
Renter occupied	574	28.37%
White	536	26.49%
Negro	36	1.78%
Vacant year-round units	257	12.70%
Lacking some or all plumbing facilities	189	9.34%

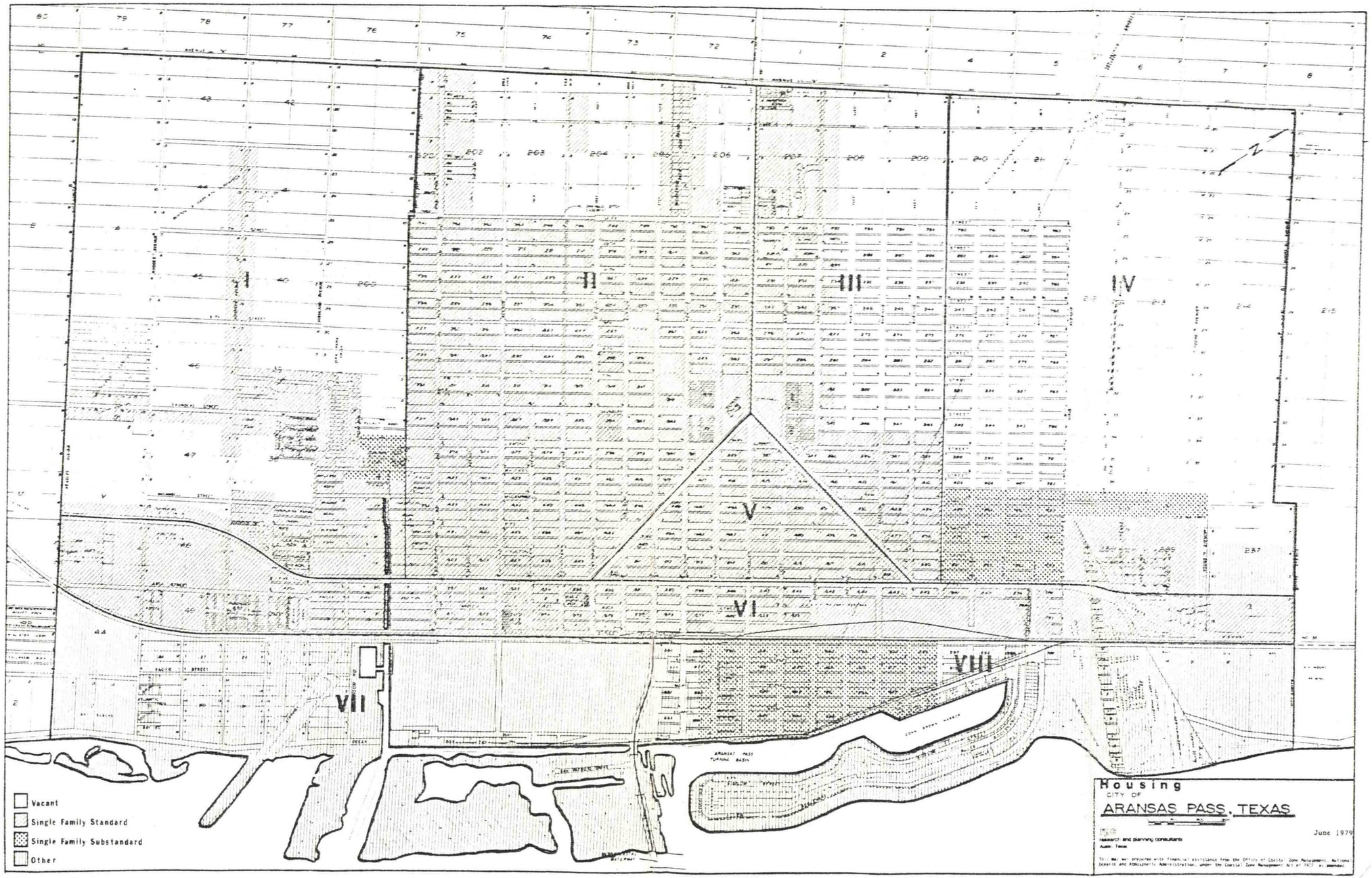
Source: U.S. Bureau of the Census, Census of Housing, 1970,

Table 20

U.S. Department of Housing and Urban Development Survey of Housing Conditions, 1976

Status and Condition of all Housing Units	Number of Housing Units					
	All Units		Owner		Renter	
	Total	Subtotal Suitable for Rehabilitation	Total	Subtotal Suitable for Rehabilitation	Total	Subtotal Suitable for Rehabilitation
1. Occupied Units - Total	2,349	297	1,574	199	775	98
a. Substandard	396	297	265	199	131	98
b. Standard and All Other	1,953	0	1,309	0	644	0
2. Vacant Available Units - Total	48	6	32	4	16	2
a. Substandard	8	6	5	4	3	2
b. Standard and All Other	40	0	27	0	13	0
3. Housing Stock Available	2,397	303	1,606	203	791	100
4. Vacancy Rate	2%	2%	2%	2%	2%	2%

Source: Housing in the Coastal Bend, An Element of Comprehensive Planning, March 1978, Coastal Bend Council of Governments.


Vacant
Single Family Standard
Single Family Substandard
Other
Housing
CITY OF
ARANSAS PASS, TEXAS
June 1979
research and planning consultants
Austin, Texas

Three condition categories of housing were considered in mapping the housing types: standard, substandard, and deteriorated. Definitions of the three categories are as follows:

(1) Standard - units which are well maintained, and show no visible sign of major defects. These are structurally sound, meet model code requirements with only minor repairs and normal maintenance.

(2) Substandard - units which are not well maintained or lack all or some plumbing facilities, but are basically sound structures that could meet livable standards with major repairs. These units have some structural damage such as sagging roofs, unlevel foundations, or displaced porches. These would fall under a rehabilitation program and defects must be corrected as soon as possible to prevent it from becoming unsafe for habitation.

(3) Deteriorated - structures which are unsafe, not structurally sound, and for which the major repairs required would not be economically feasible. These units should be condemned and removed upon vacancy.

In conducting the Housing Survey, three sectors were identified according to the following procedure: Sectors I and II are divided by Ebert Ave.; Sectors II and III, by Wheeler Ave.; Sectors III and IV by Lenoir Ave. Commercial Street forms the southern boundary of Sectors I-V. Sector V is also bounded by Harrison Boulevard and Cleveland Boulevard. Sector VI is a strip south of Commercial Street and north of the railroad. Sectors VII and VIII are south of the railroad and divided by Goodnight Street.

The results of the housing inventory are as follows: Sector I is primarily vacant, with some scattered residences. Sector II is predominantly single family, standard residential, as is Sector III. There are scattered

pockets of substandard housing in both Sectors. Sector IV is mostly vacant. Sector V is single family, standard, as are the residences in Sector VI. The number of residences in Sector VII is negligible. In Sector VIII almost every housing unit is substandard.

Land Use

Current land use is shown on Map 2. The northern, north-eastern and north-western sections of the city are predominantly vacant and are in absentee ownership. This absentee ownership came about when, in 1909, the firm of Burton and Danforth purchased much of what is now Aransas Pass and sold parcels of land for $100 per parcel. The parcels of land, including a hotel as well as some lots with houses, were distributed to the holders of certificates through a drawing. Most purchasers were speculators from all parts of the United States who had no intention of living in Aransas Pass. Commercial areas are predominantly in strips along Wheeler Ave., Commercial Street and Cleveland Boulevard. The major industrial sector in the city is south of the railroad tracks, near the bay front. Most public land is in the center of the city. The remaining developed land is residential.

The total area of the city is 50,000 acres. Of the 50,000 acres, 10,000 are on land and 40,000 on water. In 1974, a land use survey revealed that 23.38 percent of the area within the city limits was developed in urban uses. Of this developed land, tabulations were made of the quantities used for residential, commercial, industrial, public, semi-public, and streets. These are illustrated in Table 21. Streets and alleys were the major land use,

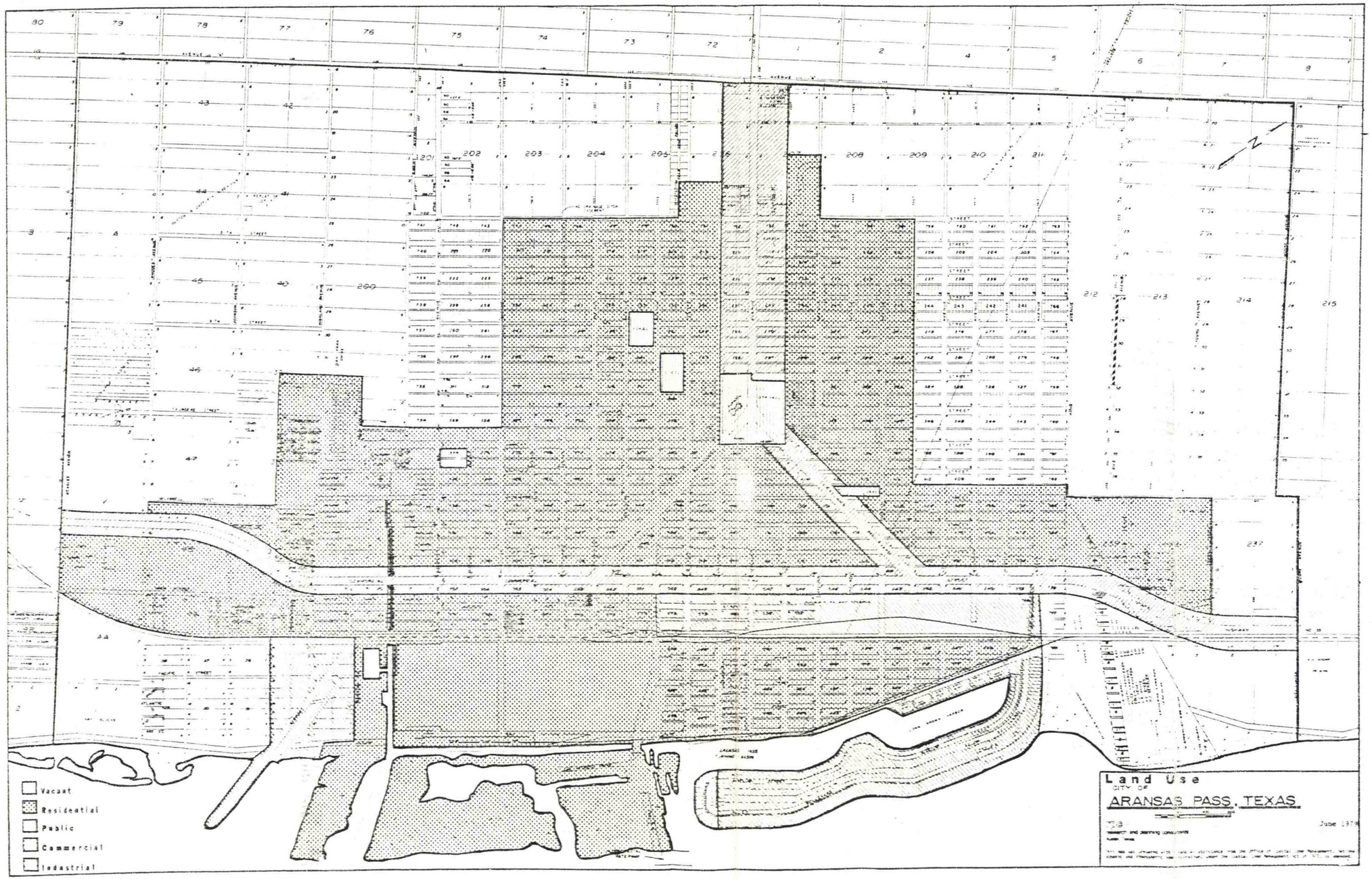

Vacant
Residential
Public
Commercial
Industrial
Land Use
CITY OF
ARANSAS PASS, TEXAS
June 1978

Table 21

Land Use
1973

Type	Acres	% Developed Land
Residential	338	26
Commercial	64	4
Industrial	33	2
Public and semi-public	78	5
Streets and Alleys	940	63
Total	1,503	100

Source: General Development Plan, City of Aransas Pass, Texas 1973.

comprising 63% of the developed land. The next highest land use was residential, at 26%.

