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CONCEPTUAL PHYSICAL PLAN PAGO PAGO HARBOR

AMERICAN SAMOA COASTAL MANAGEMENT PROGRAM

DEVELOPMENT PLANNING OFFICE

AMERICAN SAMOA GOVERNMENT

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American Samoa Coastal Zone Management Program

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1981

AMERICAN SAMOA COASTAL MANAGEMENT PROGRAM
HARBOR LAND USE PLANNING ELEMENT

HD1128.79P34 1982

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AMERICAN SAMOA GOVERNMENT

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MKGK/Yamamoto, Incorporated, Honolulu, Hawaii

Revised February 1982

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Especial thanks are extended to the staff of the Development Planning Office American Samoa Government for their continuing assistance. Needless to say, our appreciation is extended to members of the Governor's Bay Area Planning Committee who spent a lengthy afternoon discussion of this Plan

*MKGK/Yamamoto, Inc.
Honolulu, Hawaii*

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I. FINDINGS AND RECOMMENDATIONS: A SUMMARY OVERVIEW

The conceptual physical plan for the Pago Pago harbor lands is a management tool which aims to improve the use and development of public lands. It is part of the American Samoa Coastal Management Program. The responsibility for plan formulation lies with the Bay Area Planning Committee, chaired by the Lieutenant Governor, whose membership has been appointed by the present Governor of American Samoa.

A. Findings

The American Samoa Government has developed and continues to develop policies that aim to improve the social and economic well-being of the community. In this regard, the Government faces a fundamental problem in economic development; its territorial resources are limited and its environmental resources are fragile when altered or used.

1. Port Facilities

Existing port facilities are underdeveloped to meet existing needs of maritime commerce and fisheries. The commercial port requires additional berths, terminal facilities and backup space. By the year 2000, it has been estimated that the port area would require at least 12.5 acres, over threefolds its existing acreage.

The interisland dock and terminal require improvement in an area that is presently highly congested with mixed uses and traffic. While proposals have been studied regarding relocation of the terminal and dock, plans have been suggested to improve the existing dock and terminal area.

The expanding tuna fleet and the development of local fisheries indicate a need to improve the existing commercial port facilities. Steps are being taken to increase the capability of the dry dock at the Marine Railway to accommodate larger purse seine vessels. In addition, dock improvements are under study to provide infrastructural support to the local fishing operations.

2. Energy Facilities

The existing petroleum pier is a situational hazard and nuisance. The pier serves as the only dock facility to handle the discharge of petroleum products. The pier also serves as a fuel dock for the commercial fishing fleet and others. Relocation of these operations is proposed.

Another problem associated with energy-related facilities is the need to improve the transport of diesel fuel to the Satala power plant. The problem, however, is complicated by the fact that the Satala plant may change its mode of power generation from the existing diesel-fueled generators. Decisions have not been made regarding type of generators to be used at the plant. A parallel problem area is the imminent construction of a liquefied petroleum gas (LPG) storage facility and dock at the Anasosopo sanitary land-

fill site. This facility would require dock improvements as well as a shore-site storage facility. This facility maybe linked to the power plant; under such conditions, a transmission line would be built from the storage site to the Satala plant. The LPG company has obtained a lease agreement from the Government as well as a land use permit to commence site preparation.

A fourth problem area is the conceptual proposal discussed at a public meeting relating to the development of a floating refinery and off-shore storage complex. A tentative site has been selected for study within the inner harbor of Pago Pago Bay. No definitive plans or proposals have been submitted for review or for application of use permits.

3. Land Use Pattern

Fundamental changes in land uses have occurred within the harbor lands, altering the role of the downtown area of the island of Tutuila. Retail trade has not grown within the harbor area; major growth has occurred outside of the Bay Area following the movement of population towards Tafuna and West Tutuila. The biggest growth in the central area of the Bay is attributable to governmental offices.

The territorial policies to improve its port facilities and promote the development of local fisheries are seen as opportunities to alter the role of the central area, focusing on business and personal services, specialty shops, and restaurants catering to both tourists and Bay Area employees.

4. Highway Circulation

Due to the settlement pattern and the Bay Area topography, there is only one highway corridor to serve the area. This corridor is along the existing alignment of the coastal bayshore highway. Congestion is found along the south bayshore segment of the highway through the Fagatogo-Malaloe area. Congestion is due, in part, to traffic loading along the roadway, frequent turning movements, narrow roadway, pedestrian crossings and lack of separation of traffic.

Three options have been identified to improve circulation. The first is to retain the existing alignment and improve the capacity by installing traffic engineering improvements; the second is to reroute traffic within the Fagatogo-Malae area by passing the congested segment of the highway; and, the third option is to establish a two-way street system in the congested area of Fagatogo.

5. Public Land Management

Some 23 establishments occupy harbor lands that are presumed to belong to the American Samoa Government. These establishments do not have leases to use these public lands. In addition, leases have lapsed and have not been renewed. The focus of the problem of land management is unclear in regard to tenure, enforcement of leases, termination of leases, and eviction

of squatters and other illegal uses of government lands.

B. Recommendations

A conceptual physical development plan is proposed to implement the overall goal to focus improvement and use of the inner harbor as a "working port and safe harbor" and protect harbor natural resources, including water quality. Three plan elements have been formulated to implement this general goal.

1. Land Use Element

Major land use proposals have been delineated. These proposals were reviewed and discussed by the Bay Area Planning Committee. The following recommendations were adopted by the Committee:

- a. Expansion of the Utulei Beach Park.
- b. Conversion of the Petroleum Dock to Recreational Use.
- c. Expansion of the Commercial Port and Terminal.
- d. Improvement of the Interisland Dock and Terminal.
- e. Establishment of a Regional Business Center at Fagatogo.
- f. Establishment of a Small Boat Service Center at Malaloa.
- g. Expansion of the Commercial Center at Autapini.
- h. Establishment of a Territorial Park and Government Sub-Center at Pago Pago.
- i. Establishment of a District Park at Anasosopo.
- j. Reservation of an LPG Storage Site at Anasosopo.

2. Land Management Element

a. Harbor Zoning Plan

A harbor land use zoning plan is proposed to amend the existing zoning plan. Three use districts are recommended following the preferred set of uses adopted as part of the Special Management Area of the American Samoa Coastal Management Program. While the SMA covers only the inner harbor area, the three use districts are applied throughout the harbor area from Blunt's Point to Breakers Point.

b. Management of Public Lands

The private use of public lands within the harbor area re-

quires clarification in terms of ownership, use and management of public land leases. Appropriate governmental agencies should be consulted to determine ownership and to develop appropriate measures to secure the territorial government's interest in harbor lands.

3. Circulation Concepts

a. Establishment of Future Street Lines

In order to provide adequate roadway and traffic facilities within the Utulei-Fagatogo highway corridor, future street lines should be drawn to aid future improvements. In particular, the highway segment at Utulei and the segment from the Rainmaker Hotel to Autapini.

b. Traffic Engineering Improvements

Reduction of traffic congestion within the Fagatogo area can be economically achieved by introduction of contemporary traffic engineering devices. These devices include channelization and separation of traffic, limited loading and unloading zones along the highway, improved intersectional design, curbing, and traffic regulation enforcement.

4. Capital Improvements

All harbor lands are presently served by basic utilities, excepting the Anasosopo site where land use changes are imminent. Water and sewage collection services are unavailable at this site. Prior to the proposed improvements to the Anasosopo site, a schedule of improvements for utility services should be obtained.

B. Plan Management

Adoption and implementation of the proposed conceptual physical plan for harbor lands will require close coordination with a number of public and private agencies. The establishment of the management network implementing the coastal management program will facilitate the difficult process of development coordination.

The plan suggests a staging of improvements to make effective use of capital improvements to tie-in complementary developments, aid in the displacement and relocation of establishments, reduce economic hardships if any when improvements are undertaken, and to maintain the use of the highway on a continuing basis.

Note. This plan report has been revised to incorporate findings of the parallel energy facility siting and downtown Fagatogo study. In addition, developmental proposals for the inner harbor area have been noted, especially the conceptual scheme to develop a floating refinery and storage complex in the Bay. The date of this revision is February, 1982.

II. INTRODUCTION

A. Purpose

This land use planning project implements objectives enumerated in the following American Samoa Government plans:

American Samoa Coastal Management Program, 1980;
Economic Development Plan for American Samoa, FY 1979-1984.

These two territorial plans specify the need for a land use plan to guide and interrelate development and improvement of the Pago Pago harbor area.

The proposed land use plan is a conceptual physical plan of the Pago Pago harbor area which covers the samiside (seaward) of the trunk highway between Blunt's Point and Breakers Point on the island of Tutuila. The conceptual physical plan is to be used as a policy guide for future development of the harbor area and serves to integrate environmental and economic development policies.

B. Background

Pago Pago Bay, within which the study area is situated, is the urbanized area of the territory and the locus of governmental and commercial activities of American Samoa. The Bay is also the industrial center of the territory, with its deep draft harbor facilities and principal manufacturing activity -- fish processing. Accordingly, this area is the most intensive energy consuming locale and includes a fueling dock, petroleum storage and power generation plant.

1. Past Studies

Plans have been proposed to guide improvement and development of the commercial harbor and include a new oil dock proposal. The existing fueling dock is located on a site adjoining the major hotel and convention center of American Samoa. This fueling facility is inadequate and unsafe. A past study of maritime activities has suggested a new dock at Utulei, closer to the existing petroleum tank farm away from the inner harbor.

Previous studies of the Bay also include a territorial general plan project which included a recommendation that a development plan for the harbor area was appropriate and in fact necessary.^{1/} This recommendation was proposed in view of the basic problem associated with chaotic developmental patterns found in the Bay Area. While general land use zones have been delineated since 1967, the Samoan tradition of village and aiga autonomy is all pervasive and runs counter to western land management approach.

^{1/} Eckbo Dean Austin and Williams, Comprehensive Planning Study, American Samoa, 1974. This study recommended that no major facility or housing project should be permitted or constructed in the harbor area until a detailed development plan was formulated.

2. Current Studies

a. Electrical Power Generation Facility

Territorial energy needs have been summarized in a recent report entitled Energy Facility Siting. The Report concluded that additional power generating capacity would be required to support development within this decade.^{2/} Moreover, a liquefied petroleum gas (LPG) facility is planned for a Bay Area site. Power generation at the Satala plant is fueled by diesel-fueled generators. Some consideration has been given to the alteration of the Satala plant, including the substitution of LPG-fueled turbines. However, it should be noted that no definitive plans have been made.

Two options are under consideration. The first concerns the expansion of diesel-fueled generators. This option may include the expansion of the Tafuna facility over the existing plant at Satala. The second option is the substitution of a new generation method, using LPG. The new LPG facility is presently under construction at the Anasopo sanitary landfill site. A pipeline could link this facility with the power plant if a conversion were adopted. This option would permit, in addition, sale of steam to the fish canneries.

b. Fuel Handling Facilities

A parallel study of alternative siting arrangements, including a fuel dock, pipeline for transmission of fuel and a storage facility is underway. A preliminary report has been submitted delineating siting requirements and recommendations.^{3/}

The Report lists recommendations for the relocation of the fueling dock, offshore discharge of fuel and expansion of storage facilities. Several alternatives were delineated; however, a conclusive recommendation has been set forth. A new fueling dock is recommended for the Marine Railway and cannery area, served by a pipeline from the storage site at Utulei. An offshore discharge facility opposite the petroleum tank farm at Utulei is recommended, connected to the storage facility by a submarine pipeline.

c. Petroleum Refinery Proposal*

The present petroleum distributor in American Samoa has proposed a petroleum refinery facility for the territory. The proposal suggests a Pago Pago Bay site, using water storage facilities including the use of an oil tanker permanently moored for storage. Tentatively a site within the inner harbor near Satala has been selected for exploratory study. This proposal would dramatically alter developmental patterns and policies for the Bay Area.

^{2/} Action Resources, Inc., Energy Facility Siting, February 21, 1980, pp. 36ff.

^{3/} G.M. Meredith & Associates, Assessment of Fuel Handling Facilities, January 1982 draft report.

*Samoa News, July 3, 1981.

III. STUDY PARAMETERS

A. Scope of the Project

The focus of this land use planning project is on future uses of harbor-related land areas. Thus, all fast lands, samiside of the highway between Blunt's Point and Breakers Point, is the study area. Parallel and completed studies will serve as study inputs where appropriate and available, especially those related to the commercial harbor and port facilities.

While field surveys and studies are necessary to identify and measure the existing uses, the project relies upon the availability of existing data bases and public plans and documents. Two types of survey have been applied. A detailed land use survey of the fast lands on the samiside of the highway was undertaken; this survey was complemented by a sample survey of businesses and public agencies located within the harbor area.

B. Study Approach

1. Study Definitions Related to Harbor Lands

The following definitions, delineated within the American Samoa Coastal Management Program, guide the study and formulation of a conceptual physical plan:

a. Water Dependent Use

A use, activity or development which can be carried out only on, in or adjacent to water areas because the use requires access to the water body to function at all. Illustration of such uses is as follows: boat repair and manufacturing; piers, docks, wharves, ramps and mooring buoys; fishing; intake and outfall lines, including pump houses; beaches; and port administration.

b. Water-Related Use

A use, activity or development which is not directly dependent upon access to a water body, but which provides a good or service that is directly associated with a water dependent use. Examples of such uses are as follows: machine shops; marine sales and service; ship chandler and marine hardware; terminals and marine marshalling areas; custom houses; access to the shoreline, parking and comfort stations associated with beaches and related shoreline uses; marine laboratory; water tours/sports fishery; and cold storage and fish processors.

c. Other Waterfront Uses

Use or activity which is neither water dependent nor water-related, but which are compatible with water dependent and water-related uses and activities. These uses may include hotel, restaurants, fish sales, oceanarium, exhibit halls and recreation facilities, bait shop and fishing

supplies; and the like,

2. Study Elements

The study consisted of three basic elements. The first element identified issues and opportunities related to harbor and bay area development. The second element included formulation of objectives, strategies and approaches for guiding harbor development and improvement. The last element focused on the formulation of the conceptual physical plan alternatives and their assessment.

3. Study Procedure

The planning study proceeded within a general context of existing American Samoa Government (ASG) policies and plans. This project was part of the existing network of governmental policies that were identified in the American Samoa Coastal Management Program (ASCMP). Given this policy framework, the study procedure consisted of four basic phases.

a. Description of Existing Conditions

This planning phase had two components. The first component considered physical and economic conditions of the harbor area as expressed by basic use characteristics of available resources. The second component covered the institutional characteristics, such as policies and plans related to harbor land area development. These two components provided the basis for understanding issues and opportunities associated with harbor development. Two types of surveys were employed; a land use inventory of the samiside of the harbor area and a sample survey of establishments were undertaken.

b. Public Involvement^{1/}

Public involvement was a continuous planning activity and consisted of a sample survey of establishments that are located in the bay area and interviews with key public and private officials regarding harbor development and improvements.

c. Problems, Issues and Opportunities

A statement delineating issues, problems and opportunities was formulated to provide a tool for keying on priority areas and setting forth a general direction for harbor development and improvement. This statement assisted in focusing the planning on strategic issues and problems without being encumbered by number or complexity of developmental needs. Scenario development was an integral part of this planning phase. Two growth scenarios were studied to set the framework for future opportunities.

^{1/} In Fagatogo, the pulenu'u was consulted as part of the public involvement activity.

4. Estimation of Needs

Maritime and maritime-related facility needs have been identified directly and indirectly in a number of plans and studies. These resource materials provided the basis for identifying and measuring harbor area needs, where compatible with overall land use and economic development policies of the American Samoa Government.

These studies and plan proposals include:

Pago Pago Bay Area Master Plan (1975);
Preliminary Design for Pago Pago Harbor (1974);
Harbor Improvements, FY 1974-1981, Cargo Container Wharf and Storage Yard Expansion (1974);
Pago Pago Harbor Study and Recommended Program for Development, 1972-1982;
Pago Pago Commercial Port: Management, the Potential for Transshipment and Projected Land Requirements for the Container Yard (1980);
Energy Facility Siting, February 21, 1980;
American Samoa Fisheries Plan.^{2/}

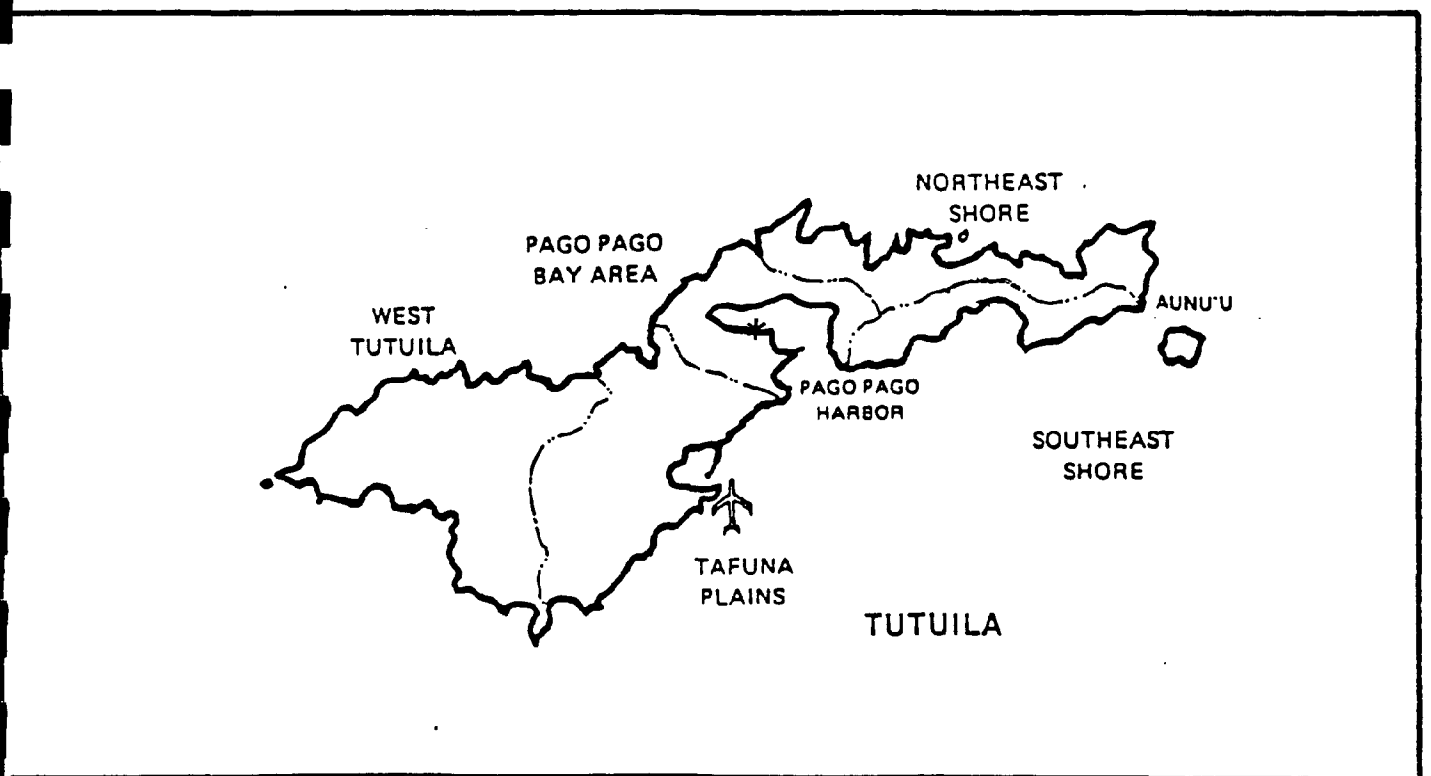
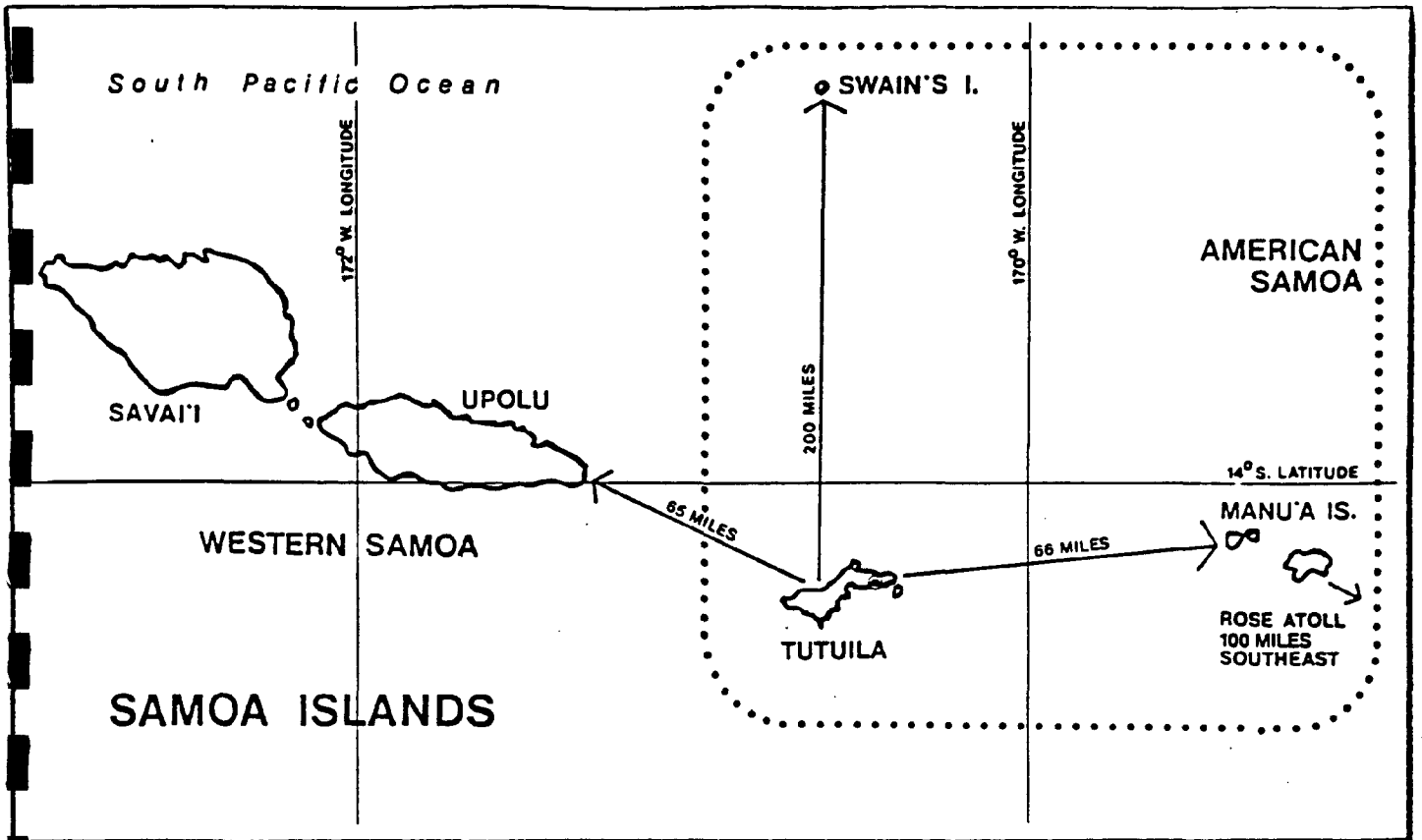
These many studies and plans were integrated by identifying common sets of assumption and projection relating to population and economic changes. No attempt was made to project new needs for port-related activities.

