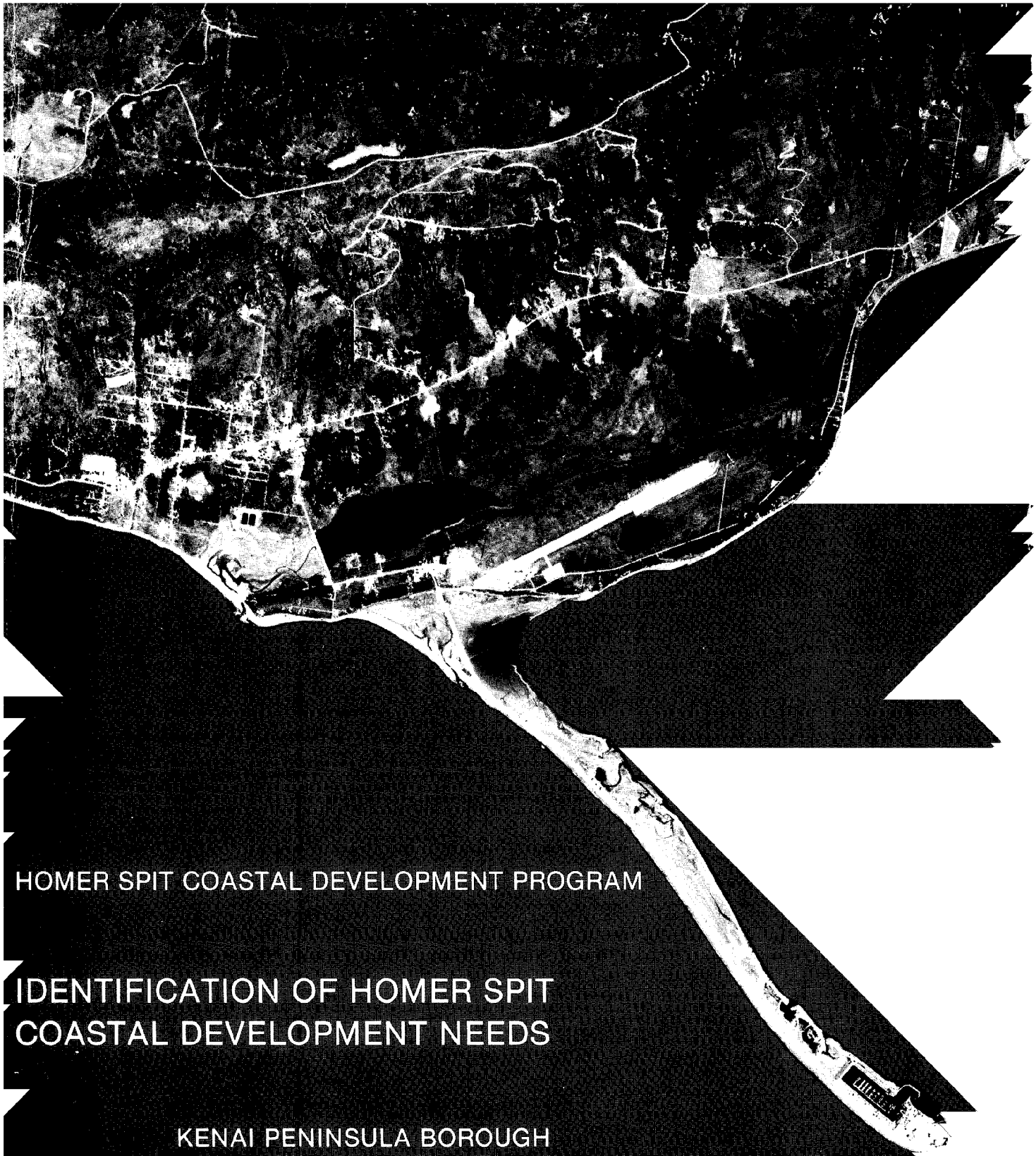

HOMER SPIT COASTAL DEVELOPMENT PROGRAM

IDENTIFICATION OF HOMER SPIT COASTAL DEVELOPMENT NEEDS

KENAI PENINSULA BOROUGH
CITY OF HOMER
KA COASTAL MANAGEMENT PROGRAM

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IDENTIFICATION OF HOMER SPIT COASTAL DEVELOPMENT NEEDS

ALASKA
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KENAI PENINSULA BOROUGH

CITY OF HOMER

ALASKA COASTAL MANAGEMENT PROGRAM

Prepared by

Dames & Moore

1981

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1.0 INTRODUCTION

The Coastal Management Program requires that Alaska's unique coastal resources be protected as long-range growth and development occur. Recognizing that conflicts are bound to arise between preservation and development of key coastal areas, the Coastal Management Program has designated these key areas as "Areas Meriting Special Attention" (AMSA). Homer Spit has been designated an AMSA because of its unique commercial and recreational advantages, and because port and harbor development plans are soon to be implemented by the City of Homer.