In keeping with recent trends, it is expected that the city will tend to grow northward toward Highway 1069 (Avenue B), and most future development will be residential. Under present zoning and land use trends, industrial development will continue to be confined to the Conn Brown Harbor area. Commercial development will be concentrated in strip-fashion along Wheeler Avenue and Commercial Street. The extent to which growth extends northward will be largely dependent upon the future commitment of the city to providing increased facilities and services to that area.

Section II

Analysis of New or Expanded Energy Facilities

Section II

Analysis of New or Expanded Energy Facilities

Introduction

Section 308(c) of the Coastal Zone Management Act of 1972[1], as amended, provides for planning grants to study economic or social consequences occurring or likely to occur as a result of new or expanded energy activities or facilities. Regulations of the National Oceanic and Atmospheric Administration define the types of energy activities and facilities covered by these grants. These are listed in Table 1.

The most important category in the list with respect to Aransas Pass is item 10, construction yards for platforms and exploration rigs. The area between Ingleside and Aransas Pass has no less than four major companies manufacturing this equipment, each employing several hundred people. Baker Marine, successor to IHC Holland-Tourneau, began operations there in 1972. It was followed by Brown and Root in 1975, and then by E.T.P.M. and Chicago Bridge and Iron within the last year or so.

This expansion has been intended to accommodate the enormous increases in oil and gas exploration off the Texas coast, which in turn is due to worldwide events related to the energy crisis. Responding to increasing imports of Arab fuel, the U.S. Department of Interior has opened up the federal portion of the Outer Continental Shelf (OCS) by significantly expanding its leasing program. Compared to earlier leases, which were concentrated off the Louisiana coast, the Texas federal OCS is now reaping a larger share of the activity. Similarly, the southwest Texas coast now constitutes a much larger share of the Texas OCS activity, which was

Table 1. Energy Facilities/Activities Defined by CEIP Regulations

1. Electric generating plants (fossil fuel, biomass, nuclear, geothermal, direct solar, ocean thermal, tidal power, wave power, wind power)
2. Uranium enrichment or nuclear fuel processing facilities
3. Facilities to separate oil, water, and gas
4. Oil and gas processing facilities
5. Petroleum refineries and associated facilities
6. Gasification plants
7. Facilities for geopressurized gas
8. Facilities/activities associated with transportation, conversion, treatment, transfer, or storage of liquefied natural gas
9. Drilling rigs, platforms, subsea completions, subsea production systems
10. Construction yards for platforms and exploration rigs
11. Pipe coating yards
12. Bases supporting platforms and pipeline installation
13. Crew and supply bases (offshore activity)
14. Marine pipeline systems (pressure source, gathering lines, pipeline, intermediate pressure boosting facilities, landfall sites)
15. Marine terminals serving OCS energy activities
16. Transportation facilities (heliports, tug boats, crew boats, supply boats, production utility boats, ocean and seismic vessels, barges, "spread vessels," workover rigs, diving tenders, drilling tenders, etc.) serving OCS activities
17. Facilities/activities (including deepwater ports) related to transportation, transfer, or storage of oil, gas, or coal

Note: Allowable uses of Section 308(c) grants include planning for impacts of new or expanded energy facilities and activities significantly affecting the coastal zone. "New or expanded" facilities and activities are those occurring after July 26, 1976. This is the date that the CEIP provisions of the Coastal Zone Management Act became law.

Source: 15 CFR 931.43, Fed. Reg. 7546 (February 23, 1978).

previously concentrated in the Galveston and High Island areas of the Texas federal OCS, farther east. This trend, which is elaborated upon in the section on "results", has meant that federal leasing activity in the Corpus Christi vicinity has gone from almost nothing in previous years to a headlong rush beginning in 1975.

Historically, the platform/rig construction business has been concentrated in Louisiana and Mississippi, with some spillover into the Beaumont-Orange area of Texas. Recently, however, a need for another center of construction has arisen along the western Gulf of Mexico. The four companies in the Corpus Christi area, along with Marathon Le Tourneau in Brownsville, have filled this gap. Since no siting of these businesses has taken place in the nearest coastal industrial center, the Brazosport area, the facilities near Ingleside and Aransas Pass will probably serve most of the southwestern Texas coast. The range of service extends at least to the Brazos and Brazos South federal OCS areas (Figure 1); and though there is overlap beyond that point with the area served by the construction centers to the east, the Ingleside-Aransas Pass yards are currently building platforms to be placed as far away as the Louisiana OCS southeast of New Orleans.[2]

Platform and rig construction are not the only energy-related activities occurring within the Aransas Pass-Ingleside-Rockport vicinity. Rather, there are several smaller OCS-related enterprises of the types shown in categories 9-16 of Table 1--drilling, mud supply, helicopter services, diving services, marine-related services, etc. These companies' range of activity in the Texas OCS is much smaller than with rig and platform construction, since similar companies exist within the Port O'Connor and Freeport areas.

Also, there has been some expansion of refinery capacity (item 5 of

FIGURE 1. TEXAS FEDERAL OCS AREAS

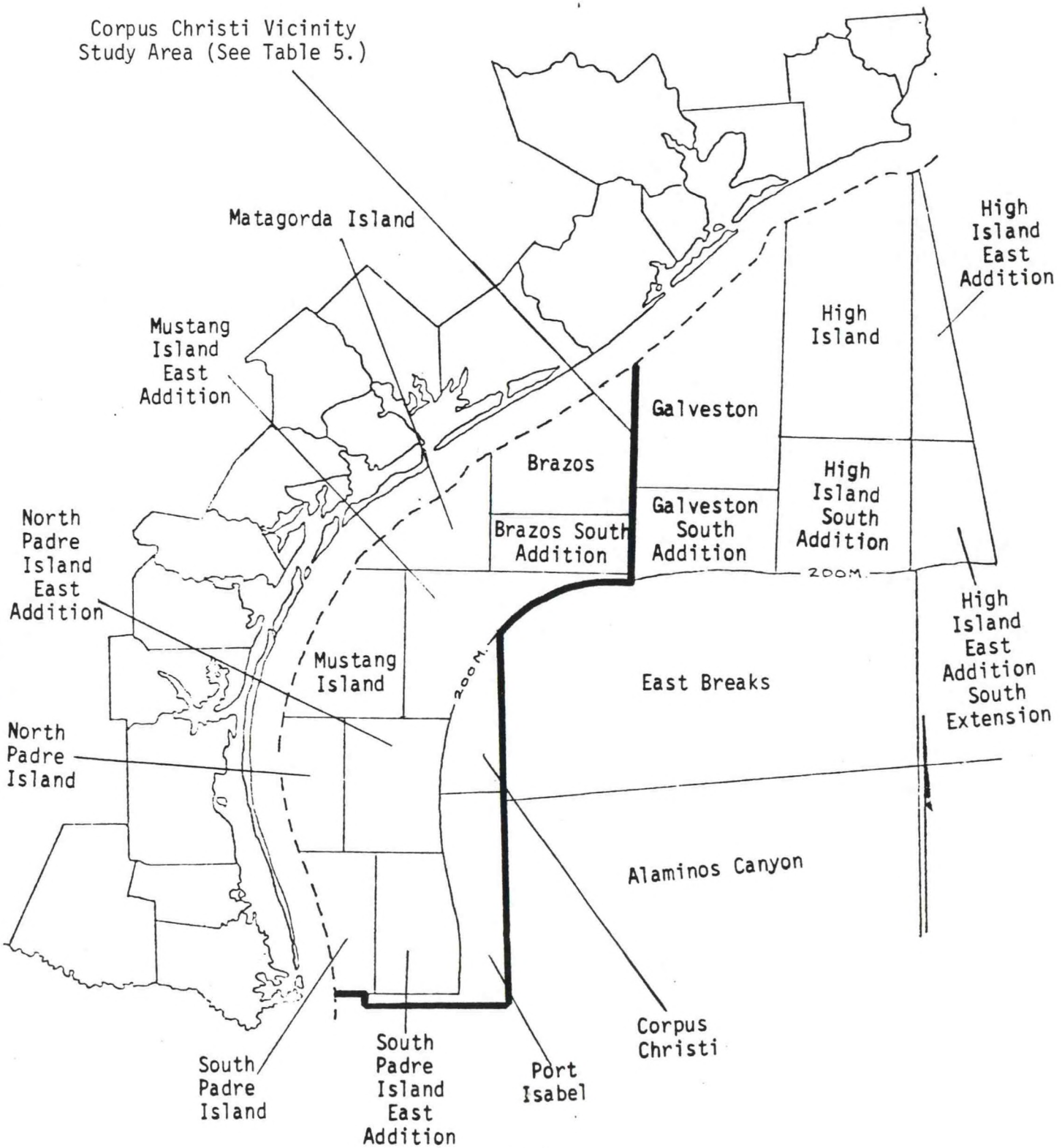


Table 1) in the Aransas Pass-Ingleside area. The Tipperary refinery went into operation in about 1977, followed by the Raymal and Uni refineries in late 1977 and mid-1978, respectively. These are all relatively small operations compared to the drilling rig manufacturers.

Significant additional refinery capacity could result from construction of a deep draft inshore port at Harbor Island, often known as Deeport (item 17 of Table 1). The application for this project is still pending before the U.S. Army Corps of Engineers (COE) although the Draft Environmental Impact Statement (DEIS) has been released. Deeport's status, with reference to COE's ultimate decision to approve or reject the application, is uncertain. The project has attracted both considerable support and opposition within surrounding communities.

Nevertheless, if Deeport is approved, it would ensure a continued or expanded flow of oil to existing or new refineries in the Corpus Christi vicinity. Depending on the outcome of another proposed deep draft inshore port at Galveston, a proposed offshore port near Freeport, and a second offshore port under construction near Golden Meadow, Louisiana, the Deeport project would enable the Corpus Christi area to attract a considerable share of the Gulf supertanker trade. If resultant refinery expansion followed the geographical pattern of recent expansions, the Aransas Pass-Ingleside area could experience substantial employment impacts.