Non-maritime needs were based on independent but compatible estimation procedure. Several previous studies were used as a basis for setting forth scenarios to identify possible changes in terms of location and quantify of land use activities within the Pago Pago bay area. These studies and plans include:

American Samoa Territorial Comprehensive Outdoor Recreation Plan 1980 to 1985;
Economic Development Plan for American Samoa, FY 1979-1984;
A Land Use Plan for American Samoa, 1978-1983;
American Samoa Water Resources Study, Stage II Documentation January 1981.

These documents provide the basis for estimating future land requirements for the bay area. Two scenarios were delineated, each based on different set of social and institutional assumptions regarding development and improvement of the bay area. Both scenarios, however, were based on a common set of population and possible economic growth.

^{2/} This plan refers to the Office of Marine Resources, American Samoa Government documents and includes the five-year plan (FY 1979-1983).



1 PAGO PAGO HARBOR LAND USE STUDY
GENERAL LOCATION



North No Scale

AMERICAN SAMOA GOVERNMENT

IV. PAGO PAGO BAY: A DESCRIPTIVE PROFILE

A. Regional Setting

1. Location

The islands of Samoa are part of a volcanic ridge which extends for over 300 miles in the South Pacific. The islands of American Samoa, which contain about 76.1 square miles of land area, are located at about 14° south latitude and 170° west longitude -- refer to the general location map. The territory consists of seven islands, five of which are volcanic in origin and the other two are coral atolls. Tutuila, the largest and principal island of American Samoa, covers about 53 square miles or about 70% of the territorial land mass. Aunu'u Island, which lies off the east coast of Tutuila, covers only 0.6 square miles.

The three islands of Manu'a Group -- Ofu, Olosega and Ta'u -- lie 65 miles east of Tutuila and collectively contain some 22 square miles of land area. Swains Island which is a coral atoll is topographically a part of the Tokelau Islands and is located about 230 miles north of Pago Pago Bay, Tutuila. The other coral atoll is Rose Island which is an uninhabited national wildlife refuge located 160 miles east of Tutuila.

2. Climate

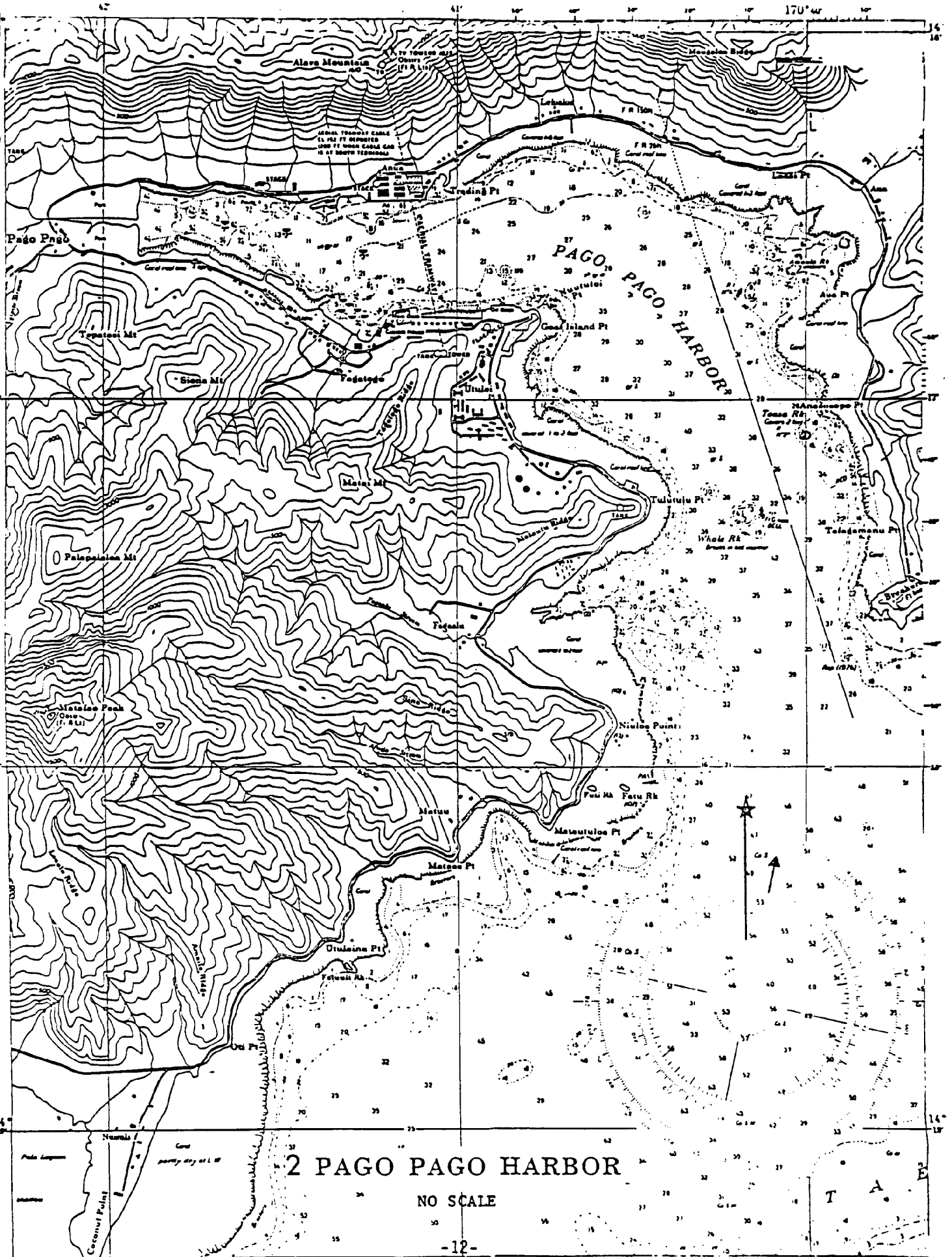
The island climate is tropical with only two seasonal variations. The hot and humid summer is from November to April and winter extends from May to October. While precipitation is high, there are dry periods extending up to three months during the winter season. The temperature varies little with an average annual variation of only 3°F. The mean annual temperature is about 80°F and the mean annual rainfall at the Pago Pago Harbor is 164 inches.

The easterly tradewinds prevail from the east-southeast and southeast direction. Tropical storms and low pressure systems occur more often during the summer months and include high winds moving into the territory from the north. In 1966, for example, hurricane magnitude winds had gusts over 110 miles per hour resulting in extensive property and crop damages.

3. Socioeconomic Character

The recent decennial census count revealed a territorial population of 32,395 (1980). Over 95% of the territorial population resides on the island of Tutuila.^{1/} American Samoa is a U.S. territory and is administered by the U.S. Department of the Interior. The Territory is an unorganized and unincorporated area with no organic statute. The people of American Samoa are U.S. nationals but not citizens; as such, they are ineligible to vote in national elections though they are permitted to travel freely in the U.S. without passports.

^{1/} Based on Development & Planning Office population estimates.



2 PAGO PAGO HARBOR

NO SCALE

The people of American Samoa elect a representative form of government, consisting of a two-house legislature, an executive branch and a judiciary although the traditional social structure of Samoa remains at the village level. The governor and lieutenant governor are elected for four year terms. Prior to November of 1977, territorial governors were appointed by the U.S. Secretary of the Interior.

The villages operate (for administrative purposes) as part of territorial governmental structure. This territorial structure consists of a network of three districts, 14 counties and 51 villages with territorially appointed mayors (*pulenu'u*). This sub-territorial network is administered by the Office of Samoan Affairs, American Samoa Government.

While this "local governmental" jurisdiction has limited authority, given the context of the traditional Samoan social structure, the leading *matai* (titled chiefs) occupy positions of prominence and authority. These titled persons exercise authority (*pule*) over *aiga* or family-owned communal lands. This authority extends beyond the scope of responsibility held by the village council (*fono*). The village with its group of extended families (*aiga*) is the locus of social and political responsibility. Significantly, these *aiga* lands collectively constitute 92% of the lands of American Samoa. Accordingly, the *matai*, as custodians of *aiga* lands, exercise control over vast amount of resources in a highly decentralized system of land management.^{2/}

The territorial economy reflects this enduring Samoan social system. The economy of American Samoa is in transition from a subsistence base to a cash economy. This period of transition is marked by the dominance of public expenditures and a weak private industrial base. In 1978, for example, almost 45% of the total employed labor force was on the payroll of the American Samoa Government. In addition, total employment for the same period was 8,302 persons when the estimated population was at 31,000 persons. This low participation rate suggests the importance of subsistence farming in the local economy as well as transfer payments.^{3/}

B. Pago Pago Bay Area

Pago Pago Bay is the largest and deepest embayment in the territory. The Bay began as a stream valley and as the sea level rose, this valley flooded resulting in one of the deepest and most sheltered harbors in the Pacific. The harbor is situated on the southshore of the island of Tutuila, almost midway between the two extremities of the island.

The inner bay, west of Nu'ututai Point, contains the commercial harbor as well as the locus of the commercial center of American Samoa.

^{2/} See A Housing Plan for American Samoa (1978) for discussion on tenure.

^{3/} There are no reliable measures of transfer payments. Interviews with local governmental officials indicate income transfers play a significant role in the local economy.

The Bay began as a stream valley and as the sea level rose, this valley flooded resulting in one of the deepest and most sheltered harbors in the Pacific. The Bay is surrounded by steep ridges and mountains that rise from sea level to elevations in excess of 1,400 feet. The bay drains an area of about five square miles, consisting of three major drainage basins.

The Pago Pago Harbor is situated on the southshore of the island of Tutuila almost midway between the two extremes of this island. The inner bay, west of Nu'ututai Point, contains the commercial harbor as well as the locus of the commercial center of American Samoa. This inner basin is well protected due to the configuration of the bay -- refer to the Pago Pago Bay map. The Bay itself is three miles long, 2,800 feet wide at its opening and has an average depth of 200 feet.

The Bay contains coral reef flats that fringe the perimeter of the harbor from Niuloa Point to Breakers Point. These fringing reefs provide a border to most of the Bay, even within the inner harbor at Pago Pago although extensive shoreline alterations have changed these features. A chronology of land reclamation projects within the bay area highlights the long history of shoreline alterations -- refer to Table One.

By 1973, it has been estimated that about 23% of the original coral reef flat area has been filled. Significantly, this constitutes up to 95% of the reef flat area within the inner harbor of the Bay.^{4/} In effect, most of the natural shoreline no longer exists.^{5/}

Heavy annual rainfall, when added to the low infiltration rates of the geological structure and the steepness of the topography, results in high stormwater runoff rates. As the settlement pattern extends into the higher slopes of the bay area, sedimentation and human settlement-wastewaters drain into the bay, considered the most stressed area in the territory.^{6/}

C. Pago Pago Harbor Area Features

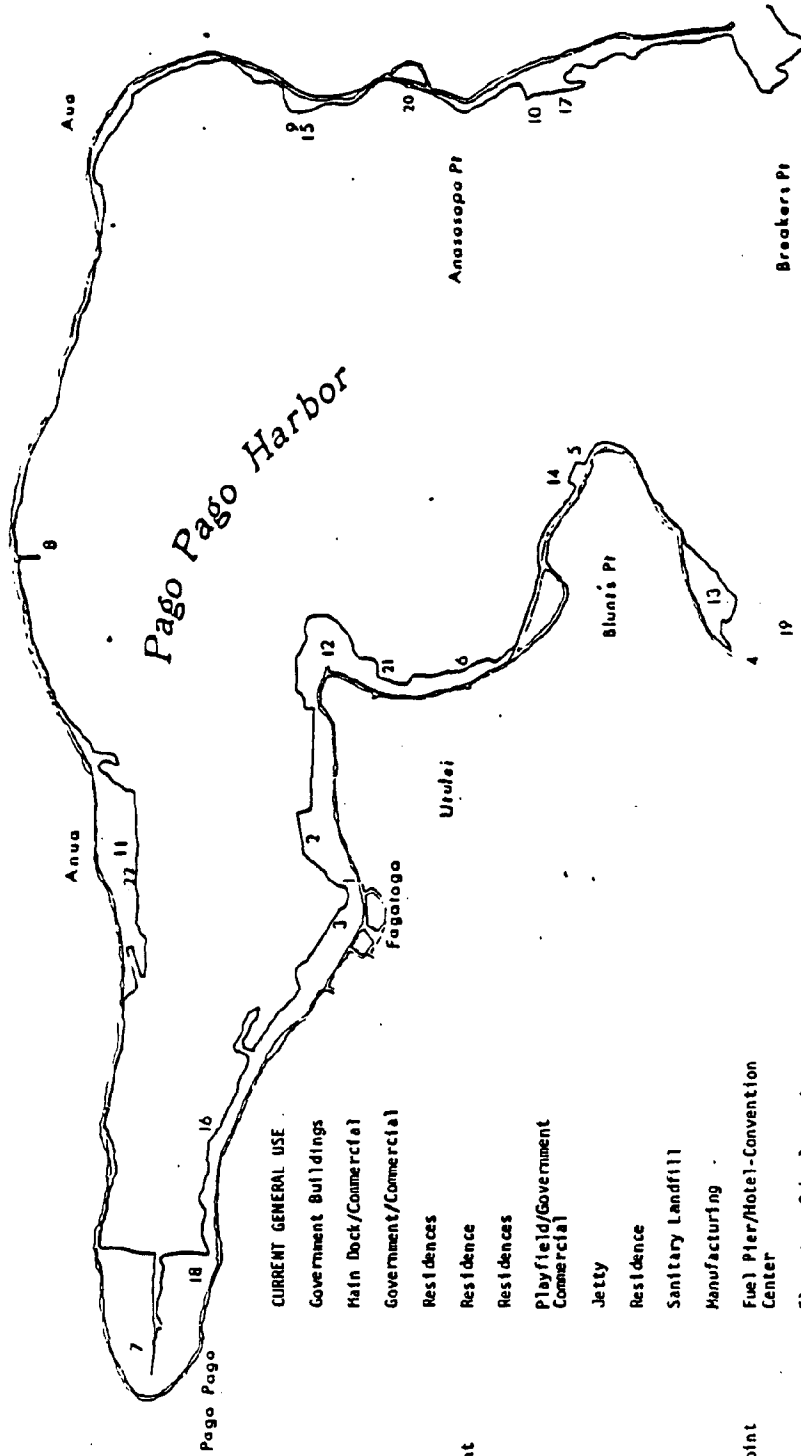
1. Existing Land Uses

A land use survey of the harbor lands was undertaken as part of this study. The study compiled available land use data which served as a base from which to delineate a visual inspection of the samiside of the harbor lands. All lands from Blunt's Point to Breakers Point were inspected, samiside of the highway.

^{4/} U.S. Army Engineer District, Honolulu, Final Environmental Statement, Corps Permit Activities, Pago Pago Harbor, Tutuila Island, American Samoa, October 1975, p. 10.

^{5/} Op.Cit.

^{6/} Aecos/Aquatic Farms, American Samoa Coral Reef Inventory (1980), p. 52.



NO.	YEAR	LOCATION	CURRENT GENERAL USE
1.	1898-1910	Fagatogo	Government Buildings
2.	1910-1919	Fagatogo	Main Dock/Commercial
3.	1929-1944	Fagatogo	Government/Commercial
4.	1929-1944	Faga'alu	Residences
5.	1929-1944	Blunt's Point	Residence
6.	1929-1944	Utulei	Residences
7.	1929-1944	Pago Pago	Playfield/Government Commercial
8.	1929-1944	Lealoa	Jetty
9.	1929-1944	Ava Point	Residence
10.	1929-1944	Anasosopo	Sanitary Landfill
11.	1940-1944	Anua	Manufacturing
12.	1944-1952	Nu'ututal Point	Fuel Pier/Hotel-Convention Center
13.	1952-1955	Faga'alu	Elementary School
14.	1952-1965	Blunt's Point	Residence
15.	1952-1965	Ava Point	Residence
16.	1952-1973	Autapini	Commercial
17.	1952-1973	Anasosopo	Sanitary Landfill
18.	1965-1973	Pago Pago	Recreation
19.	1965-1973	Faga'alu	Dock and Playfield
20.	1965-1973	Anua	Residence/Open Space
21.	1965-1973	Utulei	Recreation
22.	1974-	Anua	Manufacturing

Source: U.S. Army Corps of Engineers, Draft Environmental Statement, Permit Processing Guidelines to Control the Cumulative Effects of Shoreline Development in Pago Pago Harbor, American Samoa 1978

a. Land

The total land area, from the highway right-of-way to the Bay, from Blunt's Point to Breakers Point consists of 160 acres.^{7/} These lands, for the most part, were reclaimed by extending into the reef flats. A chronology of reclamation projects has been documented by the U.S. Army Corps of Engineers; a summary description is provided on Map 3a.^{8/}

These harbor lands offer the most accessible developmental sites in American Samoa. These lands are owned by the territorial government and they are situated midway between the two extremes of the island of Tutuila, the most urbanized and populated island of the territory.

The existing pattern of land uses reveals a diverse arrangement with open space dominating the bayshore at Pago Pago Park. For a general description of the existing land use pattern refer to Map 3. The diversity of land uses may be attributed to the incremental growth and development of the bayshore. The existing pattern of uses historically has not been materially altered by major redevelopment of the bayshore.

Fagatogo is the hub of activities and the initial settlement area when the U.S. government established itself in American Samoa. This non-Samoan settlement grew around the port area; for example, the initial reclamation projects were all in Fagatogo.^{9/} There is no single concentration of specialized land uses, excepting the port and its related activities. As the south bayshore area reveals, from the Rainmaker Hotel to Pago Pago Park, there is a mixture of uses including commercial, residential, governmental, marine industrial and open space/recreational activities.

The following table summarizes the existing land use pattern:

Residential Use	10.43 Ac	7.7%
Harbor-Related Use	28.95	21.3
Commercial Use	17.63	13.0
General Government	8.13	6.0
Parks & Open Space	42.56	31.3
Marginal Lands	28.07	20.7
TOTALS	135.77 Ac	100.0%

Open space, while a dominant feature can be categorized as being unimproved lands, especially at Pago Pago and Anasosopo. One striking character of the land use data is the size of the land area and uses found.

^{7/} Department of Public Works, List of G.A.S. Land by Village, nd.

^{8/} See source on Map 3a.

^{9/} The first three projects include the interisland dock area, the main wharf area and the present farmers' market area.

As the tabular summary of land use data reveals, there are only 135,77 acres of land available after deducting the highway right-of-way. Of this amount only 48% or 65 acres are highly improved lands, the remainder being in open space and parks. Moreover, the predominant land use within this category of land is harbor-related uses which constitute almost 29 acres or 45% of the total.

Locationally speaking, all commercial uses are found on the south bay-shore harbor lands while harbor-related uses are found on both shorelines. In fact, majority of marine industrial uses are found on the north bayshore lands at Satala and Atu'u-Anua (71.4% of the total in this category). For a detailed breakdown of land uses, refer to the appendix.

b. Floor Area

Available lands within the harbor area are not used intensively. For example, the overall land coverage found on harbor lands is only 13.6%. The following summarizes the various use categories:

<u>Land Use</u>	<u>Coverage^{10/}</u>	<u>Density^{11/}</u>
All Lands	13.6%	15.3%
Developed Lands	18.6	21.0
Residential Lands	21.9	23.6
Commercial Lands	20.7	31.1
Marine Industries	34.8	N/A
General Government	15.1	17.4

These figures indicate that land use in Pago Pago harbor area is relatively open with low density improvements. The highest land coverage use is found at the tuna canneries, where over 52% of the available land area is covered (this figure would be higher if piers and docks were omitted).