Numerous planning studies relating to the development of the distal end of Homer Spit have been developed. These studies consist of defining planning goals and, in some cases, designs for implementing these goals. The most recent and comprehensive design study was completed in 1980 for the City of Homer by their consultant -- Tippetts-Abbett-McCarthy-Stratton (TAMS). The TAMS study presents designs for major expansions of port and harbor facilities at Homer. If implemented, the TAMS plan would essentially determine the allocation of Homer Spit's resources. Implementation of part or all of the TAMS plan is subject to available funding and will involve an on-going cooperative effort between the City of Homer and the Kenai Peninsula Borough.

1.1 BACKGROUND

Homer Spit's unique geographic setting places it in an advantageous position to serve the rapidly growing recreation, transportation, fishery and petroleum development needs of the Kenai-Anchorage area. Recreational advantages include a mild, relatively sunny climate, proximity to the Anchorage population center, good boating and recreational fishing, and a scenic location. Commercial fishing advantages include an all-weather harbor, and proximity to salmon, shellfish and bottomfish fishing areas. The fisheries' advantages are enhanced by Homer's transportation facilities. Homer's deep water port is located on a hard surface road five hours from Anchorage. It is near the international shipping lanes through the Gulf of Alaska and close to potential oil resources in lower Cook Inlet.

These activities place heavy demands on the limited land on the Spit and on the biological and sociological resources of the area. At mean high tides, only 158 acres of the Spit (about 1/4 square mile) are above water, and thus available to serve the multiple marine uses.

1.2 PURPOSE AND SCOPE OF THIS STUDY

Recognizing that the potential for development and possible conflict is likely to increase with time, the Alaska Department of Natural Resources, Division of Parks has recommended to the Alaska Coastal Policy Council that Homer Spit be designated as an "Area Meriting Special Attention" under the Alaska Coastal Management Act of 1977. As a result, the Alaska Department of Community and Regional Affairs made funds available to the Kenai Peninsula Borough planning office to study the resources of Homer Spit.

Specifically the purposes of this study are:

1. To compile and consolidate the available information on development needs of Homer Spit.

2. To indicate how well the development plans proposed for Homer meet the stated needs and goals.

3. To indicate what additional information is required for the decision-making process on development of Homer Spit.

4. To indicate the existence of any irreconcilable conflicts in uses of Homer Spit.

5. To assess the nature and extent of construction activities that would result from implementation of various development plans in order to provide a basis for environmental impact assessment.

1.3 CHRONOLOGY OF PLANNING EFFORTS AND PLAN DESCRIPTIONS

A large number of planning studies relating to Homer Spit have already been conducted. A brief chronology of those efforts will be helpful in providing an historic context for the current planning effort.

1969: In an early comprehensive development plan (Homer, 1969), the City viewed Homer Spit as an ideal location for industry, where any unsightly development would not interfere with the rural values of Homer.

1970: A comprehensive plan was prepared for the Kenai Borough, but goals were specified only for the northern part of the Borough (Kenai, 1970).

1973: The Kenai Borough (Kenai, 1973) updated the goals and objectives of the 1970 Kenai plan and included Homer and the other Kenai Borough communities. The overall goals of this plan emphasized controlled development. Plans for Homer included developing a zoning ordinance, stabilizing the economy, and planning for additional small boat facilities for pleasure craft and commercial vessels on Homer Spit. In addition, the plan suggested development of public transportation from Homer to the end of the Spit to help alleviate parking problems.

In a study of small boat harbor needs on the Kenai Peninsula, Galliet and Silides (1973) recommended development plans for Homer's harbor.

1975: The U.S. Department of Commerce funded a land use study of Homer Spit (Unwin-Scheben and Korynia, 1975). That study reported acreages by use and concluded that fish processing facilities were adequate but that the fishing fleet needed more support facilities.

1976: In a study of the coastal recreation resources of west Kenai, the Alaska Division of Parks recommended that 224 acres on the Cook Inlet side of Homer Spit plus Coal Bay be zoned for open-space recreation by the Kenai Peninsula Borough Planning Department (Meiners, 1976).

1977: The City commissioned Tryck, Nyman and Hayes to do a design and engineering feasibility study of the small boat harbor. They recommended extending the existing basin 320 feet to the northeast and 850 feet to the northwest for a total of 65.4 acres.

Also in 1977, a revised overall economic development program was developed by the Kenai Peninsula Borough OEDP Committee.

1978: In a revised comprehensive development plan (Homer, 1978), the City reappraised its earlier position on the industrial designation for Homer Spit and instead proposed both open-space recreational and marine industrial zones for the Spit. The inlet side of the Spit road was recommended for the open-space zone, while the bay side was to be reserved for marine industrial uses. The plan also recommended development of additional small boat mooring space, camping and recreational facilities on the Spit, and encouragement of commercial fishing.

1979: The Master Plan for Roads and Streets (Silvers, 1979) suggested that Homer Spit road may require expansion to four lanes unless peak traffic demand is controlled. Other studies in 1979 included:

- A Woodward-Clyde study of recreational boating for the Kenai Peninsula Borough projected a rapid increase in demand for small boat mooring spaces in Homer.