Construction of the facility on Harbor Island might also affect associated marine-service companies, with related effects upon the Aransas Pass area. As with refinery expansion stimulated by a facility and offshore gas production associated with federal OCS leasing, however, the nature and extent of these hypothetical impacts remain speculative.

Nevertheless, the DEIS for Deeport made estimates of general area-wide population increases that would result form the project. These estimates are given in the section on "results."

Methodology for Estimation of Energy Impacts

Because of uncertainties associated with offshore energy development (i.e., the degree of drilling success and consequent incentive to continue exploration) and siting of the deepwater port at Harbor Island, it is virtually impossible to develop employment and population projections that are valid enough for specific application to energy impact planning. Such projections, no matter how comprehensive their methodological foundation, are subject to considerable inaccuracy. Consequently, it is not intended that any quantitative estimates or qualitative judgments given here should be taken as precise predictions.

Moreover, it is not crucial or even valuable to base the entire study on the accuracy of employment and population determinations. The major element of this analysis, rather, is the impact management section. Basically, this approach looks at the opposite side of the problem. The object is to identify the relative adequacy of existing municipal and social services, and thereby to discern what service capacities are most susceptible to strain by energy-related growth.

With this qualification in mind, the methodology used to estimate employment and population trends can be briefly described. Basically, this consisted of three independent approaches. The first component was the investigation of available population forecasts, and the statistical analysis of these forecasts to quantify expected population changes which might be induced

by energy facilities and activities. A second component was the consultation with individuals from the area who are actually involved in energy-related activities, (1) to gather data on recent or anticipated changes in their employment level; (2) to discover any proposed major facilities which would intensify the socioeconomic impacts caused by the aforementioned new energy-related facilities; and (3) to obtain any relevant information or intuitive feelings these individuals might have about future levels of energy-related activity. The third component, keying on the importance of offshore activities to Aransas Pass, involved an investigation of recent trends in federal OCS exploration and production within a chosen range of the Port Aransas area.

Statistical estimation of energy-related employment growth in Aransas is based on examination of numerous data sources. (See Table 2). Two of these which were particularly focused upon were the population forecasts of OBERS and the Texas Department of Water Resources (TDWR). Ultimately, the TDWR projections were selected for use, since the OBERS estimates for 1980 were shown to have already been exceeded by the Bureau of Census P-25 Series population figures for 1975.

Two sets of historical population data were collected for San Patricio County[3] and the City of Aransas Pass, using the 1910-1970 censuses. These data points became the basis for a linear regression analysis, in which city population was the dependent variable and county population the independent variable. This methodology was dictated by the fact that there was not a set of population forecasts which was broken down to the city level. Consequently, the TDWR county projections had to be used to generate (via regression) city projections. This procedure was used for 1980 and 1985; for 1975, the P-25 Series figures were taken as given.

Meanwhile, standard industrial classification (SIC) codes from the

Table 2. Sources of Population and Employment Data

1. 1972 OBERS Projections, Series E (U.S. Water Resources Council, 1974).
2. 1972 Census of Manufactures (U.S. Department of Commerce, Bureau of Census, 1976).
3. 1972 Census of Retail Trade (U.S. Department of Commerce, Bureau of Census, 1976).
4. 1972 County and City Data Book (U.S. Department of Commerce, Bureau of Census, 1973).
5. Texas Municipal Reports (Municipal Advisory Council of Texas, 1976, 1977, 1978).
6. Texas Almanac (Dallas Morning News, 1978-1979).
7. Texas Water Development Board Population Projections (Texas Water Development Board, Economics, Water Requirements and Uses Division, Nov. 1976).
8. Metro/County 1982 Projections (Sales & Marketing Management Magazine, 1978 Survey of Buying Power Data Service).
9. Employment by Type and Broad Industrial Sources 1970-1976, (Computer Printout, Regional Economics Information System, Bureau of Economic Analysis, 1977).
10. Personal Income by Major Sources 1965-1976, (Computer Printout, Regional Economics Information System, Bureau of Economic Analysis, 1977).
11. Labor Force Estimates for Texas Counties (Prepared by the Texas Employment Commission, August 1978).
12. Employment in Texas by Occupation 1974 and Projections to 1978 and 1985. (Published by Texas Employment Commission, September, 1977).
13. Current Population Reports: Population Estimates and Projections, Series P-25, No. 691. (U.S. Department of Commerce, Bureau of the Census, April, 1977).
14. County Business Patterns, Texas (U.S. Department of Commerce, Bureau of Census, 1976).

publication, County Business Patterns, were broken down to separate employment related to eligible energy activities. Energy-related employment as a percentage of total employment was applied to the 1970 - 1985 population estimates, using the ratio between total employment and population. This methodology thus extrapolated from historical trends to obtain energy-related growth estimates.

Since they are based on historical trends, however, these calculations are not wholly suitable for Coastal Energy Impact Program (CEIP) purposes. The whole point of the CEIP is that local jurisdictions may experience unique impacts due to large, growth-inducing coastal energy activities. The very fact that these impacts are considered exceptional enough to warrant special plans and studies indicates that often they will not follow such trends. Supplementary analysis is therefore required.

Part of this supplementary methodology was a series of telephone interviews with individuals involved in energy-related activities. An inventory of energy-related facilities in the Aransas Pass-Ingleside area was undertaken, with a concentration on finding out about recent employments among the specific companies. These companies were identified through information supplied by local governmental officials, various industrial publications, state permitting files, and additional information elicited during the interviews. It should be cautioned that the inventory was not necessarily exhaustive of all the existing or prospective energy-related facilities; however, it did cover the major ones in terms of total employment.

Because of its importance to Aransas Pass, recent federal OCS leasing activity also was examined in detail. Published and unpublished data from the U.S. Bureau of Land Management and U.S. Geological Survey were tabulated to clarify the extent of offshore energy development in the western portion of the Texas federal OCS. The timing of this development was also scrutinized,

with reference to information supplied by offshore related companies. Finally, historical percentages[4] on Texas federal OCS leased tracts which were explored and/or produced were investigated. Application of these percentages to the current situation allowed a rough estimate of the ultimate development that might be expected in the newer tracts. This in turn was used to make some judgments as to the future impact of recent federal OCS activity on Aransas Pass.

Results

Statistical Population Estimates. The results of the population and employment calculations are given in Table 3. These show a substantial rate of energy-related employment growth (and of population growth) from 1975-1980, followed by a sharp decrease in the growth rate beyond 1980.

Information supplied by the Aransas Pass Chamber of Commerce, however, shows that actual growth may have far surpassed the amount expected during the 1975-1980 period. Based on the number of utility connections in the city, the Chamber estimated a population of 8,500 in late 1978. This figure, which is considerably higher than even the 1985 projection, may be partly attributable to energy-related growth.

Another factor which could further expand this discrepancy is the proposed construction of the Harbor Island facility. The DEIS for Deeport estimated that the project would induce population growth in the Corpus Christi area equal to about 15-30 percent of the growth otherwise expected.[5]

Interviews. Information obtained from the major energy-related facilities in the Aransas Pass-Ingelside area is given in Table 4. This data shows that employment by the four drilling rig construction companies far exceeds employment in the other facilities. Total employment with these four companies is about 2,300,

Table 3

Population and Employment for Aransas Pass, Statistical Projection

	1970	1975	1980	1985
Population	5,813	6,417	7,767	7,911
Employment, Total	2,093	2,310	2,796	2,848
Employment, Energy-Related Facilities	335	370	447	456

Table 4

EMPLOYMENT DATA FROM MAJOR ENERGY-RELATED COMPANIES IN THE ARANSAS PASS AREA

Industry	Product/Service	Service Area	User	Approximate Employment Mid-1976[a]	Current 1979	To 1985
Baker Marine	Construction of Offshore drilling rig	Offshore, general	Offshore drillers	500[b]	950[b]	950[c]
Brown & Root	Construction of Offshore platforms, submersibles	Offshore Gulf, to Louisiana	Offshore drillers & producers	150	450	450[c]
Chicago Bridge & Iron	Construction of Offshore platforms, jackets	Offshore Gulf, to Louisiana	Offshore producers	-----	600	600[c]
E.T.P.M.	Construction of Offshore platforms, platform components	Offshore Gulf, to Louisiana	Offshore producers	-----	300	500
Loyd W. Richardson	Tugboats & deck barges non-energy-related marine services	South Texas coast	Offshore drillers & producers	250[d]	250[d]	250[d]
Raymal Refinery	Naptha, diesel gasoline	local area	Distribute through other local refiners	-----	10	25
Tipperary Refinery	Naptha, fuel oil, kerosene, diesel	local area	Distribute through other local refiners	-----	30	35
Uni Refinery	Diesel, naptha, kerosene, residual	Texas coast, to Houston	Distributors in service area	-----	75	100

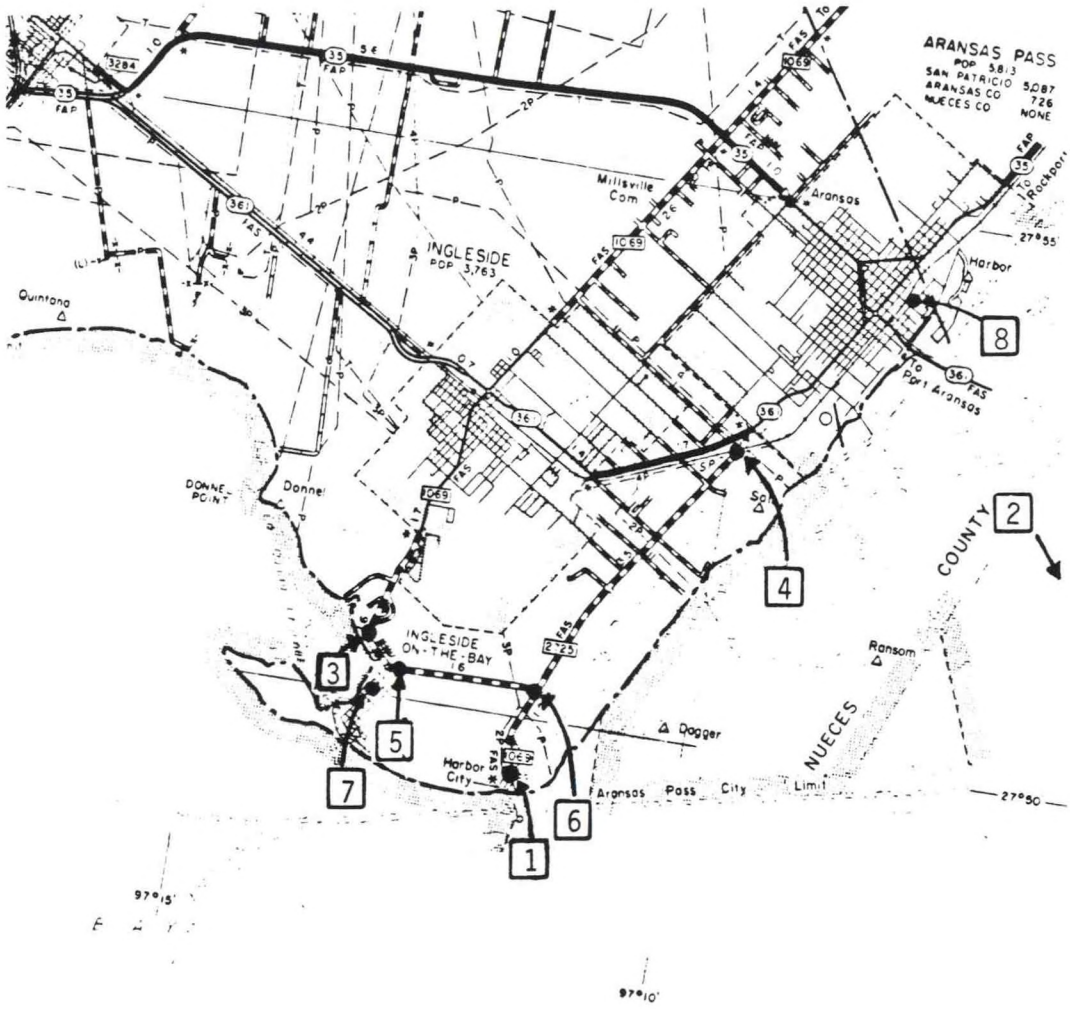
a. This date was used as a reference point because it is the date that the CEIP became law. Allowable uses of Section 308(c) grants includes planning for impacts of "new or expanded" energy facilities and activities (i.e., occurring after July 26, 1976) significantly affecting the coastal zone.