The distribution of land uses by floor area is distorted by the fact that the field inspection only included harbor lands. This survey area did not include portions of Fagatogo, Autapini, Pago Pago, Satala, Atu'u and Anua where there are non-residential uses, as well as at Utulei. For example, in 1977 there were 674 acres of land found in non-residential uses (commercial, industrial, transportation and utilities and public facilities).^{12/} However, the concern of this study focuses on harbor lands and their effective management.

^{10/} Coverage refers to the amount of land covered by buildings and structures.

^{11/} Density refers to floor area ratio; that is, the total available space found in buildings and structures over available land area.

^{12/} Development Planning Office, A Land Use Plan for American Samoa 1978-1983, American Samoa Government, August 1978, Table 7. This table is based on land use inventories conducted in 1970 and 1977.

The harbor lands are used principally for marine industry and open space which account totally for 66.4% of the land area and 54.9% of the floor space. The following tabular summary reveals the existing land uses:^{13/}

<u>Land Use</u>	<u>Land Area</u>	<u>n/N%</u>	<u>Floor Area</u>	<u>n/N%</u>
Residential Land Use	10.43 ac	9.7	107,175 sf	11.9
Commercial Land Use	17.63	16.4	238,894	26.4
Marine Industry Land Use	28.95	26.9	441,765	48.8
General Government	8.13	7.5	61,734	6.8
Open Space, Recreation & Related Land Uses	42.56	39.5	55,275	6.1
Totals	107.70 ac	100.0%	904,843 sf	100.0%

Marine industrial land uses dominate the existing use pattern within the harbor area, both in terms of land area and floor space. This singular fact is due to the large amount of space, comparatively speaking, required by the two cannery operations at Atua and Anua along the north bayshore lands. These two land extensive activities are water-related uses requiring dockside location to facilitate transshipment of resources.

c. Findings

The existing land uses show a low density, dispersed and strip pattern along the bayshore. The average coverage of land is less than 20% of the available area with the most intensively used harbor lands found at the cannery sites where land coverage exceeds 50% of the site area.

These findings are however somewhat misleading without a visual inspection of the harbor lands. The relative openness of the improvements found is due to the fact that there are few supportive and ancillary facilities associated with these uses, such as off street loading and unloading facilities, off street parking and integrated facilities. For example, some firms have separate facilities for offices, storage and trade activities, all within small structures in the same general area.

Few sites have specially designed parking and loading areas. The existing off street parking facilities are located at parking bays along the highway, paved parking lots and a roof top parking deck. Service roads are almost non-existent. Separation of traffic, especially at the interisland terminal, is required to facilitate movement and reduce hazards.

^{13/} There were no data available for existing floor area at the canneries. A field inspection of the site was not undertaken due to the unusual character of the improvements and operations; improvements were added incrementally. The land area shown includes dock and pier space. Measurements were taken from existing maps and represent reasonable approximations. Refer to the appendix for a detailed tabular land use display of the field survey findings.

1) The existing pattern of land uses reflects an incremental development and improvement of bayshore lands. At Fagatogo, there are improvements that indicate redevelopment of existing sites as exemplified by the Fono which replaced a recreational complex.

2) The strip development along the harbor from the hotel to Pago Pago Park appears to be a result of topography rather than the much discussed land tenure problem related to development in American Samoa. Uses found on both sides of the highway are both residential and non-residential in character. The ability of the territorial government to obtain land is shown by its use of available lands along the highway.

3) There is no major clustering of uses given the strip type development pattern. Additionally, there is limited setback away from the highway and limited curb and gutter improvements. There is frequent disruption of traffic along the highway as a consequence of no or limited building setback, parked vehicles on the shoulder of the roadway, frequent left turn vehicular movements, vehicles backing on to the highway, and uncontrolled pedestrian movements across the highway.

4) There is residential use of harbor lands in areas where other uses would be more appropriate. Governmental uses are found in many residential structures found along the highway at Fagatogo. The establishment of an administrative center at Utulei would provide opportunities to remove these structures and establish other uses.

2. Physical Improvements

a. Infrastructural Improvements

All harbor lands, excepting those areas northwest of Anua, are served by territorial water, sewerage and power services. The areas beyond Anua do not have sewage collection; the area beyond Aua Village does not have territorial water connection. Extensive changes have been proposed for the territorial sewerage system. Refer to Maps 5, 6 and 7 for displays of the existing service systems within the Bay Area.

b. Highway

The main trunk highway, which traverses the entire length (east-west) of the island, provides the arterial through the harbor area. It is a 30-foot right-of-way facility with two-lane roadway. Lane widths vary with no center line markings. The roadway is paved with asphaltic-concrete with bridges found at Pago Pago village area. These bridges have been found to be deteriorating;^{14/} other bridges were not identified.

^{14/} Enplan Corporation, Pago Pago Harbor Corridor Transportation Study (1971) and Hawaii Division, Federal Highway Administration, Inspection of Structures on American Samoa, 27 January 1981. The Department of Public Works will replace the steel girders at the Vaipito Stream bridge this year.

Available traffic counts indicate that the highest volumes occurred at the Court House (1980). The following summarizes the 1980 ADT (average daily traffic) count:^{15/}

<u>Zone</u>	<u>Number of Vehicles</u>
Port of Pago Pago	6,185
Court House	7,204
Spencer's DC Store	5,688
Golden Dragon Restaurant	4,879

These traffic volume counts indicate where the high traffic generating land uses are located. It is found within Fagatogo between the Port and Malaloa Pier at the Court House. The abrupt change of volumes between zones from east and west (1,516 and 1,019 vehicles respectively) suggests intra-zonal traffic movements across the traffic counter. There is no doubt that the Fagatogo area is the center of island traffic.

3. Bayshore Use and Character

a. Marine Facilities

The bayshore is presently improved with a number of marine facilities. These include piers, docks, small boat ramps, terminals and mooring facilities. These various facilities are shown on Map 8.

Recent improvements have expanded existing facilities at the Port of Pago Pago and the canneries. These improvements include the extension of the dock at the canneries and the removal of two housing units at the container terminal for container use.

The existing small boat launching ramps are found at the Office of Marine Resources site at Fagatogo and at Pago Pago Park. The launching ramp at Pago Pago Park is in disrepair and the ramp at Fagatogo is narrow and found within an increasingly congested area.

b. Shore Erosion

A comprehensive shoreline inventory, including a nearshore coral reef inventory, was undertaken in 1979-80 under the auspices of the American Samoa Water Resources Study, U.S. Army Corps of Engineers.^{16/} Critical erosion has been identified at nine sites: southern end of the Tafanani area; Anasosopo sanitary landfill; some areas from Anasosopo to Ava Points; Leloaloo; Malaloa; deterioration of revetment at Fagatogo; main wharf and new container yard; small craft pier and fuel pier; and at Matafao School.

^{15/} Highway Branch, Department of Public Works, American Samoa Government.

^{16/} Sea Engineering Services, Inc., American Samoa Shoreline Inventory, March 1980 and Aecos/Aquatic Farms, American Samoa Coral Reef Inventory August 1980 version, U.S. Army Corps of Engineers, Honolulu District.

The coral reef inventory identified problems related to the reclamation of land areas and continuing urbanization of the bay area. The extensive filling of the bayshore reef flats has reduced the water surface area, altering tidal exchange and prolonging residence time of harbor waters. The inner bay portion of the harbor is considered the most stressed environment due to poor water circulation and continuing inputs of freshwater, nutrients and sediments. The outer bay area is judged to have better environmental quality.

4. Land Management

a. Harbor Land Tenure

At the turn of the century and once again in May of 1921, the naval commandants of American Samoa proclaimed that a strip of land extending from Blunt's Point to Breakers Point, along the shore at high water mark with a uniform width of 15 feet distance inland, was condemned and appropriated for public uses as a "public highway." The American Samoa High Court held that the highway consists of all lands extending from the actual highway seaward to the highwater mark.^{17/} All lands samiside of the highway from Blunt's Point to Breakers Point are assumed to be territorial lands.

Field inspection of harbor lands identified over 39 different establishments using territorial lands. These non-governmental entities include residences, shops, boat sheds, taxi stands and the like. Moreover, there are two questionable land uses found at Autapini -- vehicle storage and container storage sites.^{18/}

Twenty-three establishments have cloudy tenure status. The following identifies these establishments:

<u>Type</u>	<u>Location</u>
Residences, 7 bldgs	Aua
Guest Fale, 2	Pago Pago
Residence, 3 bldgs	Pago Pago
Shops, 4 bldgs	Pago Pago
Restaurant	Autapini
Shops, 2 bldgs	Autapini
Vehicle Storage	Autapini
Shops, 2 bldgs	Fagatogo
Taxi Stands, 2	Fagatogo
Banana patch	Autapini
Samoan Village	Pago Pago

^{17/} Patrick J. Travers, Legal Authorities Available for Development and Implementation of an American Samoa CZM Program, nd Typescript, p. 22.

^{18/} The tenure status is cloudy due to lack of information relating to leases, if any. Additionally, it is uncertain if lease of the Samoan village area has been renewed; it terminated in 1978 and subject to renewal.

b. Land Use Controls

Territorial legislation relating to land use controls was adopted back in the Sixties. Only three areas have been districted for zoning purposes -- Pago Pago Bay Area, portions of Tula and Tafuna. All harbor lands have been zoned -- refer to Map 4 in the appendix. In addition, the recently approved Coastal Management Program for American Samoa designate a new management zone which provides an overlay special management area within the inner harbor area of Pago Pago Bay. This area is delineated as including areas west of an imaginary line extending from the Rainmaker Hotel to the jetty at Leloaloa.^{19/}

The existing zoning plan for the harbor lands was viewed as an interim measure, subject to improvement and modification, when first introduced and adopted in 1967. Since then proposals have been made to modify the plan; however, no amendments have been approved to date. The Coastal Management Program recognized this shortcoming and this study is an initial step to rectify this problem.

5. Summary Analysis: Harbor Land Use Perspective

This section provided a summary description of land uses and improvements found on harbor lands. However, these various descriptions tend to categorize the characteristics of use within the Bay Area. This closing paragraph attempts to integrate the findings into a broader study framework.

While land for non-residential development and use is limited due to topographic and institutional reasons, the existing land uses reveal a low density and coverage improvement pattern. The more recent improvements, however, reveal a more intensive use of land (e.g., the Burns-Philp building at Autapini). Moreover, there are few vacant structures or floor space; speculative building for non-residential space is not present in American Samoa. Only one building was vacant; a highly specialized recreational structure (bowling alley) remains vacant at Pago Pago Park.

The existing strip development pattern, together with the lack of building setbacks and controlled traffic movement, fail to provide a functional commercial core for a growing and changing local economy. Congestion along the highway is not due to roadway capacity alone; other contributory factors are frequent left-turn vehicular movements, uncontrolled pedestrian movements within limited sidewalk improvements, uncontrolled cross-traffic (e.g., at Burns-Philp and the canneries), loading and unloading on the roadway and related traffic behavior.

^{19/} Development Planning Office, American Samoa Coastal Management Program, (1980), American Samoa Government. This management overlay system alters the land use control procedure; the lead agency for the special management area is the Development Planning Office. It might be noted here that harbor improvements have been made in the recreation-conservation zone.

V. ISSUES AND OPPORTUNITIES

A. Summary of Findings

1. Marine Facilities

a. Port of Pago Pago

Several studies have been made to improve the commercial port.^{1/} The latest report provides an overview of the issues facing the port. The commercial port is contained in its possible expansion; expansion is limited to the west due to shoreline configuration and the Fono building. All previous reports suggest extension of the main wharf west-erly towards the existing petroleum dock, although the specific designs dif-fer. The latest design runs a tangent off the petroleum dock towards the main wharf.

1) Port Problems

The following highlights the problems found at the commercial port:

- Berth Congestion -- main wharf accommodates only one ship;
- Container Yard Deficiency -- inefficient layout and space;
- Traffic Mix -- cruise ships in port halt all cargo operations;
- Mix-Use -- transit warehouse used for non-maritime operations; and
- Petroleum Dock -- hazardous operation during off-loading.

Moreover, there is no overall port development master plan to guide the incremental improvements that are taking place. The harbor land use study is an initial step towards formulation of a general guide within which a port development plan can be formulated.

2) Analysis of Port Area

There is no vacant land adjoining the port. Therefore port expansion requires the relocation and/or removal of existing improve-ments and uses. Affected establishments are the fire station, a curio shop, a shoe repair shop, dairy product manufacture, five government housing units and other governmental facilities. Contingent upon spatial and circulation needs, all of these uses may require removal.

^{1/} Randall, Scanlan & Associates and Kelly Pittelko Fritz and Forssen (1972), John A. Blume & Associates (1974) and Rayacich and Rohlen (1980). While the reports differ in detail, proposals found are complementary and in many re-spects shared.

b. Fuel Handling Facilities

1) Discharge, Storage and Distribution

Two problem areas have been identified: hazardous use of the existing petroleum pier during discharge of vapor fuels (gasoline and jet fuel) and overland transport of diesel fuel to the power generation plant at Satala. A concurrent study describes these problems and offers specific recommendations.^{2/} Three proposals are offered: relocation of the fuel pier away from the existing dock; offshore discharge of petroleum products; and pipeline transmission of diesel fuel from Utulei to the Satala area for dispensing (power plant and fishing fleet).

2) Refinery^{3/}

A petroleum refinery has been proposed for the inner harbor area of Pago Pago Bay. The proposal by the Marlex Petroleum Company includes a floating refinery and storage facility near the power generation plant and fish canneries. The refinery plant would be built on a barge and storage facilities would be a converted oil tanker, permanently moored in the bay. A submarine pipeline would connect these two facilities. This proposal is based on a market assessment of South Pacific Basin needs; thus, it would serve other Pacific island communities.

c. Interisland Dock Facility

The existing interisland dock and terminal are considered substandard. There is insufficient space to handle passenger and cargo efficiently and maintain traffic and transport controls. Several proposals are under review, including the relocation of the terminal to Leone in Western Tutuila.

d. Small Boat Facilities

The Office of Marine Resources (OMR) has completed a fisheries development plan for American Samoa.^{4/} This plan includes the construction of a commercial fishing dock, improving the site at the OMR with a 300-foot dock.

The Malaloa pier (L-shaped mole) and yacht mooring area are viewed as a yacht service center. A small boat landing and yacht mooring area is also found at Faga'alu Bay outside of the study area but within the Pago Pago Bay. Two small boat launching ramps are located within the inner harbor area -- at the OMR and at Pago Pago Park. The OMR facility is a narrow ramp found in a somewhat congested area; the Pago Pago facility appears in disrepair.

^{2/} G.M. Meredith & Associates, Op.Cit.

^{3/} Presently an LPG facility is under construction at Anasosopo. This facility requires a docking facility as well. These two considerations may have far reaching environmental and navigational effects presently undefined.

^{4/} Draft Recommendations for Fisheries Development and Management, June 1980

2. Land Use and Settlement Patterns

Territorial development trends clearly indicate a shift of growth away from the Bay Area towards West Tutuila. Major commercial developments have occurred in Nu'uuli-Tafuna area outside of the traditional center of commerce -- Fagatogo. Past attempts at revitalizing the traditional center have not been too successful.^{5/}

The shifting settlement pattern follows the worldwide trend of continuing decentralization; the American Samoa settlement pattern is no different. Commerce follows the growth areas. This signals the changing role of the more traditional centers of commerce.

Contemporary concepts of commercial retailing suggest movement away from the former central area of Fagatogo towards Tafuna. The principal magnets of Fagatogo as a center of commerce is the commercial port and governmental activities; it remains one of the principal centers for public and private employment.

Since the previous land use study of the Bay Area in 1971, the major changes that have occurred in the harbor lands are the conversion of uses to governmental activities and government-initiated improvements such as the expansion of the Rainmaker Hotel and the convention center. Other improvements include the expansion of the B-P facility at Autapini and Soli's Restaurant. No major private complex, similar to the village shopping center at Nu'uuli, has taken place on village lands.

The existing settlement pattern found in the Bay Area is the sum total of incremental changes that have occurred in the past. There have been no comprehensive attempts at redevelopment of land; accordingly, the existing pattern is the result of historic and incremental development of harbor lands. With the increasing use of highway transportation and the rising standard of living, the existing pattern does not lend itself to functional arrangement of uses and improvements.

The use of automobiles and trucks require a more orderly pattern of development and functioning of settlements. The existing strip developmental pattern, with no or limited building setbacks, traffic control improvements, off street parking or clustering of uses, requires a major renewal program to accommodate contemporary land use practices.

Highway congestion is an often repeated observation. Remarkably, the highway moves a great deal of traffic. The 1980 ADT at the Court House in Fagatogo was 7,204 vehicles. In June of 1971, a traffic volume count was made during a 12-hour period. The peak hour occurred

^{5/} Kelly Pittelko Fritz and Forssen/Pollak, Barsocchini & Associates, Master Plan for the Fagatogo-Malae Commercial Area, Tutuila, American Samoa, February 1972. This plan represents a comprehensive attempt at redevelopment of the commercial core at Fagatogo.

between 3:00-4:00 pm with a reported 928 vehicles (service station in the Fagatogo area). Assuming that the vehicular count was at or near design volume given the traffic environment, the comparable average daily traffic volume was 6,187 vehicles or 86% of the 1980 ADT. In 1971, it was reported that there were about 3,000 vehicles; in 1980, there were 3,435 vehicles registered. The ADT increased at a slightly faster clip than registered vehicles during this 10-year period.^{6/}

B. Bay Area Public Policies

The American Samoa Government has an highly articulated improvement program for the inner harbor area. An umbrella policy is provided by the recently approved Coastal Management Program which identifies the inner harbor as a special management area. A management network and procedural mechanism have been prepared to implement provisions of the Coastal Management Program.^{7/}

The inner harbor has been designated as a working port and safe harbor, with water-dependent uses and activities having the highest priority. Specific steps have been identified to improve the "working port and safe harbor." These steps include the improvements to the commercial port, marine railway, commercial docks, Fagatogo commercial core, governmental center at Utulei and similar types of policies. A summary of these policies is provided in the appendix.

The existing zoning plan was initially adopted as an interim measure pending a more definitive development scheme for the Bay Area. This plan does not, however, appear to support the contemporary governmental policies for improving the Bay Area land uses. The commercial port area, for example, is designated as "commercial general" permitting a wide variety of uses including residences and public utilities. The remainder of the south bayshore area (excepting the hotel-convention center area) is zoned recreation conservation. The existing zoning plan requires updating to conform to contemporary land use and economic development policies of the territorial government.

C. Growth and Change in the Bay Area

1. Population Change

Preliminary counts from the 1980 Census of Population and Housing indicate that the center of population has shifted from Fagatogo to Nu'uuli. Regional Planning Areas 5 and 6 now constitute over 53% of

^{6/} Ibid., p. 21 and John E. Baerwald, ed., Transportation and Traffic Engineering Handbook (1976). Comparable ADT was estimated by assuming 15% K factor. The 1980 vehicle registration count was taken from the 1981 Statistical Bulletin.

^{7/} Office of Economic Development and Planning, Manual of Policies and Procedures, Coastal Zone and Flood Hazard Protection, American Samoa Government, December 1980.

the Tutuila Island population (regional planning areas 5 and 6 are Tafuna Plains and West Tutuila respectively),

Territorial population projections and the territorial land use plan suggest this trend will continue and by the year 2000, the western part of the island will house over 60% of the island population. Refer to the table on population change in the appendix. These projections assume a continuing outmigration of the population equal to or less than the natural increase of population. For example, during the decade of the Seventies the natural increase of population was 9,188 persons while the increase in residents was only 5,281.^{8/}

2. Growth Scenarios: Role of Pago Pago Harbor Lands

The American Samoa Economic Development Plan identifies the primary role of the harbor lands as a working port and safe harbor and commercial center for the entire territory. However, it has been noted that the role of commercial retailing within the Bay Area is changing; retailing activities follow population movements and population is moving west. Some adjustments, as well, have been considered in regards to the commercial port area.

An interisland terminal relocation to the westside has been discussed and a general assessment made.^{9/} Additionally, an exploratory study has been completed regarding the possible role of transshipment.^{10/} These and other conceptual roles of the harbor require some elaboration to set forth a possible set of roles that can be reasonably expected for the Bay Area.

a. Commercial Port of Pago Pago

Pago Pago Bay provides one of the finest natural deep draft harbor in the Pacific. This topographic fact however is seriously contained by the singular character of island land form; there is very little flat lands along the coastal plain. The size and character of harbor lands, especially at the existing main wharf, is limited with minimal land depth and traffic congestion, stemming from availability of buildable lands.

The port is contained on one side by the interisland dock and terminal and by the hotel-convention center on the other. The average depth, assuming a new pier line extending and tangent to the existing petroleum dock, is only 400 feet; however, with an apron width of 80 feet to accommodate contemporary dockside retrieval equipment, efficient layout for terminal facilities is seriously undermined. Accordingly, the role of the port is contingent upon availability of adequate land area as well as eco-

^{8/} 1981 Statistical Bulletin.

^{9/} U.S. Army Corps of Engineers, Leone Boat Harbor, Tutuila Island, Territory of American Samoa, Honolulu, Hawaii, March 1980.

^{10/} Rayacich and Rohlen, Op.Cit.

conomic opportunities.^{11/}

b. Commercial Core of American Samoa

Fagatogo is the traditional center of social, economic and political activities since the turn of the century. The introduction of foreign and western culture slowly altered the traditional settlement pattern found on the island where there was no principal village commanding the title capital of Samoa or even principality of the island of Tutuila.

Fagatogo represents the downtown of American Samoa where in one locale extending to Autapini, the single largest concentration of establishments are found providing a variety of public and private services. In 1971, approximately 29 acres were identified as the commercial area; today, the area contains about 31 acres. Twenty-two of these acres are found on harbor lands.

Since 1971, some 34,525 square feet of the available commercial floor area have been displaced by governmental actions within the harbor lands. However it should be noted that by 1981, there are well over 208,000 square feet of commercial space available within harbor lands or a net gain of 116,875 square feet since 1971. This gain, of course, is larger due to the expansion of the hotel-convention complex.

One remarkable study observation is the finding that there has been virtually no change in available commercial office space in the Fagatogo area since 1971. In 1971, there were 25,000 square feet of floor area used by offices; today, there are about 24,700 square feet of commercial office space. Governmental activities, by far, occupy most of the converted residential space in Fagatogo, especially those structures adjoining the Court House.

With the planned consolidation of governmental offices at Utulei and the contemporary trend of commercial retailing moving westward following the explosive new growth, the role of commercial core is altering its image. The focus of opportunities lies with governmental actions relating to the establishment of a governmental center at Utulei and the expansion of the Port of Pago Pago.

The relocation of governmental offices to Utulei will open up commercial and public floor area presently available in Fagatogo. The expansion of port improvements and activities will generate ancillary commercial services. Fagatogo will become the business center of the territory with retail expansion limited to specialty shops and commercial services, such as restaurants and business services. Major retailing expansion will occur outside of the Pago Pago Bay Area.

^{11/} Population projections relating to growth are statistical descriptions and are not supported by long term social and economic forecasts. It might be noted however that there are no reliable long term forecasts.

3. General Problem Statement

A number of interviews was undertaken as part of the study process to gauge the business climate of American Samoa. In general, despite repeated acknowledgement of the limitations and risks of investments in the Samoa everyone had a positive image of the future, especially in regards to their own business enterprises.^{12/}

However the perceptions regarding the general business climate is not as sanguinary. In fact, both governmental and non-governmental views have a common thread; it is the indecisiveness and the negative tone of government decisionmaking. There is general consensus on the direction of development charted by the territorial government; the problem lies with the inability to make timely decisions once a general direction has been charted. Moreover, there is the prevalent view that government fails to understand the impact of its decisions.

An illustration was drawn regarding this observation; it is one that was repeated at least two times by different interviewees. The government on one hand seeks to attract private investments; however, on the other hand, it sets forth policies that are perceived to be constraints to private investments. Public Law 15-69 (1978) was cited at least twice as a serious constraint. This statute concerns leases of government lands; the law requires any proposed ten-year or longer lease must be mandatorily referred to the Fono.

a. Policy Issues

Foremost on the minds of those interested in the social and economic development of American Samoa is the need for timely public decisions. Everyone assumes, though it is seldom made explicit, that the course of community development and improvement in American Samoa is through change. However, change is seen as a threat by the community. It means that the maintenance of *fa'a Samoa* would be seriously eroded. The key issue then in the development of harbor lands is to bring about change without seriously eroding the Samoan cultural process and structure vaguely called *fa'a Samoa*.

Adaptation is the key process for trading off conflicting policies. The American Samoa institutions must adapt in a selective fashion to accommodate change which in turn will enable community development and improvement to take place. For example, tourism is cited as an economic development opportunity which has yet to be fully exploited. And yet, this economic opportunity is recognized as conflicting with prevalent Samoan values and lifestyle. American Samoans apparently view tourism as a naked display of their culture. Tourism, it should be stressed, need not be viewed in this manner!

^{12/} Over a dozen interviews were conducted during the month of May 1981. A cross-section of public and private parties were interviewed. While the interviews are not considered a random sampling of views, they represent a consistent set of perceptions regarding the business climate.

1) Development Management and Direction

The several policy plans that are presently in effect have set the general direction of development of the harbor lands, particularly the inner harbor lands. Management of harbor lands, in effect, will implement these overall policy guides.

Two kinds of management issues are evident. The first type refers to the zoning of lands for guiding future development; the second involves the administration of harbor lands as real estate. Since the American Samoa land tenure system is peculiar to the territory, the provision of land for non-governmental use is an integral part of the territorial governmental responsibility. Both types of management issues are inter-related; and, it should be noted that these responsibilities are assigned to different territorial governmental agencies.

2) Land Use Pattern

The American Samoa Land Use Plan, 1978-1983 does not envision major land use needs for the Pago Pago Bay area. Of the total land requirement for the territory, Pago Pago Bay accounts for only 47 acres or 14% of the projected land needs.^{13/} Of the 47 acres projected for the Bay Area only 15 acres are for commercial and industrial purposes, the balance assigned to housing and community facilities. Moreover, this allocation represents a net withdrawal of 42 acres of agricultural lands; thus, only five acres may be identified with harbor lands (i.e., 47 acres minus 42 acres leaves five acres).

These five acres have been assigned as Transportation and Utilities.^{14/} Policies issues related to land use pattern center about two general problem areas: inappropriate use of harbor lands and the outdated arrangement of land uses found within harbor lands. The problems of land uses in Pago Pago Bay are products of historic change. The existing arrangement of land uses and improvements, in general, and residential use of harbor lands in particular are no longer appropriate in light of changing needs and transportation.

These changing needs require the expansion of certain industrial uses such as marine industries and the accommodation of greater use of motor vehicles. Due to the locational requirements of marine industries which require waterfront sites, there are few options available in the inner harbor land area. Moreover, due to the increasing use of motor vehicles the existing highway and servicing of land uses by vehicles require major alteration of the existing arrangement of uses and improvements.

^{13/} Development Planning Office, Economic Development Plan for American Samoa FY 1979-1984, March 1979, pp. III-25-41.

^{14/} Ibid., Table 10. Specific uses or locations were not identified in the Plan.

b. Functional Issues

1) Energy Facility Siting

Energy-related issues can be summarized as having four dimensions. The first concerns discharge and storage of petroleum products. Several proposals have been made regarding handling of petroleum products; however, to date, no definitive action has been taken. The existing petroleum dock is considered hazardous and the existing tank farm has limited expansion capability.

An LPG facility is planned at Anasosopo. This facility may be associated with the expansion and improvement proposals of the Satala power plant. Expansion of the plant may not be necessary if the existing mode of generation is maintained; the planned expansion of the Tafuna plant would provide a better alternative. However, if the mode is changed and the sale of steam to the cannery is made then expansion of the plant is warranted. No definitive plans have been made to date.

The third dimension refers to an energy corridor from existing and planned storage facilities. Several proposals have been offered: a transbay pipeline, a barge supply/storage option and a shorefront energy corridor. While no definitive plans have been adopted, the shorefront pipeline approach appears to be functionally more acceptable. The last dimension is the proposed floating oil refinery and storage concept in Pago Pago Bay. This proposal has both functional as well as environmental effects that, to date, have not been clearly identified and delineated.*

2) Highway Circulation in the Bay Area

Three general problem areas were found related to the issue of improving circulation within the Bay Area. The first problem area concerns highway capacity and routing; the second relates to traffic generation and land uses; while the last area deals with parking and loading facilities.

Highway capacity and routing were subjects studied in the 1974 Pago Pago Harbor Corridor Transportation Study. The study offered major changes to the circulation system by designating one-way streets and a truck by-pass along the shorefront of the Bay. The basic need for improved circulation has not been reduced since that study was completed. However, some basic changes may alter the rationale of these proposals; for example, the expansion of the container terminal has taken place with removal of two residential units but without accompanying traffic improvements. Increased traffic volumes on the highway has not deteriorated the movement of traffic; as previously noted, the 1980 ADT was 7,204 vehicles at the Courthouse.

Since 1973, there has been a net decline of commer-

*This proposal would alter storage requirements for petroleum products depending on the location and type of facility associated with the refinery.

cial vehicles; the decline is attributed to loss of buses and taxis registered to operate in the territory although there was an increase of 33% in registered cargo trucks. During this same period, there was an increase of 50% in the number of cases of tuna exported through the port. The point to this discussion is that highway capacity and routing are closely linked to the concept of traffic generation and land use.

Land use changes are, in fact, the basic purpose of this planning project. Major land use changes will alter transportation requirements while at the same time permit transportation improvements to become integral part of these anticipated changes. Consolidation of land uses can, in the future, reduce traffic by permitting many destinations with a single trip and by taking traffic off the highway and permitting roadway expansion. In short, the alteration of land use arrangements, improvement of site design and the reduction of roadway friction through improved traffic design should precede the active development of alternate routing of the highway. Land within the harbor area is in short supply; moreover, harbor lands are the key resource that can be mobilized to bring about developmental changes, especially in light of the American Samoa system of land tenure.

c. Summary Problem Statement

While the study area encompasses all harbor lands, that is lands on the samiside of the highway from Blunt's Point to Breakers Point, the focus of discussion has been on the inner harbor area wherein lies the major land use issues. Two basic elements of the issue have been discussed: the management of harbor lands and necessary land use changes to accommodate the revitalization of the Fagatogo area. This section summarizes the principal issues.

1) Management of Harbor Lands

To secure improved use of harbor lands, administration of real estate must be linked to overall developmental policies. The study of existing land uses identified inappropriate use of harbor lands, barrier to private investment on harbor lands, outdated zoning plan for harbor lands and inadequate management data on harbor lands.

2) Changing Land Use Pattern

The existing strip development along the highway, principally within the Fagatogo area, long range land use proposals for the harbor lands and shifting center of population all require closer scrutiny as the basic requirements for future harbor development become better defined. The role of the commercial port is being spelled out with better precision; the role of the commercial core is being better understood; and, the establishment of a government center at Utulei is taking shape. These basic policy changes will enable planners to suggest major changes in the arrangement and design of land uses within the harbor area. Circulation problems can be better understood once these basic land use decisions have been made.

VI, HARBOR LAND USE REQUIREMENTS

A. Existing Studies, Plans and Reports

As previously identified in Section III.B.4, a number of documents exists delineating problems and providing for alternatives to resolve problems. These documents serve as a basis for determining future harbor land requirements. The following documents were culled for appropriate policies and needs:

American Samoa Parks and Recreation Commission, Territorial Comprehensive Outdoor Recreation Plan, 1980-1985;
Bay Area Planning Committee, Bay Area Master Plan Report;
Blume, John A. & Associates, Preliminary Design for Pago Pago Harbor 74-Port Improvements, February 5, 1974;
Development Planning Office, A Land Use Plan for American Samoa 1978-1983, August 1978
Economic Development Plan for American Samoa FY 1979-1984;
Enplan Corporation, Pago Pago Harbor Corridor Transportation Study 1974;
Wendler, Henry O., Draft Recommendations for Fisheries Development and Management in American Samoa, June 1980.

Land use proposals, excepting conflicting proposals, have been delineated on a map -- refer to appendix, Map 10. There are three conflicting or unresolved policy issues. These refer to the role of the Pencillin Park, if any, in the port expansion proposal, proposed waterfront by-pass and the interisland terminal and dock area, and the role of Fagatogo Park in the rehabilitation of the commercial core.

Since publication of the Blume and Bay Area Planning Committee reports, the role of the Port of Pago Pago has been modified, expanding the possible future activity at the commercial port. Transshipment possibilities have been explored; accordingly, it has been proposed to extend the container terminal easterly and eliminating the Pencillin Park proposal and the Governor's Landing.

The proposed one-way pair and by-pass at Fagatogo are viewed as major highway improvements however at the cost of restricting the development of an interisland terminal facility area just west of the main wharf. The proposed alignment abuts the dock and runs parallel to the proposed commercial fishing dock. The role of Fagatogo Park is contingent upon the resolution of circulation (highway alignment and circulation pattern) and rehabilitation of the commercial core. For example, it may be advisable to relocate the park westerly to dramatize the Fono and the malae in light of proposed uses along the existing right-of-way.^{1/}

^{1/} See idealized site plan in the Fagatogo-Malae Master Plan (1972). This plan does not provide for a realignment of the highway.

B, Interpretation of Growth Scenarios

Territorial land use policies favor the development of the western part of the island of Tutuila where the bulk of developable land areas are available. As noted earlier, growth trends clearly support this general policy. The focus of development within the harbor lands is on commercial port development; possible roles have been identified. However, given the severe land constraints found within the Bay Area permitting only five to eight acres of additional land for port expansion, there is little room available for dramatic changes. In fact, even with the present expansion of the container space by 46,000 square feet container congestion persists (in some areas the containers are stacked four high).

With the anticipated increase in cannery production, additional container area is warranted today inspite of the fact that 46,000 square feet was added. Thus the area extending from the container yard to the petroleum dock is required to meet the expanding role of the commercial port. The dock extension will permit better and expanded use of the port; and, the added container space will permit more efficient handling of cargo as well as greater capacity. In short, the role of the commercial port is well defined. The more speculative area of concern in defining growth within the Bay Area is the changing role of the commerce.

Two factors that dramatize the anticipated changes in the commercial core is the establishment of a government center at Utulei and the growing development of commercial retailing activities outside of the Pago Pago Bay Area. Given these factors, three possible interpretation of future growth patterns were considered. These interpretations are governed by assumptions related to locational options available for private development.

1. Comprehensive Rehabilitation of the Commercial Core

This scenario includes a staged comprehensive rehabilitation of the commercial area, permitting the relocation of existing establishments as well as the formation of new establishments into new structures with improved circulation and off street parking facilities. Rehabilitation will occur on private as well as public lands, providing necessary space for realignment and widening of the highway. Some speculative office building may be possible.

This scenario is the best-of-all-worlds option, permitting a rationalization of developmental potential within the Fagatogo area. This scenario calls for the relocation of existing establishments in the Pago Pago park area as well as the Fagatogo area west of the Fono. Staging of development would provide for least disruptive effects.

Open spaces at Fagatogo and Autapini would be retained with opportunities for a comprehensive redesign of the commercial core highlighting the Fono and the waterfront. Existing open spaces may be altered either through relocation or change of size or dimensions.

2. Limited and Incremental Development of the Commercial Core

This scenario describes a small scale redevelopment process that is limited to public lands with minor improvements to the circulation system. The key assumption governing this scenario is that developmental decisions will be made on an ad hoc basis, reducing opportunities for larger scale development and major circulation improvements.

Essentially this scenario is a business-as-usual option, maintaining the existing pattern of strip and mixed use development along the highway. Some redevelopment will occur on public lands at Fagatogo-malae area with continuing encroachment of development into harbor lands. Circulation improvements may include a one-way pair of streets at Fagatogo but accompanied by limited road widening at other points along the highway.

3. Selective Redevelopment of the Commercial Core

This scenario assumes some public and private redevelopment, especially at Fagatogo-malae and on harbor lands permitting rearrangement of land uses and a redesign of the circulation pattern. These renewal projects will allow some clustering and consolidation of commercial uses with relocation of establishment from existing strip commercial areas.

Circulation improvements may be feasible with road widening or one-way pair of streets at Fagatogo, including off street parking and service areas. Clustering of commercial uses at Fagatogo will permit better traffic circulation by controlling left-turn movements and loading and unloading points along the roadway. Strip development will be limited and in some cases eliminated. Relocation of the farmers' market may be included as part of redevelopment area improvement, permitting more opportunities for traffic and land use changes.

C. Synthesis of Requirements

Evaluation of the three scenarios permitted the classification of these assumptions into probability curves. Scenario one is the idealistic option and one that provides the most opportunities for improving land uses. However, it is also the most improbable. Scenario two is the least disruptive option and, as such, it is the most probable. Scenario three lies in between the two previous options; it is neither overly optimistic nor highly probable. The third scenario was selected to determine land requirements, permitting some opportunities for improving land uses and yet maintaining some degree of probability.

1. Land Requirements

Analysis of existing land uses and previous land use studies showed that there was a net decline of commercial uses within Fagatogo harbor lands. This decline is related to public policies in the establishment of the Fono and expansion of public offices. This decline of commercial space however was accompanied by a rapid expansion of commercial space out-

side of the Bay Area, in particular the Nu'uuli-Tafuna area. Previous projections of commercial space in Fagatogo were not realized due to, perhaps, failure of government to institute required changes and improvements, inability of entrepreneurs to take advantage of market opportunities, lack of venture capital, and/or entrepreneurial risks were too high given the prevailing market opportunities. Interviews with members of the business community focus on two reasons for lack of expansion.

They tend to fault the government for not providing greater market opportunities for commercial expansion. Government is viewed as the key leverage in opening up opportunities for investments in American Samoa. Due to the scarce land market, expansion of commercial development in the Bay Area requires governmental assistance. However, it should be noted that venture capital was available to develop the shopping center at Nu'uuli.

It should be noted, as well, that previous improvement plans for the Fagatogo area favored commercial retail uses and improvements at the expense of water-dependent and water-related uses. Thus, in some respects, the lack of expansion of commercial uses (especially retailing, commercial retailing and warehousing) may have served to buy time to review maritime needs as well as commercial needs, especially in light of the territorial policies to promote port and port-related activities in the inner harbor area.

a. Determination of Future Requirements

A two-stage approach was adopted to determine future land needs within the inner harbor area. The first stage identifies the probable functional roles of harbor lands through interpretation of public policies. The second stage translated these functional roles into land uses and facilities.

1) Water-Dependent and Related Uses

Six major land uses were assigned to the water-dependent classification. These uses are fish processing and manufacturing, boat repair and manufacturing, commercial fisheries, interisland transportation commercial port and recreational boating.

2) Other Harbor Land Uses

Other harbor uses were not specifically defined in order to determine future requirements. It is not necessary to define uses since the issue is locationally rather than specific demand related. In other words, general categories of use were analyzed and projections were made based on population changes; these in turn were allocated through land use planning.

Land use needs for water dependent and related uses are based on projected harbor land use policies. The time horizon for require-

ments is to the year 2000. This long term time horizon will allow for re-development potentials and permit some measure of reallocation of land use under severe land limitations.

b. Estimation of Land Requirements

1) Priority Harbor Land Uses

The first order of priority is to improve and expand the commercial port facilities and land area. This priority was established in the Coastal Management Program of American Samoa which designated the inner harbor area as a special management area to guide development as a working port and safe harbor.

a) Commercial Port

Improvement and expansion of the commercial port include additional berthing space, enlargement of the container yard, improved terminal facilities for transit and transshipment of waterborne cargo and improvement to the port site plan. Spatial requirements for container yard improvement were independently determined.^{2/} A total of 5.2 acres are required for yard operations, including storage.

Additional berthing space will be achieved by extending the main wharf, running tangent to the existing petroleum dock. Improved port terminal facilities and backup area are required for transit and transshipment cargo handling, port maintenance, administration and parking. Improved dock area requires 2.4 acres and includes space for three berths. Terminal and backup space call for an additional 4.9 acres. The total land requirement, including docks, is 12.5 acres.

b) Interisland Docks and Terminal

Improvements to the existing interisland dock and terminal area have been proposed; in addition, relocation of the interisland terminal facilities have been proposed and studied, including locations at Leone in West Tutuila, Pala Lagoon and Fagasa Bay on the leeward side of the island. While the existing terminal and dock facilities are inadequate and difficult to control movement goods and people and separation of pedestrian and vehicular traffic, improvements are necessary in view of the indeterminate status of relocating the interisland terminal outside of Pago Pago Bay. The suggested dockside improvements include enlargement of berthing space; there are no specific shoreside improvements proposed. In light of the need for shoreside improvements, it is estimated that 1.5 acres are required to meet terminal needs and avoid any encroachment into the Fono area.

^{2/} Rayacich and Rohlen, Op.Cit. This study did not include need for improvement of the site plan for the commercial port. Traffic circulation and port security are items which require further study. The present mix of uses and constricted traffic patterns are incompatible with port activities.

c) Commercial Fisheries

A commercial fisheries dock and backup space are proposed for the Fagatogo waterfront at the existing Office of Marine Resources site. A 300-foot dock along the existing bulkhead line extending easterly is proposed. This facility requires backup space for shorefront support facilities. About 1.5 acres are required for this proposal.

Food processing and boat repair uses do not require additional harbor lands. For example, by 1987 it has been estimated that the capacity at the two canneries would be increased by 55% without materially affecting the existing two plant facilities. The only projected improvement is to extend the pier at Van Camp in order to provide space for cold storage; no other improvements are anticipated, excepting dock space for the purse seine fleet. Dock space will be provided at the Marine Railway adjoining the canneries.^{3/} This proposal maybe compatible with the recommended fuel dispensing facility suggested for this general site.

d) Other Water-Related Improvements

An improved yacht basin and service center are proposed for the Malaloa Pier and adjoining shorefront. It is estimated that one acre of shorefront land is required to provide sufficient space, including circulation and parking for a service center. The center would include minor boat repair, boat sales and service, and machine shops.

An LPG facility site has been approved for initial site preparation at the Anasosopo sanitary landfill. While there are no firm site plans submitted for review, one acre has been leased by the Government for this facility. This planned use is outside the designated commercial harbor area under the Coastal Management Program. Additional energy-related improvements are under consideration. A refinery and storage facility is under study for the inner harbor area. However, no provisions for this use is included within this planning project.

2) Other Waterfront Uses of Harbor Lands

There are land uses that are neither water-dependent nor water-related but are associated with waterfront activities in the Bay Area. The Bay provides an excellent locale for these uses; the Bay is accessible via highway and by surface water transportation. Moreover, it is near the center of population and uses have been well established there. Two general types of use have been identified.