b. Figures comes from Corpus Christi Industrial Commission, which estimated that employment had almost doubled since 1976.

c. Respondent indicated no real change between 1976 and 1979, or no anticipated growth beyond 1979.

d. Respondent indicated that employment fluctuates, that this figure is an average, but that no real expansion has occurred since 1976 or is expected to occur after 1979.

Table 4 (Cont.)



Major Energy-Related Companies
in the Aransas Pass Area

1 Baker Marine
2 Brown and Root
3 Chicago Bridge and Iron
4 ETPM
5 Raymal
6 Tipperary
7 Uni
8 Loyd W. Richardson

which represents almost a tripling of employment since 1976. The three new refineries, on the other hand, have added about 125 employees. However, comparatively little future expansion is expected, at least among the existing facilities. With the exception of E.T.P.M.[6] and two of the refineries, the facilities have apparently reached or are almost at their peak employment levels.

An important issue is the distribution of the employees in terms of residence, among the surrounding cities. Two of the refineries indicated that about 13 percent and 25 percent of their employees, respectively, lived in Aransas Pass. Brown & Root and E.T.P.M. both reported that about half or more of their employees lived in Corpus Christi, with the rest distributed among Aransas Pass, Ingleside, Gregory, Portland, and maybe other cities. If it is assumed that most of the remaining 50 percent reside in Aransas Pass or Ingleside, and if the figures reported by the two refineries are averaged, it may be estimated that as many as 20 percent of the employees live in Aransas Pass. Application of this percentage to 1976-1979 growth in the major energy-related facilities would yield a figure of about 353. Energy-related employment growth from 1979 to 1985, on the other hand would only be about 49.

OCS Activity. The recent increase in federal offshore energy activity is illustrated by Table 5. This shows the status of active leases in the western portion of the Texas federal OCS. The figures are grouped into three sets of lease sales, differentiated by time period.

The first set of lease sales occurred between June of 1968 and July of 1974. This group reflects those active tracts for which exploration and development appear to be almost complete. Several of these are producing tracts on which the lease has been extended.

The second set of lease sales occurred between September of 1974 and

Table 5. Active Leases, Western Portion of Texas Federal OCS*

Area	Total	With Wells Drilled	Producible	Platform Approved or Set	Producing
Sales 22-34:					
Brazos	3	3	1	1	1
Brazos S.	7	7	5	4	3
Matagorda	0	0	0	0	0
Mustang	0	0	0	0	0
Mustang E.	0	0	0	0	0
N. Padre	0	0	0	0	0
N. Padre E.	0	0	0	0	0
S. Padre	0	0	0	0	0
S. Padre E.	0	0	0	0	0
Total	10	10	6	5	4
Sales S1-41:					
Brazos	3	0	0	0	0
Brazos S.	3	2	0	0	0
Matagorda	22	8	0	0	0
Mustang	35	17	4	0	0
Mustang E.	15	12	1	1	0
N. Padre	7	4	0	0	0
N. Padre E.	10	3	0	0	0
S. Padre	5	2	0	0	0
S. Padre E.	9	2	0	0	0
Total	109	50	5	1	0
Sales 44-51:					
Brazos	8	1	0	0	0
Brazos S.	5	1	0	0	0
Matagorda	7	4	1	0	0
Mustang	4	0	0	0	0
Mustang E.	8	0	0	0	0
N. Padre	3	0	0	0	0
N. Padre E.	1	0	0	0	0
S. Padre	2	0	0	0	0
S. Padre E.	0	0	0	0	0
Total	38	6	1	0	0
All Active Leases					
Brazos	14	4	1	1	1
Brazos S.	15	10	5	4	3
Matagorda	29	12	1	0	0
Mustang	39	17	4	0	0
Mustang E.	23	12	1	1	0
N. Padre	10	4	0	0	0
N. Padre E.	11	3	0	0	0
S. Padre	7	2	0	0	0
S. Padre E.	9	2	0	0	0
Total	157	66	12	6	4

*Activity is as of September 30, 1978. Sale 51 had not yet taken place at that time.

Sources: RPC, Inc., Offshore Oil: Its Impact on Texas Communities (Austin: General Land Office , 1977, Vol. IV, p. B-3.)
Transcontinental Gas Pipe Line Corporation, Map of Texas Gulf Coast and Texas Continental Shelf, 1977.
U.S. Bureau of Land Management, New Orleans.
U.S. Geological Survey, Gulf of Mexico Region Lease Activity Report (computer printout), September 30, 1978.
41 Fed. Reg. 45594 (October 15, 1976).
42 Fed. Reg. 26250 (April 23, 1977).
43 Fed. Reg. 11605 (March 20, 1978).
43 Fed. Reg. 52534 (November 13, 1978).

April of 1976, and reflects tracts which have experienced considerable, yet partial, exploration and development. Although these tracts were leased prior to the July 26, 1976 baseline date in the CEIP guidelines, most of the exploratory drilling on them did not commence (according to U.S. Geological Survey data on first spudding dates) until later. In fact, 93 of 109 leases went into effect on a single day--April 1, 1975 (OCS Sale 37). This surge, which was apparently the direct cause of the new rig and platform construction yards, created a huge backlog of drilling requirements.

The third set of lease sales has occurred since the Coastal Energy Impact Program began. This group includes Gulf of Mexico OCS sales 44, 47, 45, and 51. Sale 44, however, did not result in any leasing of tracts in the Corpus Christi vicinity. Thus, these tracts do not date back any farther than August of 1977, when leases from sale 47 took effect. Sale 45 followed in June of 1978; sale 51, in February of 1979. As can be seen from the table, very little activity has occurred on these more recent tracts.

The three new sales, plus two upcoming sales in 1979 and other future sales, should generate continued drilling rig construction activity for an indefinite period of time. The key factor influencing the length of this period is the relative degree of drilling success. Depending on the number of strikes, there should also be room for expansion of platform construction and installation operations, and for laying of underwater pipelines.

Comparative Analysis. The statistical methodology implicitly assumes that the relationships between total population (p) and total employment (m), and between energy-related employment (e) and total employment (m), hold roughly constant. These ratios are p/m= 2.78 and e/m = .16, respectively. That is, one additional employee (regardless of whether the employment is energy-related) induces a population growth of 2.78. Also, 16 percent of total employment is energy-related.

The interview data, on the other hand, was intended to clarify whether, over a specific period, special coastal energy-related growth has distorted or will distort these values. That is, if $\triangle e$ is abnormally large, $\triangle m$ would be distorted, so that $\triangle p$ is greater than expected. The projected population figure would then have to be revised upward (by an amount equal to 2.78 times the difference between the projected energy-related growth and the energy-related growth derived from the interviews).

The population estimate of the Chamber of Commerce, in turn, is the only available approximation of actual population values. Since it seems to demonstrate a higher rate of growth than the other two estimates (at least, from 1975 to the present), it serves as an upper limit check on those two values.

One difficulty with the two sets of data was that the time intervals did not match. Consequently, the population values resulting from the statistical projection and from the Chamber estimate were adjusted to reflect the 1976, 1979, and 1985 dates used in the interviews. These adjustments, obtained by calculating the annual growth rates that the two data sources implied, resulted in the figures shown in Table 6.

There is considerable discrepancy between the figures for energy-related employment projected statistically and those derived from the interviews (Table 4). This discrepancy arises primarily because the data in Table 4 were intended to represent only the major energy-related facilities which may have experienced growth, rather than to fully identify total energy-related employment. The growth figures, encompassing the major energy-related expansions in the area, are thus more accurate than the total figures. The focus was to identify that growth and then to use it as one basis for calculating the population growth that energy-related employment increases should have

Table 6. Summary of Population and Employment Estimates Adjusted to 1976 and 1979

	Population		Employment	
	Chamber of Commerce	Projection	Total (Projection)	Energy-Related (Projection)
1975 (mid-year)	6,417*	6,417*	2,310	370
1976 (mid-year)	6,997	6,667	2,400	384
1979 (March)	8,876	7,405	2,666	426
1985 (mid-year)	----	7,911	2,848	456

* Figure comes from Bureau of Census P-25 series and is assumed as a beginning value for both columns.

induced.

The statistical projections, interviews, and Chamber of Commerce figures produced a range of values for energy-related employment growth, total population growth (whether induced by energy-related or other economic growth), and total population. These figures, shown in Table 7, deserve explanation.

Case I is merely the statistical projection. As described previously, the methodology for this projection assumes a constant relationship between energy-related employment and total employment, and between total employment and total population. Energy-related employment represents 16 percent of the total employment, and also 16 percent of employment growth. Each new energy-related employee, as well as each new non-energy-related employee within the remaining 84 percent, induces a population growth of 2.78 persons.

Case II assumes that the non-energy-related employment increases as projected. However, it takes note of the significant increases in energy-related employment demonstrated by the interviews, beyond what was projected. Each of these unanticipated energy-related employees induces additional population growth of 2.78 persons.

Case III is based on the assumed accuracy of the Chamber of Commerce population estimate. For the 1976-1979 period, it takes note of the fact that even Case II cannot account fully for this population growth. Thus, it assumes that additional employment growth, allocated (16/84 percent) between energy and non-energy, has occurred. This assumption is reasonable, because the interviews probably did not identify all energy-related employment growth, especially among minor facilities. For the 1979-1985 period, it assumes that Case II again underestimates the growth figures, and compensates for that underestimation.