^{3/} Improvements at the Marine Railway include enlargement of the existing dry dock as well as bulkhead line. The dry dock is planned to accommodate all of the fishing vessels presently making American Samoa a port of call. These vessels include the 2,200-ton Apollo class type tuna purse seine boats. These improvements, however, do not require additional harbor lands. Some consideration should be given to a fuel dock facility within this area.

a) Tourism-Related Uses

Relocation of the petroleum dock will provide opportunity to improve and expand the existing hotel and convention center complex at Nu'ututai Point. The petroleum dock, as presently improved, cannot be used to handle general cargo due to structural inadequacies.^{4/} The availability of the dock for tourism and recreation-related use ties in nicely with the overall territorial policy to upgrade the existing hotel complex. A multi-purpose pier is proposed that would permit a variety of future uses, including cruise and tour boats and sports fishery. It is estimated that the pier and an additional acre of harbor lands would be required for supportive facilities and off street parking and circulation improvements.

b) Regional Commercial Uses

Regional commercial uses -- retail trade and business services (offices) -- are tied to economic and population growth. Previous projections indicated a rapid growth if tied to comprehensive renewal of the Fagatogo-Malae area. However, as the field data revealed, these prospects were never realized.

Territorial growth is expected to increase with an estimated population of 50,000 by the year 2000. Using this estimate as a guide and assuming that an economic growth commensurate with this population size, commercial expansion of Fagatogo is highly probably. Two types of commercial uses have been identified for estimation purposes, trade and services as noted above.

The pattern of change for these two uses have not been spectacular. Analysis of changes are presented below:^{5/}

	Trade		Services	
	Actual	Projected	Actual	Projected
1971	4.57	N/A	0.88	N/A
1977	N/A	6.54	N/A	1.28
1981	3.10	7.11	1.00	1.50

^{4/} John A. Blume & Associates, Op.Cit., page 8.

^{5/} The figures shown in the table above are measurements of available floor area per capita of territorial population. The use of this measurement permits an indirect analysis of the relationship between economic and population factors. Data related to more direct measurements of economic activity in American Samoa are unavailable without costly field surveys. The indirect measurements are adequate for the general purpose of this land use study. The 1971 and 1977 figures were drawn from the Fagatogo-Malae Master Plan Study (1972). The projected 1981 figures were interpolated from the table on page 36 of the study. The 1981 actual measurements were calculated from the field survey.

These floor area per capita measurements reveal that projections in the past were optimistic, especially the expansion of retail trade in the Pago Pago area. It should be noted however that these projections were made on the assumption that comprehensive redevelopment of the Fagatogo-Malae area would occur during the projection period. This redevelopment did not occur; in fact, there was a loss of floor area inspite of the fact that hotel projections were realized during this period.

The decline in trade within the area is due to the shift in population towards West Tutuila, governmental expansion in the Fagatogo area displacing commercial uses, and the lack of commercial lands. One of the more positive aspects of change in the area is the expansion of business services (offices); again, the expansion was not as fast as projected. Is there a possibility of expansion of commercial uses?

Interviews with businessmen indicate that there is a general positive image of the role of commercial uses in the harbor area. This expansion however is contingent upon availability of harbor lands for commercial uses. It is estimated that retail trade can increase within the harbor area by some 50% (increase in the floor area ratio per capita); a similar expansion of business services is possible as well.

Retail trade expansion is tied to "shopping" goods in contrast with "convenience" goods; that is, the focus of expansion is on speciality stores and not on meeting daily needs of the residents. These stores feature goods and services that are not consumed or used frequently, such as, apparel, household appliances, home furnishings and the like. Also included in this group of establishments is food services (cafes and restaurants) that cater to the employees in the area and the island as a whole.

The projected floor areas are as follow:

Retail Trade:	4.65 SF/Capita @ 50,000 persons	= 232,500 SF
Business Services:	1.5 SF/Capita @ 50,000 "	= 75,000 SF
Total Projected Floor Area:		<u>307,500 SF</u>

c. Summary of Projected Land Requirements

Final estimation of land requirements is determined by setting forth site improvement standards in order to land coverage and off street parking requirements for commercial uses. The following improvement standards have been assumed: an overall floor area density of 1.0;

6/ This estimation approach is crude and not comparable to a market approach; however, for long range land use planning, it is adequate. The expansion factor of 50% was based on the assumption that improvements in the Fagatogo-Malae and commercial port area would take place. The increase in retail trade assumes a re-establishment of trade in the Bay Area.

a 50% coverage standard with a maximum height of two floors; and, an off-street parking standard that is about 50% of the national parking standard found in contemporary zoning ordinances.^{7/}

The following tabular summary provides total land requirements for harbor lands:^{8/}

Land Uses	Total Land Needs
Tuna Cannery	20.7 acres
Commercial Docks	3.0
Commercial Port	12.5
Yacht Center and Basin	2.0
LPG Facility	1.0
	39.2 acres
Hotel/Convention Center	11.0
Trade	10.67
Services (Offices)	3.44
Parking	2.47
	27.58
Government	4.0
Parks	45.0
Total Area	115.28 acres

^{7/} This assumption is based on a comparison of registered vehicles per household in Hawaii and in American Samoa (1.7 vehicles versus 0.5 vehicles). It permits an increase in registered vehicles by 70%. The modified national standards are: 0.125 space per 100 square feet of office floor area and 0.25 space per 100 square feet of retail trade floor area. The assumed floor area is 280 square feet per vehicle (90 degree self-park design). W.S. Homburger and J.H. Kell, Fundamentals of Traffic Engineering, ITS University of California, Berkeley, California 1977, Table 27-1.

^{8/} These land requirements do not include area for local commercial uses (convenience goods and services), light industrial or heavy industrial uses that are not marine-related and highway rights-of-way. These uses are assumed to be part of uses found on non-harbor areas. Warehousing uses are not included as well; the territorial policy is to encourage these uses to locate in the Tafuna Industrial park. The commercial core, including the hotel/convention center constitutes just over 27 acres or 16.58 acres without the hotel/convention center. The size of this core area is well below areas associated with a region serving 50,000 persons by mainland standards. However, given the population and size of the local economy, smaller land requirements are expected. It should be noted that even with this modest land requirement, there are insufficient harbor lands available without taking of the marginal lands and desirable open spaces, especially at Pago Pago Park.

VII. CONCEPTUAL PHYSICAL PLAN FOR PAGO PAGO HARBOR LANDS

The American Samoa Coastal Management Program has designated a special management area within Pago Pago Harbor. Executive Order 3-80 designates the inner harbor area as a special management area; the area is bounded by a line drawn across the Bay from Nu'ututai Point to the jetty at Leloaloe and on the main trunk highway which runs parallel to the bayshore -- refer to the Pago Pago Harbor Map. The outer harbor area remains in the general coastal zone management category.

The coastal zone of American Samoa is governed by three general categories of management policies -- government processes, development, and resources. In total, there are sixteen enforceable policies among these three general categories.^{1/} Of particular importance in this study is the development and resource policies of the program. These policies, while not specifically enumerated here, provide a general policy umbrella under which Pago Pago Harbor land use policies will be formulated.

A. Principal Issues

The focus of developmental policy is clearly on the inner harbor area where major economic assets are situated. The overall objective of the territorial government is to develop the area "in a way that emphasizes its value as a working port and safe harbor, and protects its natural resources, including water quality." This policy sets the framework by which development issues are identified.

1. Inner Harbor Coastal Management Policy

"The following use priorities shall be established in the Pago Pago Harbor as delineated by a line drawn across the bay from the Rainmaker Hotel to the jetty at Leloaloe and the main road paralleling the shoreline:

1. Water dependent-uses and activities shall have highest priority;
2. Water-related uses and activities shall have second priority;
3. Uses and activities which are neither water dependent nor water-related, but which are compatible with water-dependent and water-related uses and activities shall receive third priority. Such uses shall be encouraged to locate or relocate in other designated commercial, industrial or residential areas."

^{1/} Development Planning Office, Coastal Management Program for the Territory of American Samoa, American Samoa Government (1980). Executive Order No. 3-1980 was signed May 29, 1980 and the Manual of Policies and Procedures was published December, 1980.

2. Issues Discussion

Given the overall policy direction governing the use and improvement of harbor lands, three developmental trends have surfaced during the study of Pago Pago Bay. The first is the changing role of the commercial port with increasing emphasis being placed on transshipment and its economic development potential. The second trend is the encouragement of fisheries development by the Government and its attendant impact on available maritime facilities. Lastly, the Fagatogo commercial area is undergoing basic role changes with less emphasis in retail trade and more emphasis on business services and heavy commerce.

These trends suggest that the existing patterns of land use and infrastructural improvements are inadequate to permit opportunities to exploit these trends. The commercial port and terminal do not have sufficient room for expansion and redesign without major land use and facility improvements. The petroleum dock is used to discharge volatile fuel, causing a hazardous situation to arise each time a tanker is in port; while the use of the dock to dispense diesel fuel to the fishing fleet is a noisy nuisance to visitors staying at the Rainmaker Hotel. Moreover, the proposed floating refinery and storage complex proposal within the inner harbor suggests a number of functional and environmental concerns.

The changing role of retail trade in Fagatogo has dampened expansion of shopping facilities in the area. The environmental setting of the area is becoming less attractive as well in light of improvements found in other shopping areas; traffic congestion, deteriorating structures, limited landscaping of available open spaces, mixed land uses all contribute to a general appearance of disrepair and neglect. The trend of commercial uses in the Fagatogo area is shifting towards specialty shops, food services and business services; and, existing facilities do not accommodate an easy adjustment to this trend.

B. Harbor Land Use Objectives

1. Expansion of the commercial port and terminal to accommodate alternative roles in support of overall economic development of the territory.

The economic development policy of the Government is to encourage diversification of the local economy as a means to attain some measure of self sufficiency. The present single berth facility and limited terminal area constrain opportunities to expand the role of the port without undertaking major port and terminal improvements. Thus, the port must accommodate the existing character and future trend of shipping to establish itself as a regional transportation facility.

2. Expansion of the commercial docks to support the changing requirements of the commercial fishing fleet and local fishing boats.

Commercial fishing fleet which presently makes American Samoa a port of call is changing in number and size. The application of purse seine operations introduces a larger vessel with attendant impact on the existing

maritime facilities in the harbor. These vessels displace 2,200 tons with a length of 258 feet. Additionally, there are limited facilities to support small boat fishing industry, an activity that is presently being promoted by the Government. These shortcomings include commercial dock space and dock-side facilities.

3. Limited expansion of energy-related facilities within the inner harbor area and Pago Pago Bay in general.

The existing petroleum dock is part of a network of energy-related facilities, linking the pier via pipeline to the tank farm at Punaoa Valley. Its location adjoining the major hotel complex of American Samoa poses a situational hazard when tankers are in port discharging petroleum products, in particular, gasoline which is piped underneath the convention center to the tank farm. Additionally an environmental nuisance is present during the fueling operations at the dock. The fishing fleet uses the dock to take on diesel fuel; during the fueling process, the steady din of diesel engines can be heard by visitors staying at the Rainmaker Hotel. While colorful and interesting operation, it is hardly compatible with a major hotel operation. A parallel study recommends relocation of these energy-related operations to more appropriate sites closer to storage and terminal facilities.^{2/}

4. Establishment of a regional commercial center of the territory and of the South Pacific at Fagatogo.

Recent trends indicate the movement of retail trade out of the Pago Pago Bay area, following the growth of population towards the western part of the island of Tutuila. A major land use study of Fagatogo set forth steps that should have been taken to revitalize the area; however, these acts have not taken place. The stress on retailing may have been misplaced; the contemporary focus is on services -- personal and business. Accordingly, the market orientation is moving towards offices, restaurants, specialty shops such as tourist-related gift and duty free shops. The concept of a business center focusing on maritime business is a supportable developmental direction.

5. Enhancement of the hotel/convention complex serving the South Pacific business community as well as tourism.

Territorial policies are presently directed at dramatizing the

^{2/} A major developmental proposal has been introduced to the Government; a floating refinery and storage complex was described and discussed at a Territorial Planning Commission meeting last winter (1981). This proposal has far reaching implications for a number of facilities in energy-related areas as well as serious environmental concerns. The location, type and scale of such an operation will alter existing and proposed policies related to the commercial port, the inner harbor and energy-site facilities. The chief concern regarding the use of the inner harbor should focus on navigational and commercial port facility requirements. Energy facility requirements must be balanced in favor of navigational and port-related needs in order to retain the intrinsic advantage of Pago Pago Harbor.

tourism potential of American Samoa. Relocation of the fueling operation away from the existing dock will provide an opportunity to alter its use to a more recreation-tourism oriented activity. Also, as noted previously, the pier is not structurally capable of handling general cargo, suggesting that cruise ships, tour boats, sports fishery vessels and related boating activities can become an attractive substitute. Shoreside facilities would be required to accommodate this new activity; space is presently available adjoining the convention hall and governor's landing.

C. Harbor Land Development Strategy

Major catalysts for harbor land development are present today. The proposed establishment of a government administrative center at Utulei, extension of the main wharf to add another berth, construction of a commercial fishery dock and other proposals provide tools for directing, altering and improving developmental patterns within harbor lands and adjoining areas.

The development strategy is to use these major public improvements as leverages and catalysts to attract private investments and development within the Fagatogo area while releasing existing improved harbor lands for maritime uses. Elements of this strategy are a land use scheme, delineating a preferred land use arrangement for harbor lands; a land management program identifying policies that govern uses and improvements to harbor lands; and, a capital improvement program listing the improvements that provide support in achieving developmental objectives.

D. Conceptual Plan Elements

1. Land Use Element

Land use proposals are limited to harbor lands; that is, those lands that are found on the samiside of the trunk highway from Blunt's to Breakers Points. The proposed land use arrangements and location are found on the Land Use Element Map.

The following land use proposals were discussed and adopted by the Bay Area Planning Committee, an ad hoc committee established by the Governor to recommend proposals to improve and to guide development of harbor lands, on July 9, 1981.^{3/}

a. Expansion of Utulei Beach Park

This change in land use will triple the size of the beach park. However, the proposal will displace ten residential units by removal of four residential duplex structures and the conversion of one structure to a community center and yacht clubhouse. The total size of the proposed beach park is 3.3 acres.

^{3/} The Committee is chaired by the Lieutenant Governor and is made up of several agencies of the territorial government and members of the business community.

b. Relocation/Conversion of the Petroleum Dock

This proposed relocation will reduce the hazard associated with off loading petroleum products and enhance the recreational/tourism potential of Pago Pago Bay by converting the pier into a multi-purpose facility. Backup space would be required to support the conversion to a recreation oriented pier to accommodate the variety of activities associated with cruise ships, tour boats and sports fishery.

c. Commercial Port Expansion

Port expansion in an easterly direction from the main wharf will provide space for additional berths and terminal facilities, including opportunities for improving internal circulation and port security. The expansion will displace a number of buildings and uses found within the area.

d. Interisland Terminal and Docks

Immediately adjoining the westerly boundary of the commercial port is an area proposed for improvement as an interisland terminal. A new bulkhead line is proposed creating space for additional piers; also, backup space is needed for a terminal facility that would improve traffic and movement of goods and passengers under a secured environment. The required facilities may displace existing uses; two buildings have been identified as historic improvements.

e. Fagatogo Business Center

The open space immediately adjoining the territorial fono house and extending into the farmers' market area are proposed as the business center for territorial and regional commercial enterprises. This area includes lands to be vacated by the consolidation of administrative functions at Utulei (parcels adjoining the Courthouse south of the open space and farmers' market. The focus of use will be on business and personal services, specialty shops catering to a broader market, and food service for employees and visitors. The proposal will reduce available open space at Fagatogo and may result in displacement of uses.

f. Small Boat Marina and Service Center

The area immediately adjoining the farmers' market site is proposed as marina and service center; the site extends to the existing Malaloa Pier and yacht basin. This proposal provides a waterfront linkage to the existing local fisheries operation found at the Office of Marine Resources. Thus, the shorefront from Fagatogo to Malaloa will be designated for marine-related activities (that is, from the hotel to Malaloa). This proposal will result in displacement and/or relocation of buildings and enterprises; however, it will permit traffic and highway improvements to reduce hazards and facilitate traffic movements, including pedestrians. The displacement effects can be minimized by scheduling improvements to provide relocation opportunities.

g. Autapini Commercial Center

The area commencing at the Burns-Philp complex to the shore-side restaurant at Pago Pago is proposed as an expansion of the commercial retailing activities presently found on the southside of the highway. This land use proposal will permit an orderly expansion of the harbor lands and provide for a general improvement of the existing character and use of these lands. No displacement or relocation is anticipated; however, there may be land tenure problems associated with a small parcel east of the restaurant samiside of the highway.

h. Pago Pago Government Sub-Center

a three to four acre government complex is proposed for the Pago Pago Park adjoining and improving upon the existing public buildings. The site includes the handicraft sales, development bank building and the several public buildings associated with local government. It is proposed that a consolidated public safety building -- police, fire and corrections -- be located within this complex. The existing small boat launching ramp will be retained and upgraded with dock facilities that would permit the U.S. Coast Guard cutter and other rescue vessels to anchor safely. No displacement or relocation is anticipated; the site belongs to the Government.

i. Pago Pago Territorial Park

A regional park has been proposed for this site by the territorial government. There is, however, no specific site plan that identifies and allocates park uses and improvements. A 25-30 acre park is proposed in which expanded recreational opportunities will be enhanced by providing playfields, tennis courts, basketball and other court sports facilities, an area for the performing arts, walking and jogging trails, and the like. The proposal would displace some of the existing improvements and uses found on the site. There are, in addition, land tenure problems associated with many of these improvements and uses. Moreover, a by-pass highway has been proposed to facilitate traffic movement around the Bay, shortening the trip by some 2-3,000 feet.

j. Proposed Energy Facility Sites

A contingent land use proposal has been recommended to accommodate energy-related facilities. No facility, however, is recommended for the inner harbor, excepting an energy corridor to transport fuel to existing users (including relocation of the fuel dock to another site within the inner harbor). Three types of facilities are possible within the outer harbor area: an LPG storage facility and dock at Anasosopo, an offshore mooring facility to discharge petroleum products, and an energy corridor to transport fuel to large users. No provision has been made for a floating refinery and storage complex within the inner harbor; such a proposal should be viewed as an amendment to this general land use guide. An amendatory process would be part of the Coastal Management Program management system, enabling a comprehensive review of the proposal within the context of this plan proposal.

Expansion of the tank farm is possible at Punaoa Valley; additionally, it is possible to establish a tank farm outside of the harbor area as well. Another possibility is that some of the more volatile fuels stored at the tank farm could be stored elsewhere away from populated areas but retaining the heavier fuels at the existing site.

2. Land Management Element

a. Harbor Zoning Plan

The land use element serves as a guide to the establishment of specific land use controls governing the use and improvement of harbor lands. The existing zoning plan has been overlaid with a coastal zone plan that establishing a special management area and a general coastal zone. The coastal zone management concept is more procedurally-oriented, seeking to reduce or otherwise avoid environmental degradation of the Pago Pago Bay. A harbor zone plan would be much more specific in content in contrast to procedural policies. Accordingly, both types of policies and regulations are necessary to guide development within harbor lands.

The existing zone plan delineates four land use districts within the harbor lands (Blunt's Point to Breakers Point) -- recreation conservation; hotel; general commercial; and industrial general. The existing zoning code permits a wide variety of uses, going well beyond water-dependent, water-related and other compatible uses policy guide that was adopted as part of the coastal management program. The existing zoning code with its many land use districts and land use regulations are designed to govern land uses regardless of location; that is, it was designed to be applied throughout the territory.

The adopted land use and economic development policies have reduced the range of possible land use possibilities for these harbor lands. Rather than recommend a complex array of land use districts within these harbor lands, a district zoning plan may be more appropriate than to apply the provisions of the existing zoning code. Thus a harbor zoning plan is suggested to implement policies guiding the development of Pago Pago Harbor.

The zoning plan would be divided into the three basic uses identified in the coastal management plan, that is, water-dependent, water-related, and compatible uses. The water-dependent uses are set for the shore-front which is identified as being 200 feet horizontally inland from the mean high tide mark; water-related and compatible uses are designated beyond the 200 feet boundary from the mean high tide mark. Specific delineation of these sub-zones are identified on the harbor zoning plan map.

b. Land Management Policies

1) Harbor Zone Regulations

Rather than set forth a special set of regulations that implements the harbor zoning, it is recommended that the coastal management

program policies be followed. The program has developed a procedure that could serve to implement the harbor zoning plan; this would avoid setting up duplicate mechanisms and organizations.

2) Public Land Management

a) General Site Plans

Three general site plans are required to guide the development of harbor lands. These site plans cover the following areas: the commercial port area; the Fagatogo Business Center; and the Pago Pago Territorial Park area. General site plans are necessary to guide site improvements and to assure compatible development of adjoining areas. These general site plans should minimally include circulation and parking, land use arrangement and use density, and general location of utilities (energy corridor if appropriate).^{4/}

b) Private Uses of Harbor Lands

There are many private uses of harbor lands, legally, illegally and non-legally (tenure questionable). A more effective accounting method and enforcement of harbor land leases are required to support the more efficient use of harbor lands. Similarly, steps should be taken to clarify ownership of harbor lands at Autapini, Pago Pago Park and portions of Aua shorefront areas. In this regard, the removal of improvements can be phased to assure no hardships will be experienced and permit amortization of investments.^{5/}

3. Circulation Concepts

Three options are available for improving traffic movement in the bay area, in particular the congested Fagatogo-Malae-Courthouse area. The first option is to retain the existing alignment and to improve the roadway by widening and application of traffic engineering improvements. The second option is to establish a bypass at Fagatogo-Malae and closing the segment of the highway fronting the fono house. The third option is to establish a one-way pair of streets within the Fagatogo-Malae area.

None of these options alter the proposed land uses since a single traffic or highway corridor is assumed. In general, the existing alignment of the corridor is the only economic route available given the topography and existing settlement pattern.

^{4/} The overall design standards for land development in the bay area is as follows: 50% coverage, 1.0 floor area ratio and maximum building height of two floors or 30 feet in elevation whichever is lower.