Table 7 tends to confirm the usefulness of the empirically-based Case II

Table 7. Range of Values for Energy-Related Employment and Population*

	1976-1979	1979-1985	Due to Deeport 1979-1985
Increase in Energy-Related Employment:			
Case I	42	30	
Case II	353	49	
Case III	388	54	
Increase in Population Induced by Energy-Related Employment:			
Case I	117	83	
Case II	981	136	
Case III	1,078	150	
Increase in Total Population:			
Case I	738	506	582 - 658
Case II	1,603	559	643 - 727
Case III	1,879	643	739 - 836
	1979	1985	1985
Total Population:			
Case I	7,405	7,911	7,987 -8,063
Case II	8,270	8,829	8,913 -8,997
Case III	8,876	9,519	9,615 -9,712

*See Appendix A for calculation of values in this table.

and III calculations, as opposed to the Case I calculations based on continuation of historical trends. Exceptional increases in energy-related employment, equal to more than six times the projected increased, are estimated to induce a population growth of about 1,120-1,230 from 1976 to 1985, out of a total population growth of about 2,150-2,520.

One factor which could cause additional energy-related growth is Deeport. As mentioned earlier, the DEIS estimated that the project would induce population growth of about 15-30 percent the growth expected without it. Application of this estimate to the 1979-1985[7] period results in the figures shown in the right-hand column of Table 7.

With or without Deeport, the striking trend in Table 7 is the sharp decrease in energy-related expansion after 1979, compared with the 1976-1979 period. This trend is not inconsistent with the information furnished by the interviews, nor with the expectations that could be derived from further analysis of OCS activity.

Table 8 shows that beginning with OCS Sale S1, there have been 147 tracts leased in the recent past. Of these, 56 had been explored as of September 30, 1978. Sales 58 and 58A will offer 25 more tracts in the same area[9]; if the percentage leased (55 percent) is the same as in the four sales since July of 1976, these sales would result in the leasing of 14 additional tracts. This would result in a total of 161 tracts.

Historically within the Texas federal OCS, 54 percent of the tracts that have been leased have been explored. Thus, one could expect 87 of the tracts to be explored ultimately. Also historically, there has been an average of 2 exploratory wells per explored tract. One could therefore expect 174 wells to be drilled on these tracts.[10] Yet, as of September 30, 1978, only 81 wells had been drilled on these tracts.[11] This leaves 93 additional exploratory wells that

TABLE 8. PRODUCIBLE TRACTS IN WESTERN PORTION OF TEXAS FEDERAL OCS

Tract	Lease Date	First Spud	Wells	Qualified	Type	Lease Status	Platform Approved	Platform Set	Production
Brazos South A-76	07/01/68	01/08/69	9	03/07/69	Gas	Producing	04/29/70	09/06/70	06/22/72
Brazos A-1	06/01/69	06/21/70	7	08/14/70	Gas	Producing	07/12/72	09/28/72	08/29/73
Brazos South A-105	07/01/68	07/27/68	9	08/02/71	Gas	Producing	10/24/75	11/15/75	01/30/77
Brazos South A-102	06/01/68	06/27/68	4	12/15/71	HC	Producing			01/30/77
Mustang 831	04/01/75	07/19/75	2	09/25/75	Gas	Producible			
Mustang 757	04/01/75	06/25/76	2	08/10/76	Gas	Producible			
Mustang East A-85	04/01/75	06/07/76	5	11/10/76	Gas	Producible	10/14/77	11/02/77	
Brazos South A-70	07/01/74	12/06/74	14	10/19/77	Gas	Producible	09/19/75	12/15/75	
Brazos South A-133	07/01/74	10/16/74	11	10/19/77	Gas	Producible	03/10/76	06/25/76	
Mustang A-16	04/01/75	01/13/76	1	10/19/77	Gas	Producible			
Matagorda 665	08/01/77	11/20/77	2	07/20/78	Gas	Producible			
Mustang 758	04/01/75	07/05/77	3	09/18/78	Gas	Producible			

Note: Status is as of September 30, 1978.

Sources: Same as Table 5.

might be expected to be drilled. Finally, based on a historical average of 1.9 wells per rig per year[12], it would require about 49 rig-years of drilling activity to accommodate these requirements.

Another way of putting this is that it would require about ten rigs to complete this drilling within a five-year primary lease period. Presently, there are nine rigs operating in the Texas federal OCS study area shown in Figure 1.[13] The rig construction and drilling industries have already expanded considerably to meet this demand. At the end of 1977 there were only 30 rigs in the entire Texas offshore area (federal and state); the figure is now 38.[14] Texas, in fact, has absorbed most of the increase in the world drilling rig fleet. In general, there seems to be sufficient need for additional drilling rig construction in the Ingleside area to last at least through 1985; at the same time, it is doubtful that this will require much expansion of the Baker Marine yard or placement of any new facility..

With respect to the platform construction industry, there should easily be sufficient demand to accommodate present or higher employment levels at Chicago Bridge and Iron, Brown and Root, and E.T.P.M. Presently, these companies are supplying platforms for tracts outside the study area in Figure 1. As more tracts within the study area become producible, the focus should shift partly to the Corpus Christi vicinity.

Again, based on historical data, 28 percent of the tracts explored in the Texas federal OCS have been developed, and there has been an average of 1.6 platforms per developed tract.[15] Applied to the study area tracts leased since Sale 51 and the tracts to be offered in the 1979 sales, this means that one might expect 39 platforms to be installed. Even assuming a minimum drilling success rate of 15 percent and only one platform per developed tract, one still might expect 13 platforms to be placed.[16] So far, however, only one platform has

been approved on these tracts (Table 5).

Platform construction in the study area may be delayed somewhat, however, pending more extensive identification of producible gas deposits. This identification will be necessary to determine the most feasible routes for laying of underwater pipelines. Except for portions of the Brazos and Brazos South OCS areas, none of the study area in Figure 1 is served by a pipeline.

Consequently, as of September 30, 1978, there were eight producible tracts with wells that were shut-in, in anticipation of pipeline connection to the shore. (See Table 8.) Three of these, two in the Brazos South Addition and one in the Mustang Island East Addition, are in short range of a forked pipeline extending from Matagorda County to the southwest corner of the Brazos South Addition. All three have platforms and will probably be attached to a slightly extended pipeline system. The other five, four in the Mustang Island area and one in the Matagorda area, will probably be reached by pipelines extending from the Corpus Christi vicinity.

In general, then, there is considerable potential for platform construction and pipeline laying operations serving the study area. However, most of this activity will not transpire until after 1985, or at least until the distribution pattern of producible deposits is clearer. Again, this judgment seems to concur with the expectations of the energy-related companies which were contacted during the interviews.

Summary. The major results which were intended by this study are those depicted in Table 7. These show a range of projected population and energy-related employment levels. As was stated near the outset, however, these conclusions are subject to error. Consequently, a detailed analysis of current services is necessary to determine any capacity limits which are in danger of being exceeded.

Notes

1. 16 U.S.C. 1456a(c)(1976), as amended by Pub. L. 95-372, Sec. 503 (a), 92 Stat. 692 (1978).

2. Ocean Industry 14:3 (March 1979).

3. Although Aransas Pass is located within three counties, the major portion of the city is located within San Patricio County.

4. The same qualifications that were applicable to use of historical population data are applicable to historical OCS development data. However, it can be conjectured that the probability of exploration and/or production of recently leased tracts will be similar to given proportionalities among nearby, previously-leased tracts.

5. U.S. Army Corps of Engineers, Draft Environmental Impact Statement: Deep Draft Inshore Port at Harbor Island, Volume 1, p.234.

6. Entreprise pour les Travaux Petroliers Maritimes.

7. See note "a" in Table 4.

8. The Deeport impact is applied to the 1979-1985 period rather than to the whole 1976-1985 period, because the 1976-1979 growth has been shown to be exceptional -- being based on a one-time expansion in a particular type of energy-related growth (OCS activity), which is a separate function from expansion of energy-related port traffic.

9. U.S. Bureau of Land Management, Draft Environmental Impact Statement: Proposed 1979 Outer Continental Shelf Oil and Gas Lease Sale 58A, Vol. 2, Visual No. 1, 1979

10. Historical figures come from RPC, Inc., Offshore Oil: Its Impact on Texas Communities (Austin: General Land Office), 1977, Vol. IV, pp. B-3, D-7.

11. U.S. Geological Survey, Gulf of Mexico Region Lease Activity Report (Computer printout), September 30, 1978.

12. Offshore Oil, Vol IV, p.D-7

13. Offshore 39:3 (March 1979).

14. Offshore 38:12 (December 1978); Offshore 39:3 (March 1979).

15. Offshore Oil, Vol. IV, pp. B-3, D-7.

16. There is some validity to the lower estimate. The 28 percent ratio between developed and explored tracts is based on the greater success rate in the eastern portion of the Texas federal OCS. Within the study area, an estimate of drilling success may be provided by the figures on tracts leased in OCS Sales S1-41, shown in Table 5. Here, the ratio between tracts shown to be

producible and tracts explored is 10 percent. This percentage may be adjusted upward, though, by recognizing that these tracts have not yet achieved the historical average exploration levels. One could expect 59 tracts to be explored, resulting in 118 wells. So far, only 70 wells have been drilled on these tracts. Multiplying the 10 percent by the ratio 118/70, then, one obtains a theoretical success ratio of almost 17 percent. As for the number of platforms per developed tract, improved technology allows twice as many development wells (or more) drilled from a platform as before. This advance may reduce the average number of platforms placed within a tract.

Section III

Analysis of Capacity to Meet Future Needs

Section III

Analysis of Capacity to Meet Future Needs

Introduction

The discussion of energy facilities (Section II) describes three cases of population growth. Case III represents the maximum impact which energy-related facilities may have on the community of Aransas Pass. It will be used in evaluating the capacity of public facilities and services to support growth projected by 1985.

Case I is a statistical projection and represents the minimum amount of population increase which may occur due to new energy facilities. The methodology assumes a constant relationship between energy-related employment and total employment, and between total employment and total population. In this case, between 1979-1985 it is assumed that energy activities will bring in 30 employees and, as a result, 83 people. The estimated total population in 1985 will be 7,911.

Projections in Case II were ascertained through interviews with individuals from the area who are actually involved in energy-related activities. It takes note of significant increases in energy-related employment demonstrated by the interviews, beyond what was projected in Case I. The projections of Case II lie between those of Case I and Case III. It is anticipated that 49 additional employees, and a total of 136 additional people will locate in Aransas Pass during the period 1979-1985 due to energy-related activities. Total change in population by 1985 is expected to be 559; and total population by 1985 would be 8,829.

Case III represents the maximum population anticipated by 1985. It is based on the assumed accuracy of the Chamber of Commerce population estimate, and assumes that Case II underestimates the growth figures. Using the Chamber estimates, it is determined that 54 new employees will be energy-related during 1979-1985. Thus, a population increase of 150 would be induced by energy-related employment. There would be a total population increase of 643 by 1985. Total population in 1985 would be 9,519.

Thus, the population projected for 1985 ranges from a minimum of 7,911 in Case I, to a maximum of 9,519 in Case III. This is a difference in the projections of 1,608 people, or approximately 20 percent. As noted above, the maximum impact case, Case III, is used as the basis for an analysis of the impact of increased population on public facilities and services in 1985, and also changes in land use patterns. The services and facilities evaluated include housing, water supply, sanitary sewer system, solid waste, schools, health care, police protection, fire protection, transportation, and recreation.

The capacity of these facilities and services to meet future needs is summarized in Table 1. The water supply system, the sanitary sewer system, schools and health care will all be adequate to support the projected population in 1985 if proposed facilities are constructed. However, housing, the solid waste system, police protection, fire protection and recreational facilities will not be adequate unless additional services and facilities are provided.

Table 1

Summary of Capacity to Meet Future Needs

Factor	Existing Use/ Facility Ratio	Present Adequacy	New Population That Can be Absorbed	Projected Use/ Facility Ratio With New Population	New Reserve Capacity	Projected Adequacy in 1985
Housing	2.78 persons/household	yes	40 households or 111 people	231 units required	None. Deficit of 191 units.	no
Water Supply System	1,300,000 gallons/day, max. or 202 gallons/ person/day max.	yes	79,519	1,429,886 gallons/ day, max. daily usage	320,000 gallons, minimum; 820,000 gallons, maximum	yes
Sanitary Sewer System	1,259,000 gallons/day, max.	no		1,385,028 gallons/ day, max.	114,972 gallons/ day, minimum, when new plant is completed. Otherwise, reserve capacity = 0	yes
Solid Waste	3 garbage trucks, 1 part-time	yes	n.a.	Use of part-time garbage truck on full time basis. One or two more men for the route.	None	no
Schools	19.7 students per classroom	Elem. school, not adeq. Jr. and Sr. high school, adeq.	n.a.	23.1 students per classroom	n.a.	yes

Table 1 (continued)

Factor	Existing Use/ Facility Ratio	Present Adequacy	New Population That Can Be Absorbed	Projected Use/ Facility Ratio With New Population	New Reserve Capacity	Projected Adequacy in 1985
Health Care	5.9 beds per 1,000 people	yes	643 people	4.0 beds per 1,000 people	0	yes
Police	2 officers/1,000 people	yes	0	1.5 officers/1,000 people	None. Will need 2 additional policemen	no
Fire	4.6 firemen per 1,000 people, including 1 paid fireman per 1,300 people	yes	0	3.2 firemen per 1,000 people, including 1 paid fireman per 1,900 people	None. Will need 2 additional paid firemen and 12 volunteers.	no
Recreation	6.2 acres/1,000 population	no	0	4.5 acres/1,000 population	None. Would need approximately 55 additional acres	no

Land Use

There are two types of factors which influence changes in land use; these are man-made and natural. Examples of man-made influences include zoning ordinances, building codes, and height restrictions. Natural influences include topography and drainage. Both man-made and natural influences will help shape the land use patterns in Aransas Pass until 1985.

Ordinance No. 1308 provides "for the dividing of the area within the corporate limits of the City of Aransas Pass, Texas, into districts in accordance with a comprehensive plan, defining certain terms, regulating the location, size, height, bulk and use of buildings and use of land in such respective districts . . ." Nineteen types of zoning districts are established. These include, among others, agricultural districts, single-family dwelling districts, apartment dwelling districts, shopping center districts, and industrial districts.

The only industrial district is south of the railroad and east of Wilson Avenue. It encompasses the Aransas Pass Turning Basin and Conn Brown Harbor and also borders the Intracoastal Waterway. Due to its industrial zoning classification, this is the only land area within the City where energy facilities might locate.

The land west of King Avenue and north of the railroad, that is, the majority of the city, is zoned residential. Much of the property zoned residential land, especially in the northern and western sections, is vacant. This is largely due to absentee ownership, as discussed in Section I, and

will create a problem in development. Many owners have never been to Aransas Pass and have no particular interest in developing their land.

The major change in land use which may occur by 1985 as a result of energy facility siting would be conversion of vacant land to residential land. Interviews with individuals conducted for Section II of this report indicated that it is doubtful that any increased use of the area in the City of Aransas Pass which is zoned industrial would be for energy facilities. Along with increased population may also be further commercial development, especially north, since that is the direction in which the city would grow. Strip development along Wheeler Avenue, especially, would increase.

Land use patterns in Aransas Pass will also be influenced by natural features, in particular topography and related drainage. The influence of the natural features may predetermine land use decisions. In the case of Aransas Pass, the city is very low and very flat. The highest elevation is 23 feet above sea level. There is a problem with drainage throughout the city in a very bad storm. In the northern part of the city, in particular, there is a more severe problem with drainage because water from the county, which is not properly drained, enters the northern section of the city first. The northern section of the city, although zoned residential, is not particularly suited for residential development.

Housing

As mentioned in the land use section, the majority of the city is zoned residential and much of this residential land is vacant. However, because of

absentee ownership and problems with drainage, it is not likely that this vacant land would be developed within the next five years.

The amount of increase in population between 1979 and 1985, according to Case III, will be 643 persons or 231 households, using 2.78 as the number of persons per household. According to a survey done in 1976, there were 40 standard units available. Assuming the number of vacant houses is still the same, there will be a need for 191 additional housing units.

Not all of the new population is energy-related. Only 150 of the 643 new people are projected to be brought in because of energy-related employment. That is, 23 percent of the new population will be energy-induced. Thus, 54 of the new households will be due to energy-related activities. Assuming that nine of the 40 vacant households would be allocated to persons locating in Aransas Pass because of energy-related activities, there would be a need for 45 additional housing units to accomodate the energy-related population increase.

The City of Aransas Pass does not, then, presently have the housing facilities necessary to accomodate maximum housing demand. Furthermore, the minimum demand for housing using projections from Case I will also not be met. For Case I, 182 additional houses will be needed to accomodate total new demand, including 30 related to energy activities. Six of the forty houses would, theoretically, be allocated to accomodate people locating in Aransas Pass because of energy facilities.

Aransas Pass, then, will only be able to absorb 40 more households. This will not be enough to accommodate growth anticipated in Case I or in Case III.

Water Supply System

The City of Aransas Pass receives all the water it needs from the San Patricio Water District. Water is pumped into the city at regular intervals during the day and, thus, water from the storage tanks is never used. The water from the tanks would only be used in the case that water supply from the San Patricio Water District was cut off. The following analysis of capacity of the water supply system is applicable only assuming that water from the San Patricio Water District becomes unavailable.

The addition of 643 people by 1985 would result in an estimated increase in total water use of 129,886 gallons per day. The maximum usage now is 1,300,000 gallons per day with 420,000 gallons reserve capacity in storage. With the increased water consumption, there will be approximately 320,000 gallons reserve capacity. Thus, the present water supply system is equipped to handle any additional population expected by 1985. It must be noted that the city may build an additional 500,000 gallon overhead storage tank by 1985 which would result in a reserve capacity of 820,000 gallons.

Sanitary Sewer System

The Sanitary Sewer System is already overloaded (Section I), with an average of 6,000 gallons/day more than can be treated passing through the plant. Until a new treatment plant can be built, then, the sanitary sewer system will not be adequate.

The city is planning, tentatively, to complete a 1,500,000 gallon capacity plant by the early 1980s. The additional gallons per day used by 643 new people would be 75,874 gallons, average, and 126,028 maximum. Maximum

gallons per day used now is 1,259,000. Thus, assuming the present rate of water usage, maximum usage would be 1,385,028 gallons/day in 1985 with a population of 9,619. If the new treatment plant is built, it will be adequate to support maximum population anticipated by 1985 with a reserve capacity of 114,972 gpd, minimum. In the interim, treatment will remain poor.

Solid Waste

The current amount of solid waste collected is 2.33 lbs/person/day. With an additional 643 people, an additional 1,498.19 lbs/day would accumulate. Until the current system is evaluated for its efficiency, it will be difficult to assess whether the present system, i.e., rate structure, routes, and pick-up days, will be used in the future. However, in order to collect the additional refuse, one of the garbage trucks, which presently is used only part-time, could be used, along with the other two garbage trucks, on a full-time basis. Using the additional truck on a full-time basis would necessitate hiring one or two more men for the route.

Schools

The increase in school enrollment expected by 1985 was estimated by applying the 1970 state student/population ratio to the projected population increase of 643. An additional 154 students is projected, bringing the expected school district enrollment to 2,358 students by 1985. A total of 2,358 students would bring the student/classroom ratio to 23.1 students per classroom.

Although the student/classroom ratio would still remain under the desired 25 students/classroom ratio, this figure is misleading. In the Aransas Pass Independent School District, the majority of new students are expected to be in the elementary schools, and it is anticipated that the present number of 75-100 new students which have entered the school system the past couple of years will continue. Thus, although the number of total classrooms within the school system may be adequate, the number of classrooms in the elementary schools is projected to be inadequate (See Section I).

Health Care

If the number of hospital beds remains constant through 1985, the total beds per 1,000 people for a population of 9,619 will be 4.0. This matches the federal standards, exactly. Thus, there will be no reserve capacity and additional health care facilities should be planned immediately.

Police

In order to maintain the present 2 officers per 1,000 persons ratio, Aransas Pass will have to hire two additional policemen by 1985. In order to maintain the present ratio of cars (one car per 800 persons), an additional police car will also be necessary.

Fire

With a population of 9,519, maximum, anticipated by 1985, the city would need a total of 44 firemen to maintain its present ratio of 4.6

firemen per 1,000 people. This would mean an increase of 14 firemen by 1985, including 2 additional paid firemen.

Transportation

With increased population, there will be a greater amount of traffic congestion. In addition, there will be more wear and tear on roads. If new residential areas are built, especially in the northern and western parts of the city, road improvements will have to be made and new roads will have to be built, accordingly.

Recreation

As discussed in Section I, present recreational facilities are not adequate. An increase in population to 9,519, as anticipated in Case III, would result in a ratio of 4.5 acres/1,000 population. In order to meet the national recreation standard of 10 acres/1,000 people for a population of 9,519, there would be a need for a total of 100 acres of parkland, or approximately 55 additional acres.

Section IV

Analysis of Fiscal Effects

Section IV

Analysis of Fiscal Effects

Introduction

This section presents an analysis of the fiscal effects that new or expanded energy facilities may have on the City of Aransas Pass and the Aransas Pass Independent School District. The purpose of this analysis is to determine what, if any, costs the city or school district can be expected to incur as a result of new demands for public facilities and services associated with a growth in population.

Population projections derived in Case III, Section II, of this study were utilized to help determine possible increases in revenues and expenditures for both Aransas Pass and the Aransas Pass Independent School District for the years 1979 to 1985. Case III figures were used because they represent the greatest change in population anticipated in Aransas Pass for those years. Should Case I or Case II, representing smaller population increases, prove to be more representative of the actual population for those years, trends in revenues and expenditures would still be similar. The magnitude of the fiscal impacts, however, would be diminished.