^{5/} The Office of Material Management is well aware of the management of public lands. The office has identified harbor lands that have questionable tenure and/or lease status. The responsibility for clarifying this issue extends beyond this office.

a. Future Street Lines

Excepting for three areas -- commercial port, Fagatogo and Pago Pago -- the existing highway alignment will be retained. However, there are needs for additional rights-of-way for the coastal highway at several segments within the Pago Pago harbor area. These needs are enumerated below.

1) Right-of-Way and Intersectional Design at Utulei

The expansion of the beach park and the establishment of a government administrative center at Utulei consolidat major offices may require major highway improvements. These improvements must be designed to handle the traffic generated by these proposals in the future. In particular, left-turn movements northerly from Nu'uuli-West Tutuila may require additional right-of-way to channelize traffic. Moreover, the existing park-bays at Utulei Beach Park may require redesign to lessen roadway friction and facilitate traffic movement.

2) The Malaloa-Fagatogo Segment

This segment is the most congested along the bayshore highway. Moreover traffic separation is limited with pedestrian and parked vehicles sharing the right-of-way. Additional right-of-way is required to separate traffic as well as provide more roadway pavement to moving lanes of traffic, especially along the Malaloa portion of this highway.

b. Other Circulation Improvements

1) Realignment of the highway segment adjoining the commercial port is desirable in light of required backup space and the need to improve circulation into and within the terminal area. Realignment of the highway would provide for better vehicle and pedestrian separation as well.

2) Controlled loading zones along the highway are required to reduce roadway friction and facilitate traffic movement. Loading bays are preferable if right-of-way permits.

3) Some consideration of raised median strip from the Rainmaker Hotel to Malaloa should be included in the realignment and widening of the main highway. A raised median will provide space for landscape treatment, dramatically altering the existing character of the highway especially within the Fagatogo-Malae area.

4) Highway improvement, especially the south bayshore segment of the highway, should include curbs and gutters. This minor improvement will help separate traffic and limit uncontrolled turning movement into and out of adjoining parcels.

4. Capital Improvements

All harbor lands are served by existing utility system services excepting the following services and areas:

a. Territorial Water Service

The existing service system does not extend easterly beyond Aua Village. Land use proposals for the Anasosopo sanitary landfill site include the need for potable water.

b. Territorial Sewage Collection Service

The existing service does not extend easterly of Trading Point. Land use proposals for Anasosopo include the need for sewage collection and treatment/disposal.

Future utility plans call for the extension of services to the Anasosopo site; however, no specific schedule of improvements have been made. The proposed uses for the Anasosopo site are not high priority improvements. The south bayshore area improvements have the highest priority.

E. Plan Implications: General Assessment

1. Probable Effect of the Proposed Conceptual Physical Plan

The proposed conceptual physical plan for Pago Pago harbor lands is a management action that aims to improve economic development opportunities in concert with conservation and protection of environmental resources within the bay area. Individual actions or projects that implement elements of this proposed plan may have significant effects on the quality of the human environment, but these projects should be evaluated on an individual, case-by-case basis in accordance with the guidelines established in the American Samoa Coastal Management Program (ASCMP).

2. Probable Adverse Effects Which Cannot Be Avoided

The land use proposes will indirectly result in relocation and/or displacement of households and businesses, alteration of the shoreline and may shift potential environmental pollution to other locations within the harbor. The scale and duration of these effects are contingent upon specific project actions that seek to implement the plan.

a. Possible Displacement and/or Relocation Effects

1) Households and Residential Structures

28 Residential Structures
34 Households

2) Establishments and Structures^{6/}

36 Structures

43 Establishments, including governmental agencies

b. Alteration of the Shoreline

1) Energy Facilities^{7/}

A new petroleum dock may be proposed to replace the existing dock at Fagatogo; however, an off shore single-point mooring facility may be substituted as a feasible alternative. An LPG facility with docking facility may be proposed.

2) Harbor Facilities

a) Dock Extension, Commercial Port

A new concrete wharf is proposed to expand the commercial port berthing capacity. The dock will extend 1,270 feet and will be 75 feet wide. The enclosed shallow reef area immediately shoreward of the proposed concrete dock will be filled to provide backup area for the port terminal. The fill will bury about three acres of nearshore habitat.

b) Dock Extension, Interisland Dock

A dock extension at the interisland terminal is proposed. Approximately 193 feet extension is proposed to meet the existing concrete quay. Some backfilling and dredging are required depending upon the final design of this facility.

c) Commercial Fishing Dock, Fagatogo

A 300-foot dock has been proposed at the existing Office of Marine Resources site in Fagatogo. Specific design features are unavailable.

d) Commercial Fishing Dock, Marine Railway

A 450-foot dock has been proposed at the Marine Railway. Initially, a concrete slab 450 feet by 40 feet adjoining the proposed dock site would be constructed to provide a facility for maintenance of purse seiners' nets. No specific design features have been drawn.

^{6/} This initial count does not include structures and establishments located south of the harbor lands across the bayshore highway.

^{7/} A parallel study will assess the effects of energy facility siting within the harbor lands.

e) Dock Extension, Van Camp Dock

The proposed extension will be approximately 216 feet by 223 feet and will be supported by concrete piles. The design does not include any dredging or filling; the west side of the proposed dock abuts existing landside facilities.

3. Land Use Relationships

a. Proposed Land Use Allocation

The following summary provides a description of the proposed land uses in contrast to the existing pattern of land use:

HARBOR LAND USES	Existing	Proposed
Docks and Piers	4.4 ac	8.6 ac
Water-related Uses	24.5	32.11
Other Water-related Uses	11.0	27.5
Non-Harbor Uses	25.1	10.62
Open Space/Parks	42.5	42.35
Highway R/W	24.5	25.82
Marginal Lands	28.0	17.11
Totals	160.0 ac	164.11 ac

The proposed land use allocation increases the amount of land assigned to maritime uses by 71%, reduces non-harbor uses by 57%, maintains open space, reduces marginal lands by 39%, and increases highway rights-of-way by 5%. The proposal will reclaim three acres of shallow reef area in the shore-front at Fagatogo and construct 4.2 additional acres of docks and piers.

b. Significant Impacts

The proposed land use changes will have minimal direct impact on the existing human environment. Major institutional mechanisms are being developed following the adoption of territorial plans and policies related to environmental management and economic development. The proposals will not significantly impact on the previously proposed institutional arrangements and policies since they are consistent with and implement these policies.

The significant impacts are indirect in character and the specific measurements of these indirect impacts await project actions since the proposed policies are management-related. A brief description of possible effects have been identified previously (refer to Section VII.E.2.). As a management plan, the proposed actions aim at promoting economic development while balancing these aims with environmental conservation and protection.

The proposed action provides guidelines for the improved use of all harbor lands within the Pago Pago Bay. While the focus of this

proposal is to expand maritime facilities to enhance the economic developmental potential of the territory, steps were taken to balance these types of actions with other interests through better land use arrangements and access. It is noteworthy that no significant decline in open space and parks has been suggested; moreover, shoreside improvements parallel the shoreline and are assumed not to alter the existing poor circulation patterns of harbor waters. The reclamation of three acres of nearshore shallow reef habitat has been judged to be insignificant.^{8/}

4. Alternatives to the Proposed Action

Efforts by the territorial government to improve the bay area were initiated over a decade ago. There are several alternatives that are possible regarding the bay area. At least two of these alternatives have been attempted in the past. These efforts have not been successful. The present alternative, however, has been preceded by an adoption of the environmentally-related coastal management plan.

a. The No-Action Alternative

Previous studies all indicate that the existing pattern of land uses and the ad hoc character of land development in the harbor area are inefficient and uneconomic, especially in view of the limited resources and economic opportunities found in the territory. A no-action alternative will not alter this problem.

b. Comprehensive Bay Area Plan Alternative

Prior to the adoption of a coastal management program for the territory, it has been suggested that a comprehensive plan for the bay area (especially a comprehensive land use plan) should be developed and adopted to improve the environmental character of the bay and its adjoining watershed. The adoption of the coastal management program with its policies and procedures has reduced or altered the need for a comprehensive plan.

The coastal management program provides for a guidance policy, a management network, and a procedural mechanism to review developmental proposals throughout the territory, and especially within the inner harbor area which has been designated as a special management area. The adoption and implementation of this program has permitted another alternative to a more comprehensive land use study.

The harbor land use plan is a limited planning approach, which aims to guide the use, improvement and change of publicly-managed harbor lands. This alternative recognizes the cultural and institutional character of American Samoa today. A system of environmental resources

^{8/} U.S. Army Corps of Engineers, Public Notice No. PODCO-0 1571-S, 16 May 1980, Honolulu, Hawaii, page 2.

management is being superimposed on an existing institutional setting that is dramatically different in values, procedures and organizational makeup. A period of institution building is a necessary step before any arbitrary adoption of non-Samoan approaches to environmental management is made. The social and economic advantages of this partial approach to resources management outweighs the logic and rationale of a more comprehensive bay area land use planning approach.

5. Relationships between Short and Long Term Use and Productivity of Harbor Lands

The purpose of this action is to balance the needs for community development and the preservation and protection of harbor resources. There presently is no land use plan governing the use and improvement of harbor land resources. The proposed action is a practical step towards securing a balance between conflicting ends regarding the uses of harbor lands. This proposal has been preceded by the adoption of a coastal management program which sets forth policies, standards, and procedures accompanied by a new institutional mechanism to implement these policies. The proposed conceptual physical plan serves to implement the program by articulating its policies within a specific geographic area and special management area.

6. Irreversible and Irretrievable Commitment of Resources

The adoption of the proposed action would not result in any irreversible and irretrievable commitment of resources. The proposal is a management action which seeks to guide development and control uses of harbor lands, balancing the needs of community development and the preservation and protection of environmental resources. Individual actions that aim to implement policies of this proposal will result in commitment of resources, however evaluation of that commitment will be made on a case-by-case basis via the procedures set forth in the coastal management program permit review process.

7. Description of the Environmental Setting

This proposal is part of the existing coastal management program. Moreover, it is a management plan proposal. Accordingly, reference is made to the environmental description provided in the final environmental impact statement accompanying the American Samoa Coastal Management Program document. The following is provided to supplement that document.

a. Historic Resources

Four sites found within the harbor area are listed in the National Register of Historic Places. Two of these sites are on harbor lands -- U.S. Navy Buildings 38 and 43 (communications and post office/commissary facilities, respectively). The Territorial Register of Historic Places includes seven other sites found within the harbor area. These sites

are old graveyard at Satala, the territorial courthouse, U.S. Navy buildings 45, 72 and 31, the Fagatogo malae, first U.S. flag site in Fagatogo, and the naval guns at Breakers Point.

b. Utilities: Sewage Collection and Disposal

A sewerage system serves the western perimeter of the harbor from Pago Pago to Faga'alu since 1968 and has since been extended to Atu'u where the two tuna canneries are located. This system has a primary treatment facility with an outfall off Ututafa Point. Areas west of Atu'u (Aua) are served by septic tanks.

The major source of harbor water pollution is related to the number one private industry in American Samoa -- fish processing. Commercial ship traffic and the fishing fleet also contribute pollutants to harbor waters; shipboard waste discharges are difficult to control.

Organic solids from the tuna canneries are now being hauled out to sea for disposal. Wastewater Facilities Plan has been prepared providing alternatives for wastewater treatment. The proposal calls for the extension of the system to Aua Village and beyond. No schedule of improvement has been made.

c. Vegetation and Wildlife

The U.S. Fish and Wildlife Service Survey did not recommend any areas for consideration as wildlife refuges or sanctuaries, natural areas or parks within the harbor lands.

d. Shoreline Erosion

A comprehensive shoreline inventory of Pago Pago harbor and elsewhere was completed in 1979. The results, as they pertain to the harbor lands, are listed below:^{9/}

<u>Location</u>	<u>Problem</u>	<u>Classification</u>
Tafanai	Eroding scarp road threatened	Critical
Ava Point	Eroding scarp road threatened	Critical
Aua	Eroding scarp be- hind revetment road threatened	Critical
Leloaloa	Collapsing grouted riprap, road threat- ened	Critical
Malaloa Pier Yacht Basin	Eroding scarp	Critical

^{9/} American Samoa Shoreline Inventory (1980).

West of main wharf	Collapsing riprap	Critical
East of main wharf	Deteriorating revetment	Critical
Fuel Dock	Eroding scarp failed revetment	Critical
Utulei Beach Park	Seawall collapsing	Public hazard

e. Oceanographic Characteristics

Tsunami runups have been reported in the harbor area. In the 1960, for example, the Chilean earthquake produced a runup of three to five feet at the harbor entrance and ten feet at the head of the harbor. This tsunami had a period of 20 minutes. Reported tsunami water levels varied from 4 feet at the harbor entrance to 16 feet at Pago Pago Park. Pago Pago Park is site for a potential by-pass highway and public buildings.

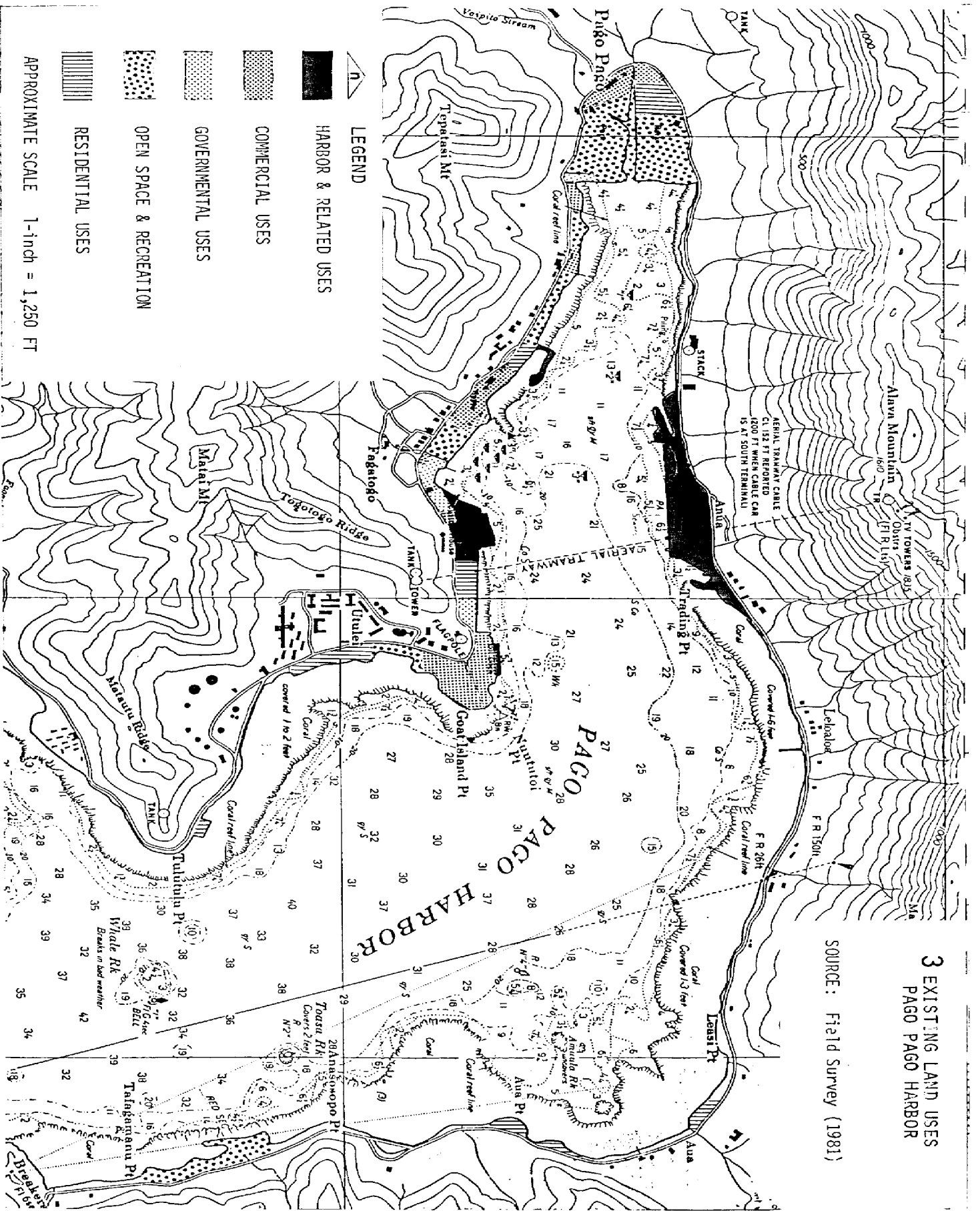
Water currents within the harbor are dependent on tidal fluctuations at deeper depths and wind shear force at the surface. Surface water currents move in the direction of the prevailing tradewinds and can override the outflowing tidal currents at ebbtide,^{10/} The Pago Pago harbor is not viewed as a vertically well-mixed estuary; tidal and wind influences are insufficient forces. Different types of energy facilities are being reviewed at various sites within the harbor; these facilities will handle petroleum products. Petroleum products are transported by water carriers, requiring off loading, storage and transshipment/transmission facilities on or near the shoreline.

^{10/} Kennedy Engineers, Report on Waste Disposal in Pago Pago Harbor, Tutuila American Samoa for Starkist Samoa, Inc. and Government of American Samoa, June 1964 and Updated Report on Wastewater Disposal, Pago Pago Harbor, Tutuila American Samoa, 1972.

APPENDIX

**3 EXISTING LAND USES
PAGO PAGO HARBOR**

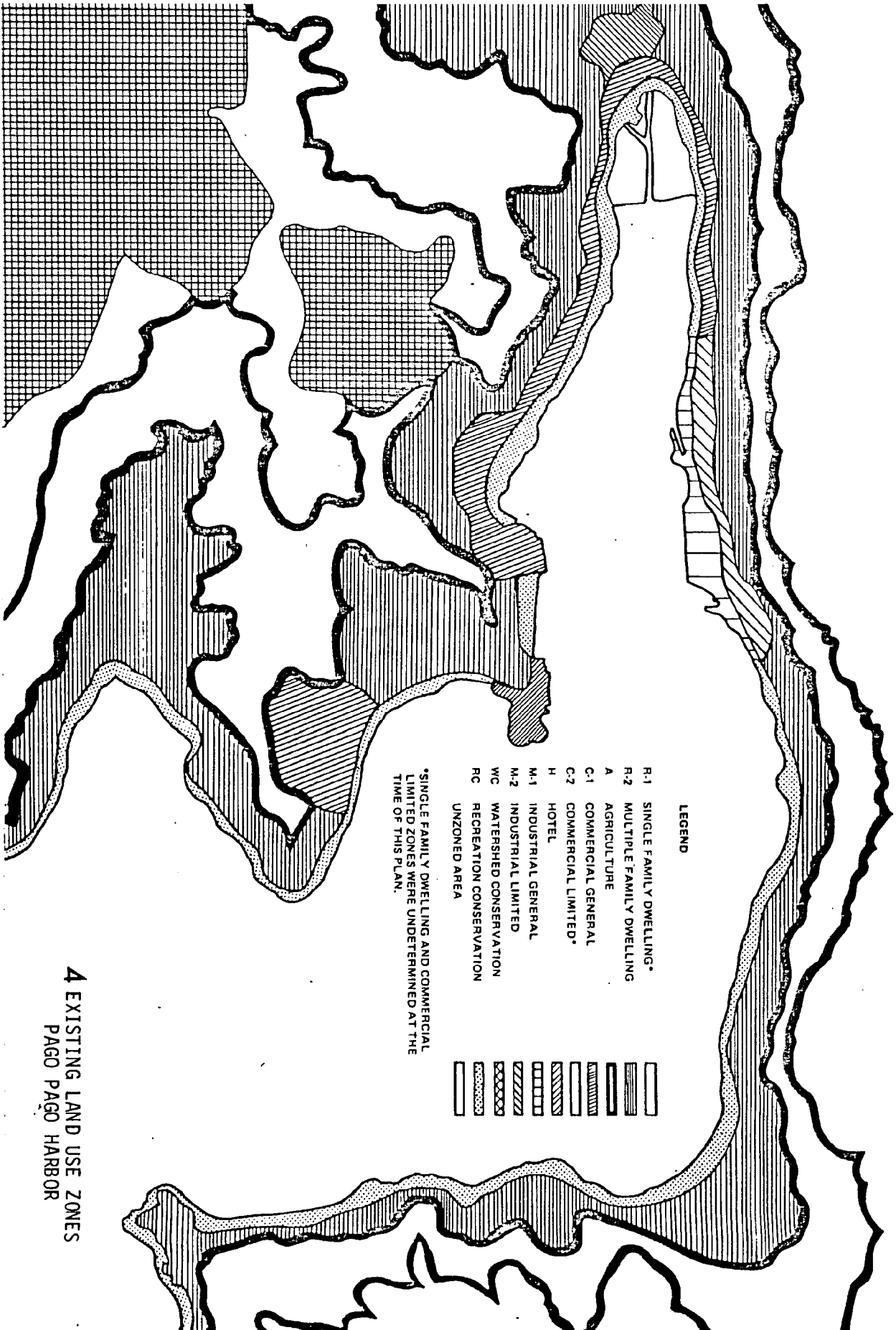
SOURCE: Field Survey (1981)



LEGEND

- NORTH
- HARBOR & RELATED USES
- COMMERCIAL USES
- GOVERNMENTAL USES
- OPEN SPACE & RECREATION
- RESIDENTIAL USES

APPROXIMATE SCALE 1-inch = 1,250 FT

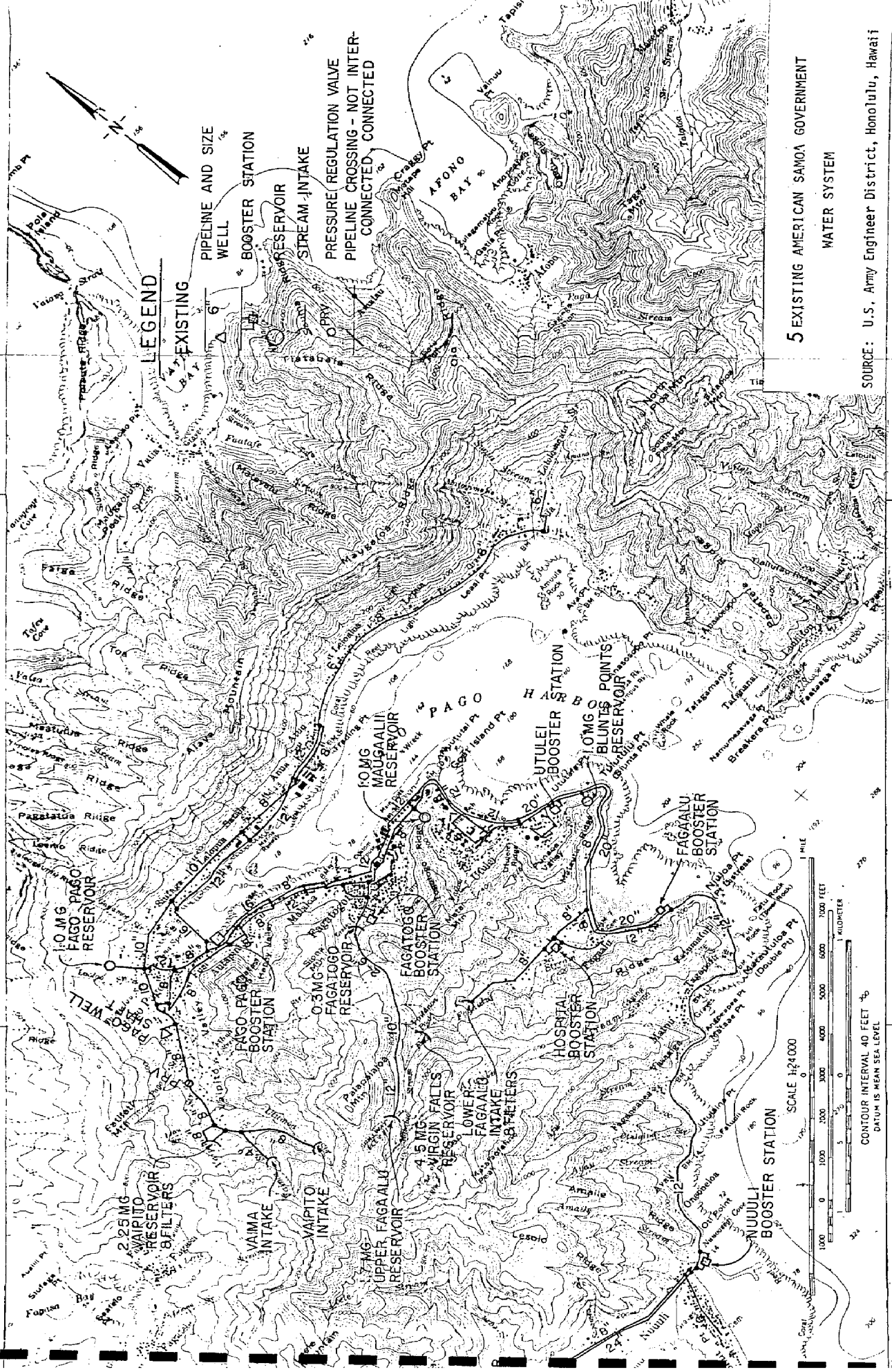


LEGEND

- R-1 SINGLE FAMILY DWELLING*
- R-2 MULTIPLE FAMILY DWELLING
- A AGRICULTURE
- C-1 COMMERCIAL GENERAL
- C-2 COMMERCIAL LIMITED*
- H HOTEL
- M-1 INDUSTRIAL GENERAL
- M-2 INDUSTRIAL LIMITED
- WC WATERSHED CONSERVATION
- RC RECREATION CONSERVATION
- UNZONED AREA

*SINGLE FAMILY DWELLING AND COMMERCIAL LIMITED ZONES WERE UNDETERMINED AT THE TIME OF THIS PLAN.

4 EXISTING LAND USE ZONES
PAGO PAGO HARBOR



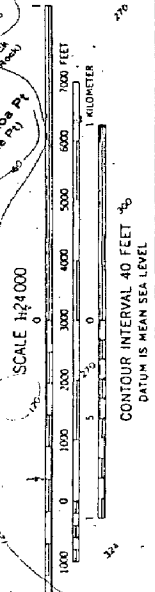
LEGEND

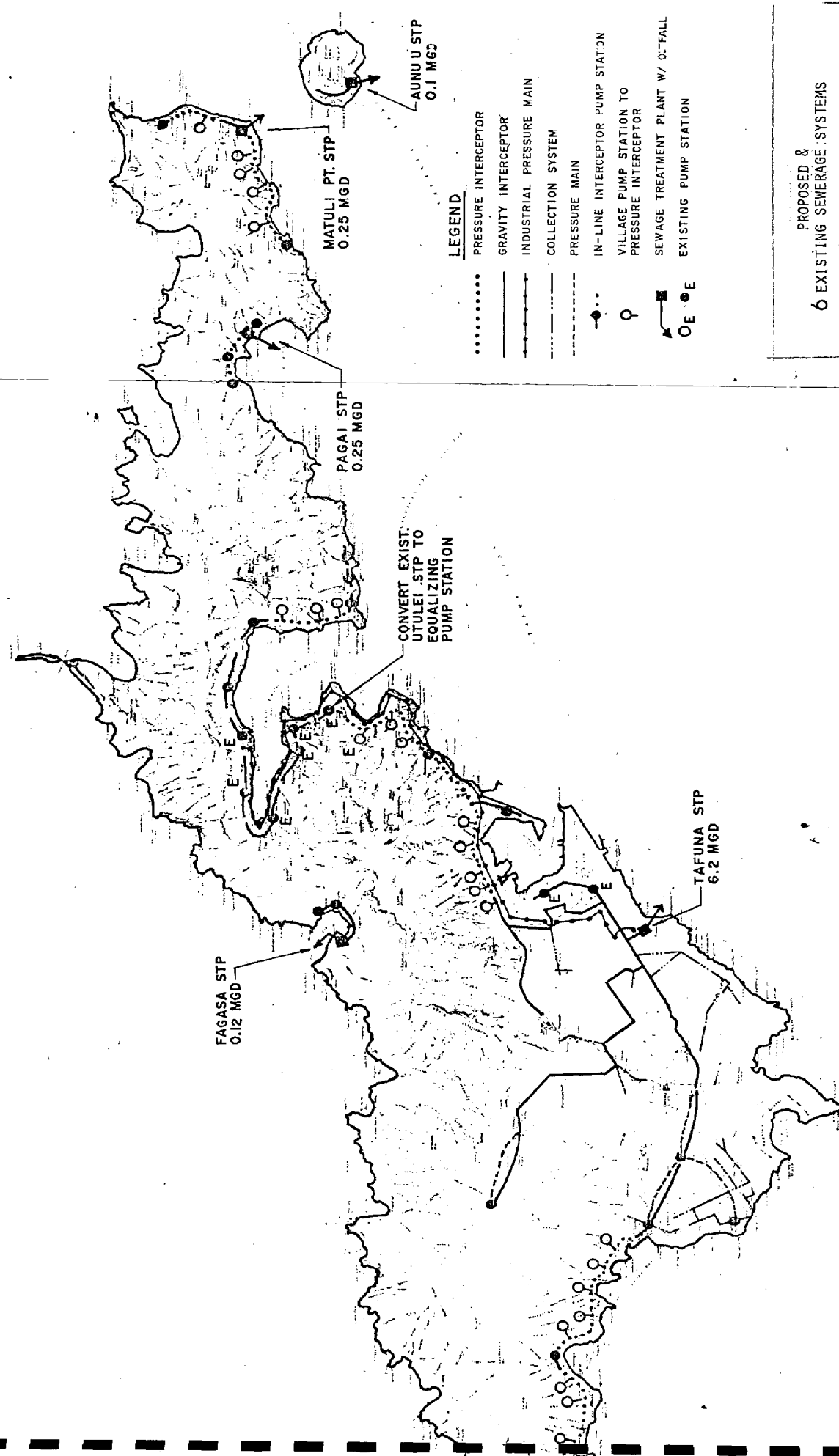
- EXISTING PIPELINE AND SIZE
- WELL
- BOOSTER STATION
- RESERVOIR
- STREAM INTAKE
- PRESSURE REGULATION VALVE
- PIPELINE CROSSING - NOT INTERCONNECTED
- CONNECTED

5 EXISTING AMERICAN SAMOA GOVERNMENT WATER SYSTEM

WATER SYSTEM

SOURCE: U.S. Army Engineer District, Honolulu, Hawaii

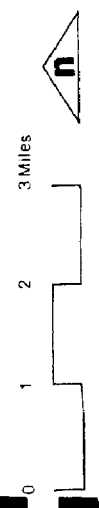




- LEGEND**
- PRESSURE INTERCEPTOR
 - GRAVITY INTERCEPTOR
 - INDUSTRIAL PRESSURE MAIN
 - COLLECTION SYSTEM
 - PRESSURE MAIN
 - IN-LINE INTERCEPTOR PUMP STATION
 - VILLAGE PUMP STATION TO PRESSURE INTERCEPTOR
 - ◀ SEWAGE TREATMENT PLANT W/ 0'-FALL
 - E ● E EXISTING PUMP STATION

PROPOSED &
 6 EXISTING SEWERAGE SYSTEMS
 AMERICAN SAMOA GOVERNMENT
 ISLAND OF TUTUILA

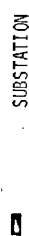
SOURCE: U.S. Army Engineer District, Honolulu



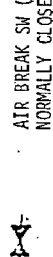
LEGEND



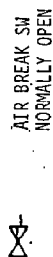
POWER PLANT



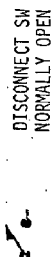
SUBSTATION



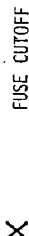
AIR BREAK SW (ABS) GANG OPERATED NORMALLY CLOSED



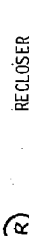
AIR BREAK SW NORMALLY OPEN



DISCONNECT SW NORMALLY OPEN



FUSE CUTOFF



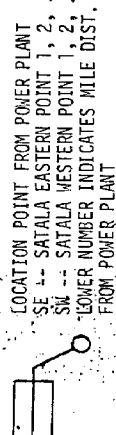
RECLOSER

13.2 KV 3-WIRE PRIMARY DIST.

34.5 KV 3-WIRE TRANS. LINE TIE LINE

7.6 KV 1-WIRE PRIMARY DIST.

2.4 KV DIST. PRIMARY



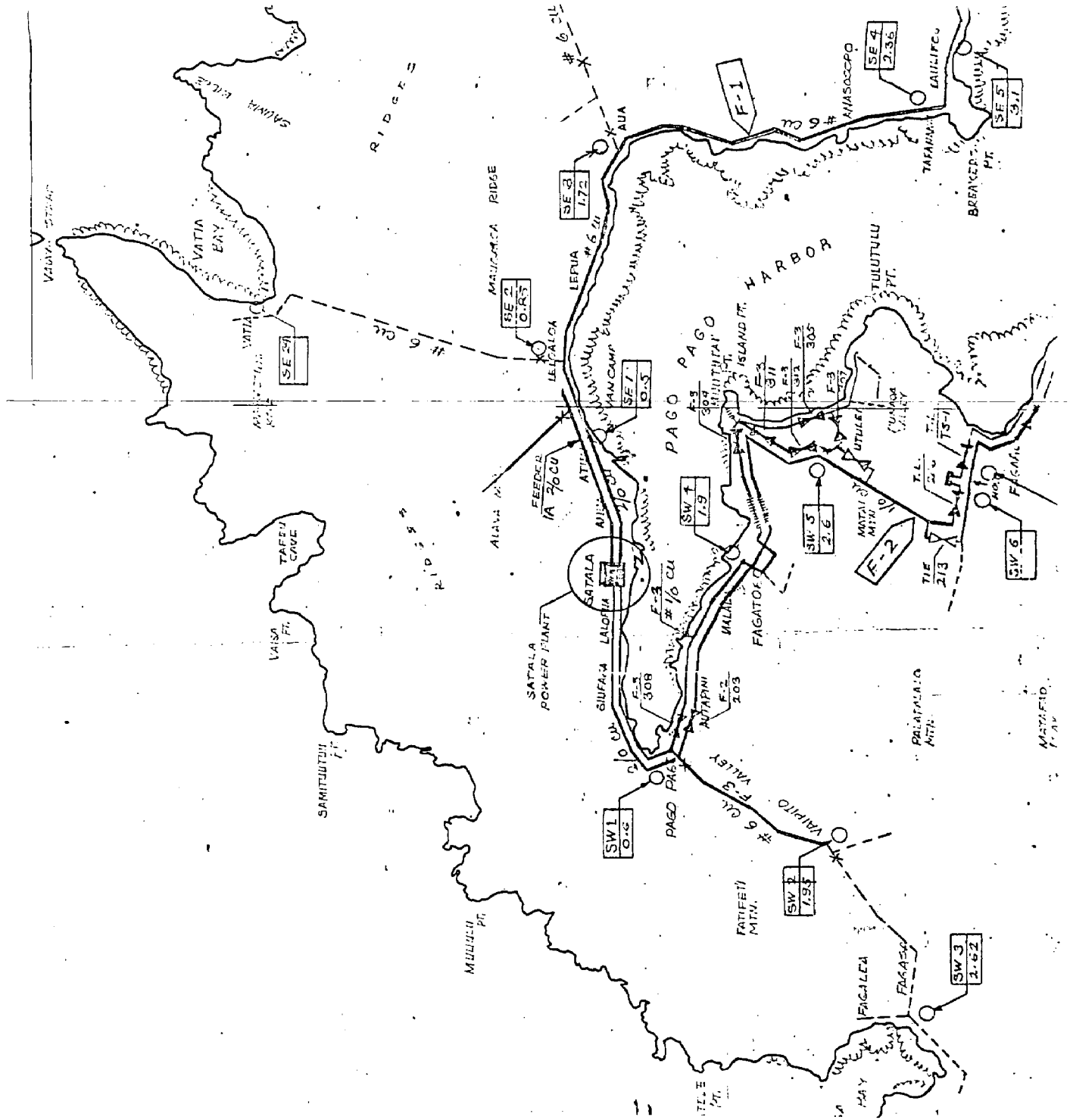
LOCATION POINT FROM POWER PLANT
SE -- SATALA EASTERN POINT 1, 2
SW -- SATALA WESTERN POINT 1, 2
TOWER NUMBER INDICATES MILE DIST. FROM POWER PLANT

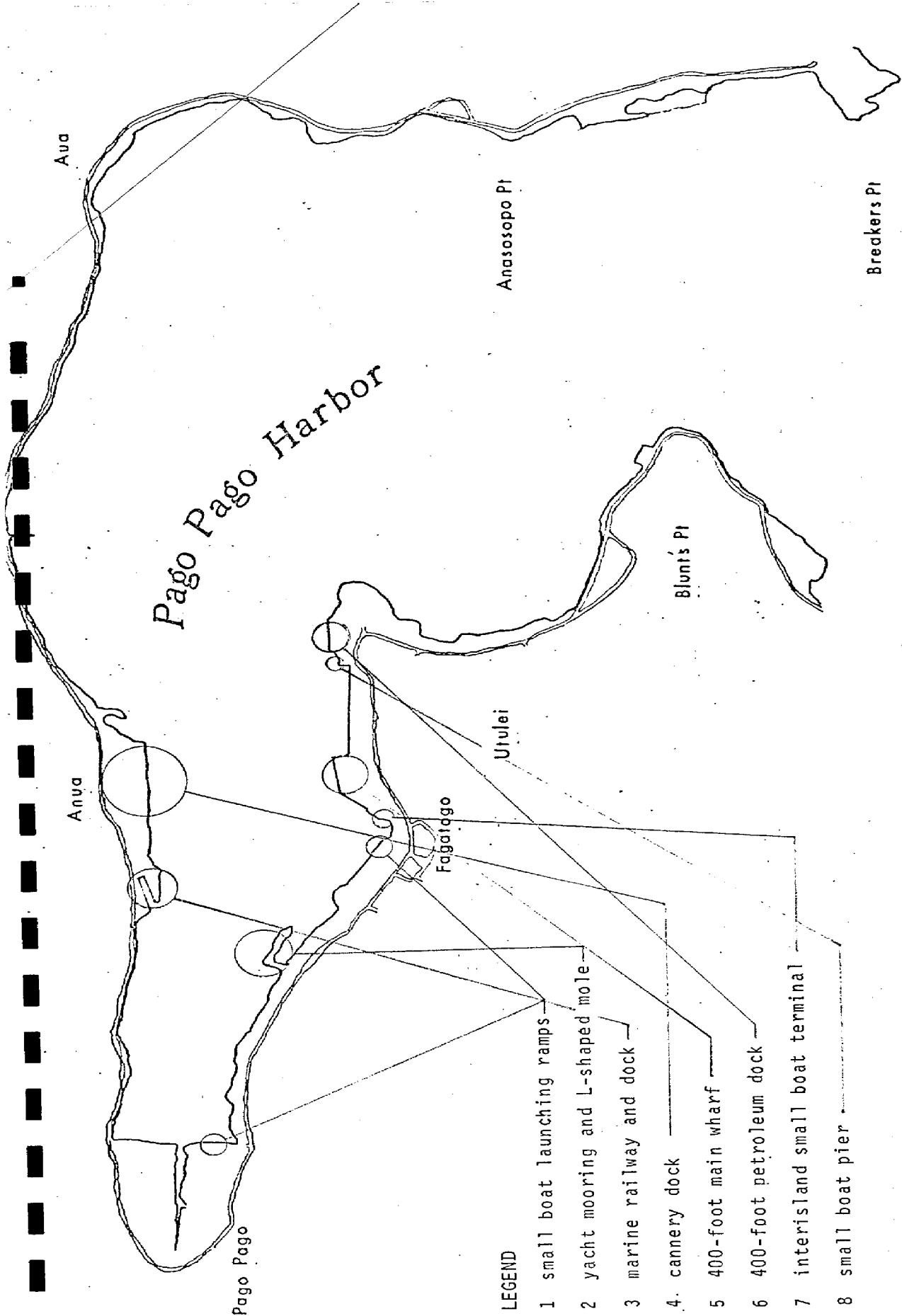
FEEDER



EXISTING POWER GENERATION & DISTRIBUTION SYSTEM
PAGO PAGO HARBOR

SOURCE: Electric Utility Division
Department of Public Works
AMERICAN SAMOA GOVERNMENT





LEGEND

- 1 small boat launching ramps
- 2 yacht mooring and L-shaped mole
- 3 marine railway and dock
- 4 cannery dock
- 5 400-foot main wharf
- 6 400-foot petroleum dock
- 7 interisland small boat terminal
- 8 small boat pier