The City of Aransas Pass

Total revenues, excluding revenue sharing, and total expenditures for 1972-1978 for the City of Aransas Pass were examined in order to establish a profile of the city's budget. (Table 1) The revenues and expenditures listed

Table 1

City of Aransas Pass

Year	Population[1]	Revenues Excluding[2] Revenue Sharing	Expenditures
1972	6,047	927,483	823,899
1973	6,168	964,373	904,209
1974	6,291	1,167,830	1,041,633
1975	6,417	1,239,313	1,095,788
1976	6,997	1,386,177	1,256,240
1977	7,629	1,581,452	1,404,111
1978	8,318	1,501,472	1,625,145

Source: [1]Consultant's estimates based on Aransas Pass Chamber of Commerce figures and Bureau of the Census P-25 reports

[2]City of Aransas Pass

are a composite of three primary funds: the General Fund, the Harbor Fund, and the Water and Sewer Fund. From the revenues and expenditures for years 1972-1978, a basic trend relating revenues and expenditures to the population of the City for those years was established.

As discussed in Section I, major sources of revenue for the city are ad valorem taxes and city sales taxes. The expenditures of the City are of two types: those for the general services and operation of city functions and those for specific items. General services include both government administration and costs incurred due to demands from various land uses and housing. Stress on the storm drainage and transportation systems are examples of the latter. Specific items include employment of personnel, such as policemen and firemen, acquisition of new equipment, and expansion of existing facilities.

Table 2 illustrates the projected expenditures for Aransas Pass, 1979-1985, using Case III population projections derived in Section II of this study as well as the 1972-1978 figures in Table 1. Additional revenues, calculated in a similar manner, are also shown in Table 2.

Least-squares regression analysis was used to project revenues and expenditures. A premise underlying this technique is "business as usual." That is, it is assumed that present relationships between revenues, expenditures, and population will continue.

For all years, 1979-1985, the expenditures are projected to exceed the revenues, ranging from an estimated $22,206 difference in 1979 to a $79,038 difference in 1985. These figures illustrate that as population increases

Table 2

City of Aransas Pass

Year	Estimated Total Population Including Energy Population[1]	Revenues Excluding Revenue Sharing[2]	Expenditures[2]	Surplus or (Deficit)[3]
1979	8,608	$1,716,742	$1,738,948	($22,206)
1980	8,753	1,754,770	1,786,106	(31,246)
1981	8,901	1,793,584	1,834,059	(40,475)
1982	9,052	1,833,184	1,883,075	(49,891)
1983	9,205	1,873,310	1,932,741	(59,431)
1984	9,361	1,914,222	1,983,380	(69,158)
1985	9,519	1,955,650	2,034,688	(79,038)

Source: [1]Consultant's estimates based on Aransas Pass Chamber of Commerce figures and Bureau of the Census P-25 reports

[2]Consultant's estimates, based on least-squares linear regression

[3]Revenues (Excluding Revenue Sharing) minus Expenditures

Table 3

City of Aransas Pass

Year	Estimated Total Population Excluding Energy Population[1]	Revenues Excluding Revenue Sharing[2]	Expenditures[2]	Surplus (Deficit)[3]
1979	6,457	$1,152,628	$1,040,709	111,919
1980	6,579	1,184,624	1,080,311	104,313
1981	6,703	1,217,144	1,120,563	96,581
1982	6,830	1,250,450	1,161,789	88,761
1983	6,939	1,284,281	1,203,664	80,617
1984	7,091	1,318,899	1,246,512	72,387
1985	7,224	1,353,779	1,289,686	64,093

Source: [1]Consultant's estimates based on Aransas Pass Chamber of Commerce figures and Bureau of the Census P-25 reports

[2]Consultant's Estimates

[3]Revenues Excluding Revenue Sharing minus Expenditures

the costs associated with the new population tend to exceed the added revenues received as a result of the new population.

This is further illustrated in Table 3. This table shows revenues and expenditures associated with total estimated population, excluding the energy-related population. A comparison of the expenditures and revenues in this instance shows revenues exceeding expenditures at a decreasing rate. The annual difference between revenues and expenditures is estimated to be $111,919 in 1979 and $64,093 in 1985.

The City of Aransas Pass, in addition to the revenues illustrated in Table 1, also receives Revenue Sharing Funds from the federal government. The procedure for distribution of Revenue Sharing Funds is a complex one. Funds are allocated to each state according to a specific formula. Then, within each state, funds are allocated according to another formula. Required data about units of local government for the purpose of allocating the revenue sharing funds include population, per capita income, adjusted taxes, and intergovernmental transfers.

Revenue sharing funds received by Aransas Pass in previous years are shown in Table 4. In past years, these funds have helped considerably. If funding were to continue at its present level through 1985, revenue-sharing funds should be more than sufficient to compensate for the projected budget deficits.

In addition to general costs, projected governmental expenditure during 1979-1985 will in part be used for the specific services and facilities discussed in Section III. These include the addition of two police officers,

Table 4

Revenue Sharing,
City of Aransas Pass

Year	Revenue Sharing Allocation
1972	$ 58,485
1973	108,465
1974	108,132
1975	114,602
1976	108,035
1977	109,545
1978	114,024

Source: City of Aransas Pass

one police car, two paid firemen and two garbage truck drivers. It will also be necessary to use the part-time garbage truck on a full-time basis.

One police officer and the police car would be needed in the middle of the 5-year period and one more policeman would be needed by 1985. Two additional firemen would be needed per year, including one paid fireman in the middle of the study period and another by 1985. The improvements in the solid waste collection system, i.e., the addition of two garbage truck drivers and the use of the part-time garbage truck on a full-time basis, would be necessary by 1985.

The cost to the city of these additional facilities and services can be estimated on the basis of 1978 costs for similar items. Thus, the salary of each patrolman would cost the city approximately $10,000 per year. A new police car would be an estimated $8,000. The salary of each paid fireman would be about $8,000, and that of garbage truck drivers would be about $9,000. Using the garbage truck full time instead of part-time would mean use of an estimated additional 8 gallons of fuel per day resulting in $2,000 more spent on fuel per year. There would also be costs related to truck maintenance, including tune-ups and fixing flats.

Aransas Pass Independent School District

The Aransas Pass Independent School District is overcrowded in the elementary grades, and is making provisions to alleviate the overcrowding (Section I). Population growth due to energy facilities is expected to cause further stress on the school facilities. In order to help determine

the impacts of the new facilities on the school system, estimated population, revenues, and expenditures, excluding revenues from bond issues, for 1972-1978 were used as a base. Using the new population figures derived from Case III for 1979-1985, future expenditures and revenues were estimated for the years 1979-1985.

Table 5 shows the population, revenues and expenditures anticipated for 1979-1985, including that related to energy facilities. Table 6 shows revenues and expenditures estimated for the Aransas Pass Independent School District for 1979-1985 without the population associated with energy facilities. The two tables combined show that as the population increases, the expenditures and revenues tend to become more equalized. Thus, for 1979-1985 the revenues are expected to exceed the expenditures even with the anticipated energy-related population, by $35,697 in 1979 and by $61,025 in 1985.

Table 7 shows the percent of revenues received by the Aransas Pass Independent School District from the state and federal governments during 1972-1978. State and federal revenues are allocated to the school districts according to complex formulas utilizing such factors as number of pupils, relative wealth of the school district, expenditures, and tax effort. The remaining revenues, roughly 50 percent, are primarily from ad valorem taxes. It is anticipated that revenues from both the state and federal governments will continue to comprise a comparable percentage of school district revenues from 1979-1985. Thus, the Aransas Pass Independent School District may have to continue to provide a little less than 50 percent of the necessary revenues

Table 5

Aransas Pass Independent School District

Year	Aransas Pass Total Population[1]	Current Revenues[2]	Expenditures[2]	Projected Surplus or (Deficit)[3]
1979	8,608	$2,602,830	$2,567,133	$35,697
1980	8,753	2,668,661	2,625,332	43,329
1981	8,901	2,735,853	2,686,096	49,757
1982	9,052	2,804,407	2,749,541	54,866
1983	9,205	2,873,870	2,815,358	58,512
1984	9,361	2,944,694	2,884,083	60,611
1985	9,519	3,016,426	2,955,401	61,025

Source: [1]Consultant's estimates based on Aransas Pass Chamber of Commerce figures and Bureau of the Census P-25 reports

[2]Consultant's estimates, based on application of least squares linear regression techniques

[3]Current Revenues minus Expenditures

Table 6

Aransas Pass Independent School District

Year	Estimated Total Population Excluding Energy Population[1]	Current Revenues	Expenditures[2]	Projected Surplus or (Deficit)[3]
1979	6,457	$1,626,271	$1,840,866	($214,595)
1980	6,579	1,681,660	1,875,917	(194,257)
1981	6,703	1,737,956	1,912,227	(174,271)
1982	6,830	1,795,614	1,950,144	(154,530)
1983	6,959	1,854,180	1,989,428	(135,248)
1984	7,091	1,914,109	2,030,445	(116,336)
1985	7,224	1,974,491	2,072,628	(98,137)

Source: [1]Consultant's estimates based on Aransas Pass Chamber of Commerce figures and Bureau of the Census P-25 reports

[2]Consultant's estimates based on application of least squares linear regression techniques

[3]Current Revenues minus Expenditures

Table 7

Aransas Pass Independent School District

Year	Aransas Pass Population[1]	Current Revenues[2,a]	% of Revenues from State Government[2]	% of Revenues from Federal Government[2]	Expenditures[2]
1972	6,047	1,248,573	56.0	9.5	1,176,875
1973	6,168	1,526,544	44.5	6.5	1,737,770
1974	6,291	1,594,901	47.0	5.0	2,578,418
1975	6,417	1,681,994	49.0	5.5	2,056,660
1976	6,997	1,983,124	55.0	6.0	2,002,621
1977	7,629	2,144,101	52.0	6.0	2,026,741
1978	8,318	2,415,940	58.0	4.5	2,458,436

[a]Does not include receipts from sale of bonds

Source: [1]Consultant's estimates based on Aransas Pass Chamber of Commerce figures and Bureau of Census P-25 reports

[2]Texas Education Agency

in the future. However, if the difference between revenues and expenditures continues to increase as anticipated, federal and state government revenues may be able to pay for a greater percentage of the costs and it may be that the school district ad valorem taxes will, thus, comprise a smaller percentage of the expenditures than in the past.

Section V

Goals, Objections, and Recommendations

Section V

Goals, Objectives, and Recommendations

Based on the postulated population growth that can be expected commensurate with energy-related facilities locating in the city of Aransas Pass, the facilities and services in the community that would be stressed at or beyond capacity included housing, the solid waste system, police and fire protection, and recreational facilities. If the energy-related population growth achieved 650 persons, as projected in Section 3 of this report, the City will realize a deficit of:

1) approximately 200 moderate and low income housing units;
2) two additional police officers;
3) two additional paid firemen and twelve volunteers
4) approximately 55 additional acres for parks and recreation;
5) two additional sanitation personnel and full-time service of one solid waste collection vehicle.