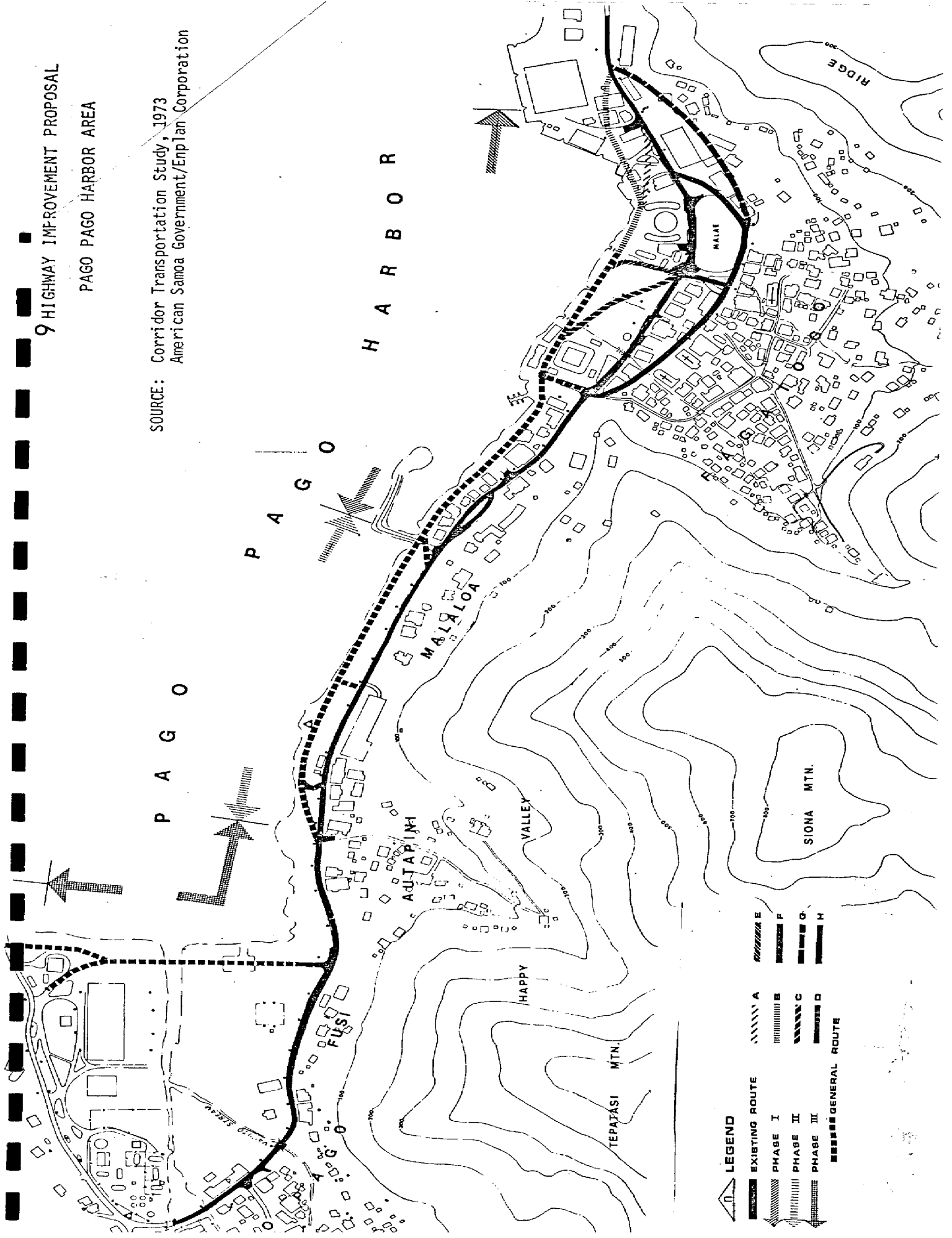
MARINE FACILITIES

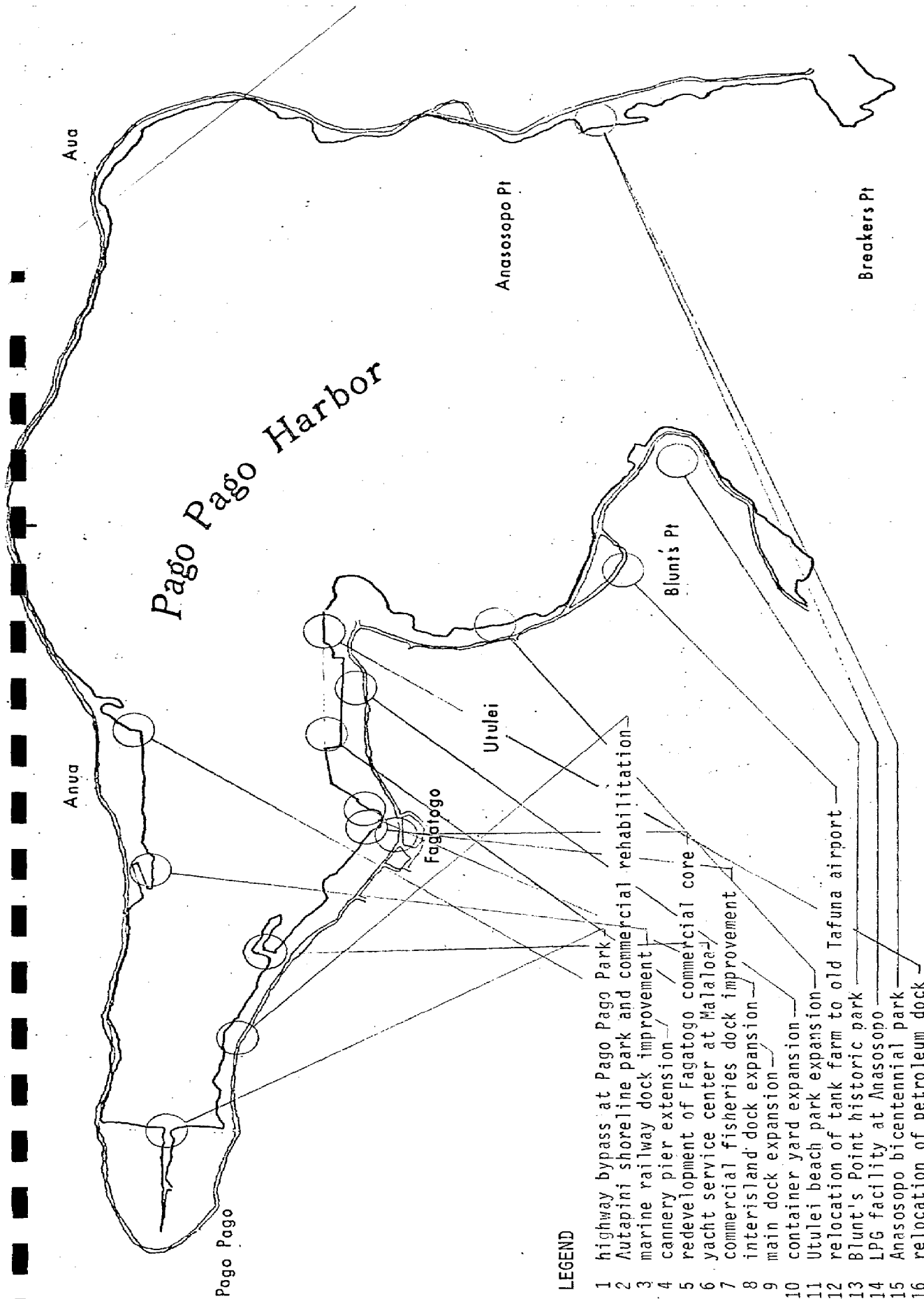
8 PAGO PAGO HARBOR AREA

1981

9 HIGHWAY IMPROVEMENT PROPOSAL
PAGO PAGO HARBOR AREA

SOURCE: Corridor Transportation Study, 1973
 American Samoa Government/Enplan Corporation





LEGEND

- 1 highway bypass at Pago Pago Park
- 2 Autapini shoreline park and commercial rehabilitation
- 3 marine railway dock improvement
- 4 cannery pier extension
- 5 redevelopment of Fagatogo commercial core
- 6 yacht service center at Malaloa
- 7 commercial fisheries dock improvement
- 8 interisland dock expansion
- 9 main dock expansion
- 10 container yard expansion
- 11 Utulei beach park expansion
- 12 relocation of tank farm to old Tafuna airport
- 13 Blunt's Point historic park
- 14 LPG facility at Anasosopo
- 15 Anasosopo bicentennial park
- 16 relocation of petroleum dock

BAY AREA MASTER PLAN REPORT 1975
Bay Area Planning Committee
American Samoa Government

SUMMARY OF RECOMMENDED PROPOSALS

A detailed listing 14 subject areas were identified. A few of these subject areas overlap with one another -- e.g., Pago Recreational Park Use and Parks and Recreation Recommendations. No overall land use plan however was recommended; it may be assumed that the existing zoning for the Bay Area is adequate, requiring no changes. Some of the details of the recommendations, together with subsequent policy development, may require amendment to the existing Zoning Plan of the Bay Area.

1. Land Tenure

The Committee recommended a comprehensive legal, property and field survey of all public lands within the Bay Area. Additionally, procedural policies were identified as lacking in order to removal all unauthorized uses of public lands.

2. Land Development Codes

The Committee recommended a land development manual be prepared illustrating American Samoa developmental regulations and codes. Also, they recommended the adoption of the 1973 edition of the UBC (Uniform Building Code).

3. Fagatogo General Land Use

Residential structures belonging to ASG were recommended for removal by the Committee. A pedestrian circulation system and greenbelt connecting the Rainmaker Hotel and Pago Pago Park and the repair of the shorefront area at Fagatogo Park were also noted.

4. Pago Recreational Park Land Use

The Committee recommended full development of the park land as a major recreation center for the territory. This general recommendation includes the relocation of the "Samoan Village" to another site closer to the bay shorefront and the revocation or termination of leases related to the snack bars.

5. Highways and Transportation

The Committee recommended a series of improvements to the existing highway through the Bay Area, including interim traffic control measures, such as curbs, gutters, channelization, sidewalks, one-way system and a new storm drain at the cannery site. The longer range recommendation adopted Plan B of the American Samoa Pago Pago Harbor Corridor Study which includes a new bayshore by-pass commencing at the Pago Pago Port and realigning with the existing highway at Malaloa, a by-pass at Burns-Philp, a by-pass at Pago Pago Park and roadway widening with left turn pockets.

6. Port Administration

The Committee recommended the demolition of "Meadow Gold Samoa, Inc." build-

ing, extension of the main wharf towards the fuel pier, removal of two residential structures adjacent to the existing container area, improvement of the interisland dock area.

7. Parks and Recreation

The Committee recommended creation of a Superintendent of Public Parks, a Museum Park, Anasosopo Bicentennial Park and other proposals found in the 1975 American Samoa Recreation Area Development Plan.

8. Historical Preservation

The Committee recommended enactment of legislation to protect, preserve and maintain all sites and structures listed on the Territorial Historic Register and that appropriate plaque or sign system should be developed at each site.

9. Public Market

The Committee recommended the provision of additional off street parking at the public market together with a centralized bus terminal.

10. Marine Resources Recommendations

The Committee recommended the establishment of a local fisheries port facility at Fagatogo between the Malaloa Pier and the Fono and the discontinuance of use of the existing OMR facilities at OMR, permitting the use of such facilities for outdoor recreation.

11. Water Utility

The Committee recommended a seven stage (sections) improvement plan for the entire Bay area, consisting of booster pump station, new transmission lines, new storage tank at Aua and a surface catchment system at Lauili'i to provide source for industrial water users.

12. Sewer System

No specific recommendations were made pending the development of the sewerage plan (1976).

13. Electric Utility

No specific recommendations were made by the Committee.

14. American Samoa Government Facilities

The Committee recommended that all government housing in the Bay Area be removed excepting those found at Utulei (west of the highway) and Penicillin (Pago Pago Port, excepting Quarters 18), removal of Building 50 and a new executive office building to replace destroyed office space.

SUMMARY OF PUBLIC POLICIES
Pago Pago Harbor

THEMES

POLICIES

Coastal Management Program --
Inner Harbor Special Management
Area

Develop the Pago Pago Harbor Area to
emphasize its value as a working port
and safe harbor while protecting its
natural resources, including water
quality --

Water dependent uses and activities
shall have the highest priority;

Water-related uses and activities
shall have second priority;

Uses and activities which are nei-
ther water dependent nor water-
related, but which are compatible
with such uses, shall receive third
priority. All other uses and acti-
vities have lowest priority and
such uses shall be encouraged to
locate or relocate in other areas.

Economic Development -- Fisheries

Improve Marine Railway

Private development of marine supply
store, cold storage and processing
facilities, commercial docking and
drydocking facilities at a marine re-
source center

Economic Development -- Visitor
Industry Development

Rehabilitation of Fagatogo --

Blunt's Point Trail Development
Utulei Beach Park Expansion
Centipede Park/Port Expansion
Commercial Core Rehabilitation
Malaloa-Autapini Shoreline Improve-
ment

Economic Development -- Local
Business Development

Centralize ASG facilities at Utulei

Fagatogo Commercial Center Rehabili-
tation

POPULATION CHANGE

Regional Planning Areas	1970 ^{1/}	1974 ^{2/}	1980 ^{3/}	2000 ^{4/}
Manu'a District	2,112	1,808	1,740	1,935
NE Tutuila	2,441	2,401	2,289	3,025
SE Tutuila	2,744	2,745	2,918	3,306
Central Tutuila	7,886	8,554	9,147	12,719
Tafuna Plains	6,555	7,807	9,814	18,010
West Tutuila	5,347	5,841	6,458	11,200
Totals	27,085	29,156	32,366	50,195
Island of Tutuila	24,973	27,348	30,626	48,260

Regional Planning Area 4

Aua, Anasosopo, Tafananai	1,025	1,236	1,471	1,899
Leloaloa, Lepua	390	429	417	600
Atu'u, Anua	361	623	422	1,362
Pago Pago	2,451	2,529	2,969	3,630
Fagatogo	1,592	1,788	1,955	2,600
Utulei	1,074	939	1,080	1,298
Faga'alu	993	1,012	833	1,330
Totals	7,886	8,554	9,147	12,719
Percent of Territory	29.1%	29.3%	28.2%	25.3%
Percent of Tutuila	31.2	31.3	29.9	26.4

- Sources: ^{1/} U.S. Census of Population, 1970.
^{2/} Report on the 1974 Census of American Samoa, 1976.
^{3/} Preliminary Estimate, U.S. Census of Population, 1980.
^{4/} American Samoa Population Projection by Planning Districts and by Five Year Intervals 1980-2005, March 1980.

Tobacco and Alcoholic Beverage

(1) Beer	\$ 585,904	\$ 926,721	+58.2%
(2) Cigarettes	745,633	1,069,101	+43.4
(3) Cigars	5,609	N/A	N/A
(4) Tobacco	3,674	1,759	-52.1

Building Supplies

(1) Cement	104,065	267,012	+156.6
(2) Lumber	825,941	1,768,894	+114.2

Petroleum Products

(1) Gasoline, aviation	317,279	440,235	+38.8
(2) Gasoline, motor	1,220,176	2,159,431	+77.0
(3) Diesel Fuel	11,716,190	25,675,496	+119.2
(4) Jet Fuel	6,471,378	9,568,206	+47.9
(5) Oil, lubricating	524,867	1,400,817	+166.9

Dry Goods

(1) Cloth, colored	375,604	745,295	+98.4
(2) Shoes	185,338	388,628	+110.0

SELECTED EXPORTED COMMODITIES

Fish Products

(1) Canned Tuna	\$73,098,222	\$120,277,671	+64.5
(2) Pet Food	4,589,905	3,511,095	-23.5
(3) Shark Fins	83,600	1,228,917	+1,370.0
(4) Fish Meal	280,763	1,055,628	+276.0
(5) Fresh Fish	133,964	452,750	+238.0

Total Value All Exported Items	81,232,067	127,148,018	+56.5
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Source: Development Planning Office, Statistical Bulletin 1981, American Samoa Government, nd, Tables 15 and 19.

SELECTED IMPORTED COMMODITIES

<u>Commodity</u>	<u>FY 1977</u>	<u>FY 1980</u>	<u>CHANGES</u>
Fruits and Vegetables			
(1) Fresh			
Banana	\$ 51,743	\$ 29,199	-43.6%
Fruits	95,667	107,286	+12.2
Vegetables	397,530	451,918	+13.7
Onions	38,975	45,157	+15.9
Potatoes	77,919	66,122	-15.1
(2) Canned			
Fruit Juices	38,873	51,623	+32.8
Fruits	80,052	99,052	+23.7
Dairy, Meats, Poultry & Eggs			
(1) Fish			
Canned Fish	721,753	1,091,411	+51.2
Fresh Fish	146,430	112,026	-23.5
(2) Dairy			
Butter	123,872	143,526	+15.9
Cheese	24,899	30,111	+20.9
Eggs	66,416	53,935	-18.8
(3) Meats			
Canned Meats	1,171,066	1,708,750	+45.9
Fresh Meats	1,041,670	1,801,396	+72.9
Mutton	27,620	202,109	+631.7
Fresh Pork	80,835	131,266	+ 62.4
Other Staples			
(1) Biscuits	57,235	168,541	+194.5
(2) Candies	266,403	569,512	+113.8
(3) Coffee	179,698	244,708	+36.2
(4) Tea	92,606	52,749	-43.0
(5) Flour	237,406	276,430	+16.4
(6) Salt	80,170	85,085	+6.1
(7) Sugar	393,423	697,070	+77.2

CARGO MOVEMENTS
American Samoa

<u>Fiscal Year</u>	<u>Import Revenue Tonnage</u>	<u>Export Revenue Tonnage</u>
1960	21,867	17,226
1965	44,082	22,429
1970	171,187	NA
1975	370,880	52,033
1978	322,626	71,959

Source: Department of Port Administration, American Samoa Government

PROJECTED CARGO MOVEMENTS
American Samoa

<u>Calendar Year</u>	<u>Import Revenue Tonnage</u>	<u>Export Revenue Tonnage</u>
1980	400,200	70,700
1985	497,600	84,400
1990	598,400	98,000
1995	696,00	111,700
2000	802,200	125,300

Source: U.S. Army Engineer District, Honolulu, American Samoa Water Resources Study: An Analysis of Commercial Navigation Needs at Pago Pago Harbor, American Samoa, Appendix (1981), Table 16.

PROJECTED AVERAGE MONTHLY CONTAINER ACTIVITY
American Samoa

<u>Calendar Year</u>	<u>Scenarios</u>			
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
1979	901	901	901	901
1985	1,177	1,399	1,852	2,074
1990	1,385	1,909	2,470	2,994
1995	1,594	2,200	2,849	3,455
2000	1,844	2,756	3,286	4,198

Source: Rayacich and Rohlen, Pago Pago Commercial Port: Management, the Potential for Transshipment and Projected Land Requirements for Container Yard, 1980 Draft Report, Table 7.

TRAFFIC ACCIDENT REPORT
Pago Pago Bay 1980

Location	Types of Accident							TOTALS
	I	II	III	IV	V	VI	VII	
Utulei	1	7	10	2	2	3	0	25
Fagatogo	0	3	1	3	0	0	0	7
Lauli'i Building	0	10	5	4	2	0	0	21
Fono	0	3	1	3	2	1	0	10
Courthouse	1	3	5	2	0	1	0	12
Malaloa	1	10	12	3	2	0	0	28
Autapini	0	6	6	1	2	0	0	15
Pago Pago	0	10	9	8	4	3	0	34
Satala	0	3	1	3	1	1	0	9
Cannery	0	3	9	4	2	1	0	19
TOTALS	3	58	59	33	17	10	0	180
Per Cent	1.7	32.2	32.8	18.3	9.4	5.6	0	100%

Source: Department of Public Works, American Samoa Government

Legend:

- I -- Head-on Accident
- II -- Left Angle
- III -- Rear End
- IV -- Side Swipe
- V -- Hit Pedestrian
- VI -- Out of Control
- VII -- Right Angle

TENURE STATUS
Non-Governmental Land
and Improvement
Pago Pago Harbor Land

<u>Establishment</u>	<u>Location</u>	<u>Tenure Status</u>
1. Standard Oil	Blunt's Point	Residential Land Lease
2. Bank of Hawaii	Blunt's Point	Residential Land Lease
3. Meadow Gold	Fagatogo	Commercial Building Lease
4. Shoe Repair Shop	Fagatogo	Commercial Building Lease
5. South Sea Curios	Fagatogo	Commercial Building Lease
6. Amerika Samoa Bank	Fagatogo	Commercial Building Lease
7. Interisland Transport	Fagatogo	Building Lease
8. Snack Shop	Fagatogo	Land Lease
9. Vacant Building, new	Fagatogo	Land Lease
10. Fish Market/Sweet Shop	Fagatogo	Land Lease
11. Snack Shop	Fagatogo	Land Lease
12. Taxi Cab Stand	Fagatogo	Status Unknown
13. Taxi Cab Stand	Fagatogo	Status Unknown
14. Nia Marie & Company	Fagatogo	Land Lease
15. Ice Wich Fale/Tropic Isle	Fagatogo	Land Lease
16. Gas Station	Fagatogo	Land Lease
17. Seaside Club	Fagatogo	Land Lease
18. GHC Reid & Company	Fagatogo	Status Unknown
19. Parking Stalls	Fagatogo	Land Lease
20. GHC Reid & Company	Fagatogo	Status Unknown
21. Boat Shed	Fagatogo	Status Unknown
22. Max Haleck Wholesale	Autapini	Status Unknown
23. Max Haleck Gas Station	Autapini	Status Unknown
24. Max Haleck Containers	Autapini	Status Unknown
25. Banana/Taro Patch	Autapini	Status Unknown
26. Soli's Restaurant	Pago Pago	No Lease
27. Residence/Apparel Shop	Pago Pago	Status Unknown
28. Machine/Repair Shop	Pago Pago	Status Unknown
29. Residence	Pago Pago	Status Unknown
30. Guest Fale	Pago Pago	Status Unknown
31. Tool/Hardware Store	Pago Pago	Status Unknown
32. Residence	Pago Pago	Status Unknown
33. Recreation Building	Pago Pago	Status Unknown
34. Variety Store	Pago Pago	No Lease
35. Guest Fale	Pago Pago	Status Unknown
36. Korea House	Pago Pago	Land Lease
37. Starkist	Anua/Atu'u	Land Lease
38. Van Camp	Anua/Atu'u	Land Lease
39. Residences	Aua	No Leases
40. Samoan Village	Pago Pago	Lease Expired 1978/79

Source: Harbor Land Use Survey 1981 and Office of Material Management,
American Samoa Government 1981.

List of Interviewees 1981
Pago Pago Harbor Land Use Study
American Samoa Government

Private Agencies

American Samoa Chamber of Commerce
Burns-Philp (SS) Co., Ltd.
Icwich Fale
Interisland Transportation Company
B.F. Kneubuhl, Inc.
Meadow Gold of Samoa
Polynesian Shipping Service
Samoan News
Starkist Samoa, Inc.
Van Camp Seafood Company

Government Agencies

Office of Samoan Affairs
Office of Marine Resources
Office of Material Management
Office of Development & Planning
Department of Public Safety
Department of Public Works
Department of Port Administration
Territorial Planning Commission
U.S. Coast Guard Station, Department of Transportation

Other Parties

Pago Pago Village: Pulenu'u Tua'olo
High Chief Asuega
High Chief Pulu

Fagatogo Village: Senator Lutu
Representative Lutu
Pulenu'u Fagasa

Economic Development -- Regional
Development

Port Expansion --

Extend main dock

Enlarge container yard

Relocate ASG offices at terminal
building if unrelated port activ-
ities to other areas

Land Use -- Commercial

Relocate non-water-related uses away
from the waterfront

Enforce parking and setback policies

Sources: American Samoa Coastal Management Program (1980)
Economic Development Plan for American Samoa, FY 1979-1984
A Land Use Plan for American Samoa, 1978-1983 (1978)

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