Anticipated demands on other public facilities and services, including the water supply system, sanitary sewer system, and health care facilities, are not anticipated to exceed their capacity according to the total projected population of 9,519 persons in 1985. Existing hospital facilities, while adequate to absorb this projected population will be barely adequate; that is, there will be no reserve capacity in 1985.

In the Aransas Pass School District, an additional 154 students is projected, resulting from growth in energy-related facilities in the area bringing

the expected School District enrollment to 2,358 students by 1985. The total student/classroom ratio will still be less than the accepted standard for the area. However, the number of classrooms in the elementary schools is projected to be inadequate.

The principle conclusion to these findings is that energy-related population growth in the Aransas Pass area is not expected to severely impact the City's and School District's ability to provide necessary public facilities and services. Compared to trends in population growth over the past ten years, the postulated energy-related population growth between 1976 and 1985 is not a significant increment. Furthermore, the greatest amount of energy-related growth appears to have occurred between 1976 and the present. One major variable in this projection is Deeport. If this facility were constructed, the resulting stimulation and expanded refinery capacity, and associated marine-service companies, would increase induced population growth by about fifteen to thirty percent (15%-30%).

Even with Deeport, however, there is little indication from the full range of companies interviewed with respect to the study, that energy-related growth over the next five years will be comparable to that of the previous five years. What this means is that the steps that have already been taken by the city of Aransas Pass and the Aransas Pass Independent School District to accomodate recent population growth, will for the most part, be adequate to sustain growth over the next five years. Present plans to expand the water supply system and sanitary sewer system are particularly significant in this regard. Assuming these facilities are completed on schedule, a reserve capacity 320,000 gallons per day minimum for the water supply system and 114,972 gallons per day minimum for the sanitary sewer system is projected, while accomodating the anticipated 1985 population levels.

The analysis of the fiscal effects of energy-related population growth, Section 3 of this report, shows that as the population increases, the costs associated with the new population tend to exceed the additional revenues that will accrue to the city as a result of that population. Total city revenues excluding revenue sharing, and total expenditures were compared for the projected population in 1985, both with and without the anticipated energy-related population. This analysis shows that the energy-induced population increment could produce a deficit of expenditures over revenues ranging from $31,000 in 1980 to $79,000 in 1985. Compared to the projected population without the energy-related increment, a surplus ranging from approximately $100,000 in 1980 to $64,000 in 1985 is realized. While this difference is indicative of the real cost of energy-related growth in Aransas Pass, however, it is by no means indicative of a real financial deficit; when revenue sharing funds are included in the annual receipts, a surplus of revenues over expenditures is projected through 1985.

Despite the fact that major financial commitments in terms of capital improvements required to meet the anticipated population have not been identified, there are several growth and development issues which Aransas Pass is facing. These include:

1. A shortage in low and moderate income housing;
2. A need for drainage improvements;
3. A need for streamlining of the solid waste collection system;
4. Required expansion of park and recreation lands and facilities; and
5. Ultimate expansion of the health care facilities.

In terms of short-term goals, the most immediate and pressing issues appear to be housing, improvement of the solid waste system, and drainage improvements.

Low and moderate income housing availability in the entire region has and will continue to be in short supply. Market forces are currently dictating that investors and developers focus on the high income housing market. This is particularly true in communities such as Aransas Pass or Rockport, where a sizable resort market exists. A recommended objective for meeting the goal of alleviating a shortage of low and moderate income housing is to actively pursue federally-assisted housing programs. It may be particularly advantageous to focus on a combination rehabilitation program and assisted multi-family low income housing. Target areas of rehabilitation potential include the eastern quadrant of Sector Two and Sector Eight (see Housing Map, Section I). According to a 1976 survey of housing conditions in Aransas Pass conducted by HUD, a total of 303 units in the existing housing stock were suitable for rehabilitation. It is recommended that the city of Aransas Pass pursue the U.S. Department of Housing and Urban Development Community Development Block Grants (CDBG) for rehabilitation purposes and consider an application under the Section Eight Low Income Housing Assistance New Construction Program.

The two sectors of the community which appear to have the most pressing need for drainage improvements are the north and eastern sectors. It would be prudent to establish a long-term goal of securing a comprehensive study of the drainage patterns and volumes of storm water run-off that can be expected from and leading into the northern sector of the community. This analysis would have to take into account the catchment area that is affecting this sector, the volume of run-off to be handled, natural topographic features which serve as retention ponds and drainage ways, and an ultimate discharge point for run-off. A short-term objective should be to attempt

to coordinate the plans of developments proposed within the community's ETJ to create comprehensive storm water drainage network. In addition, it may be appropriate to combine the objectives of drainage improvement with any forthcoming community rehabilitation programs. Drainage control efforts should also be coordinated with local street and highway improvements. Due to the fact that the origin of the drainage problem in Aransas Pass appears to be largely outside the city's jurisdiction, the local drainage district would be a suitable coordinating body. If rehabilitation is actively pursued in the south-eastern sectors of the city (Sector Eight) the inclusion of an additional lift station should be considered to alleviate the problems of flooding behind the sea wall.

A recommended goal for improving the city's solid waste collection system is to conduct a comprehensive review of the existing collection routes, rate scale, and collection procedures. As is discussed in the accompanying Supplementary Report, short-term objectives include achieving higher participation in the use of disposable containers, completion of access to all alley ways and eliminating curbside pick-up, elimination of collections from containers other than those specified by ordinance, and a concentrated effort toward conversion to dumpsters particularly in commercial areas.

According to the generally-accepted standard of ten acres of open space per 1,000 population, the city of Aransas Pass has a current deficit of approximately 20-30 acres of recreational lands. The city is presently implementing plans to help alleviate this shortage by developing the Harbor Park and Recreation Area. It is recommended that as a long-term goal, the city prepare a Parks and Recreation Plan which targets priority areas for

aquisition, development, and installation of facilities, and upgrading of existing areas. Over the near term, tracts suitable for recreation within the developed portion of the city should be identified and prioritized for aquisition as they become available, and a continued effort should be made to secure tracts in new developments as they are brought in to the city. Finally, as part of a comprehensive Park and Recreation planning process, a shore-front public-use and beautification plan should be considered.

The final issue deserving consideration to sucessfully manage the city's growth is health care facilities. At present the two hospitals serving the city have sufficient capacity and meet the demands of the projected 1985 population within the standards established by federal guidelines. However, it is clear that reserve capacity is limited and additional physicians could be secured if the capacity were expanded. Recommendations concerning this issue are deferred to the current study in progress concerning plans for expansion or construction of a new hospital. It is suggested, however, that this study include consideration of the pressing need for health care facilities in several area communities and investigate the possibility of a facility designed to meet the needs of adjacent communities, if appropriate.

Appendix A

CALCULATION OF TABLE 7

Appendix A

CALCULATION OF TABLE 7

Increase in Energy-Related Employment: 1976 - 1979

Case I $\Delta e_{1-2} = 426 - 384$

$= 42$

Case II $\Delta e'_{1-2} = (.2) \quad (2665 - 900)$

$= 353$

Case III $\Delta e''_{1-2} = \Delta e''_{1-2} + \left(\frac{p''_2 - p'_2}{2.78}\right) \quad (.16)$

$= 353 + \left(\frac{8876 - 8270}{2.78}\right) \quad (.16)$

$= 388$

Increase in Energy-Related Employment: 1979 - 1985

Case I $\Delta e_{2-3} = 456 - 426$

$= 30$

$\Delta e'_{2-3} = (.2) \ (2910 - 665)$

$= 49$

$\Delta e''_{2-3} = \left(\frac{e''_{1-2}}{e'_{1-2}}\right) \quad (\Delta e'_{2-3})$

$= \left(\frac{388}{353}\right) \quad (49)$

$= 54$

Increase In Population Induced by Energy-Related Employment:

1976 - 1979

Case I $\Delta n_{1-2} = (2.78)\ (\Delta e_{1-2})$

$= (2.78)\ (42)$

$= 117$

Case II $\Delta n'_{1-2} = (2.78)\ (\Delta e'_{1-2})$

$= (2.78)\ (353)$

$= 981$

Case III $\Delta n''_{1-2} = (2.78)\ (\Delta e''_{1-2})$

$= (2178)\ (388)$

$= 1078$

Increase in Population Induced by Energy-Related Employment:

1979 - 1985

Case I $\Delta n_{2-3} = (2.78)\ (\Delta e_{2-3})$

$= (2.78)\ (30)$

$= 83$

Case II $\Delta n'_{2-3} = (2.78)\ (\Delta e'_{2-3})$

$= (2.78)\ (49)$

$= 136$

Case III $\Delta n''_{2-3} = (2.78)\ (\Delta e''_{2-3})$

$= (2.78)\ (54)$

$= 150$

Increase in Total Population: 1976 - 1979

Case I $\Delta p_{1-2} = 7405 - 6667$

$= 738$

Case II $\Delta p'_{1-2} = \Delta p_{1-2} + (2.78)\ (\Delta e'_{1-2} - \Delta e_{1-2})$

$= 738 + (2.78)\ (353 - 42)$

$= 1603$

Case III $\Delta p''_{1-2} = 8876 - 6697$

$= 1879$

Increase in Total Population: 1979 - 1985

Case I $\Delta p_{2-3} = 7911 - 7405$

$= 506$

Case II $\Delta p'_{2-3} = \Delta p_{2-3} + (2.78)\ (\Delta e'_{2-3} - \Delta e_{2-3})$

$= 506 + (2.78)\ (49 - 30)$

$= 559$

Case III $\Delta p''_{2-3} = \Delta p'_{2-3} + (\Delta e''_{2-3} - \Delta e'_{2-3}) \left(\frac{1}{.16}\right) (2.78)$

$= 559 + (54 - 49) \left(\frac{1}{.16}\right) (2.78)$

$= 643$

Total Population: 1979

Case I $p_2 = 7405$

Case II $p'_2 = p_2 + (\Delta p'_{1-2} - \Delta p_{1-2})$

$= 7405 + (1603 - 738)$

$= 8270$

Case III $p''_2 = 8876$

Total Population: 1985

Case I $p_3 = 7911$

Case II $p'_3 = p'_2 + \Delta p'_{2-3}$

$= 8270 + 559$

$= 8829$

Case III $p''_3 = p''_2 + \Delta p''_{2-3}$

$= 8876 + 643$

$= 9519$

Note: Where algebraic formula is not given, the figures were derived from Tables 4 and 6.

WHERE:

p = population, total

n = population, induced by energy-related employment

e = energy-related employment

x = statistically-based estimate of any of above variables

x'= interview-based estimate of any of above variables

x"= Chamber of Commerce-based estimate of any of above variables

x_a (or x'_a or x''_a) = value of variable in year a

Δx_{a-b} (or $\Delta x'_{a-b}$ or $\Delta x''_{a-b}$) = change in value of variable from year a to year b, where a and b can take values of:

1 (1976)

2 (1979)

3 (1985)

e.g.

$\Delta e'_{2-3}$ = change in energy-related employment from 1979 to 1985, based on interview estimates