- Woodward-Clyde/Soros completed a Borough-wide port and harbor demand feasibility study. They recommended plans for port and harbor expansion.

- The Kenai Peninsula Borough Coastal Development Program was initiated. Homer Spit was identified as an "Area Meriting Special Attention," which gave rise to the present study.

- U.S. Army Corps of Engineers (COE) issued a draft feasibility report and an environmental impact statement for the small boat harbor expansion at Homer.

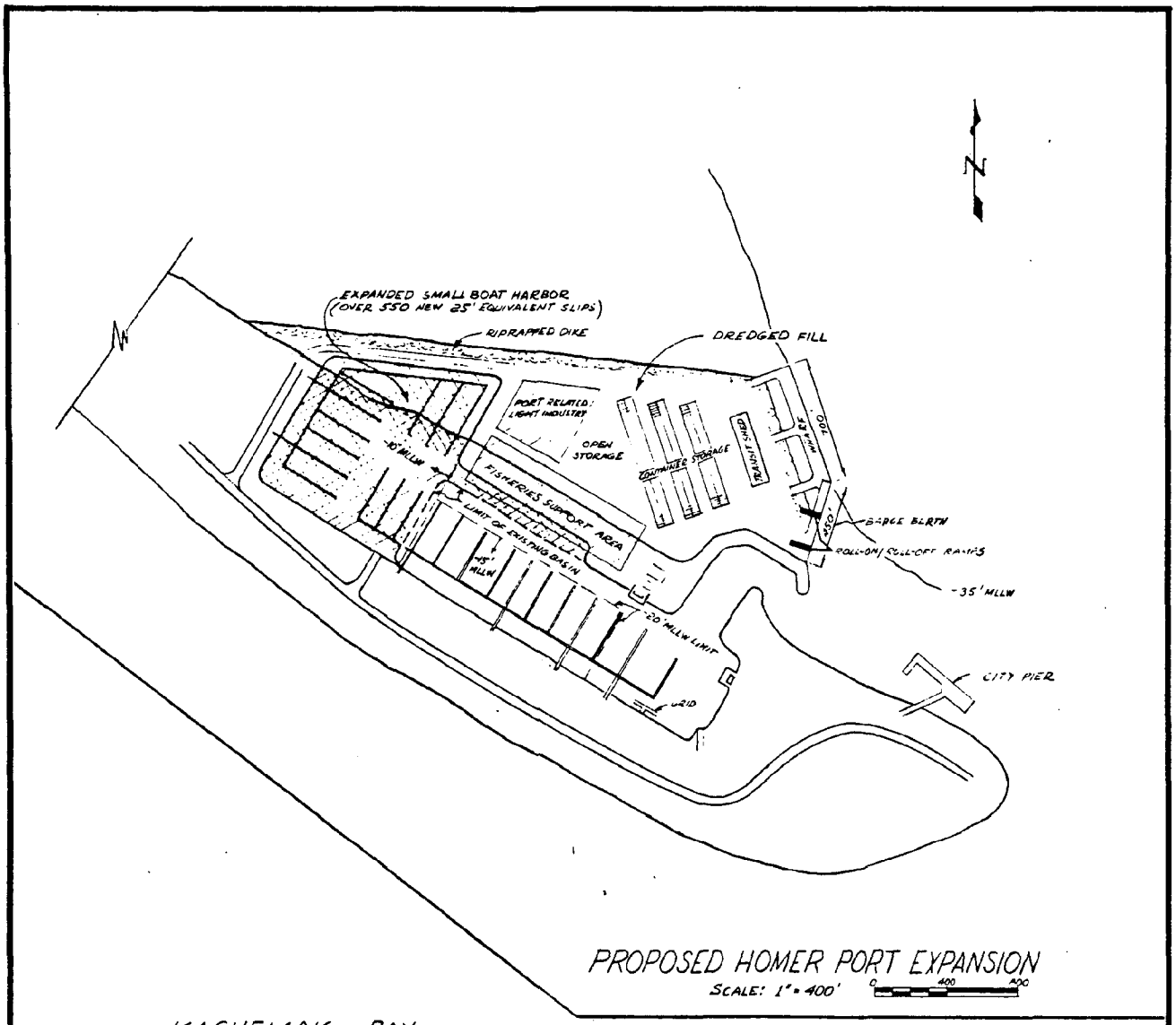
1980: A study by TAMS for the City of Homer was completed; it included feasibility studies, engineering designs, and master plans for port and harbor development on Homer Spit.

Throughout this study, Homer Spit coastal development needs are addressed in relation to three of the planning efforts enumerated above - those of Woodward-Clyde/Soros, COE, and TAMS (all of which refer to the development needs of the distal end of Homer Spit).

The Woodward-Clyde/Soros plan (Figure 1) entailed a port and harbor demand and feasibility project for the entire Kenai Peninsula Borough. It was conceptual in nature and did not involve the detailed engineering considerations that were applied to the COE and TAMS plans. Discussions of the Woodward-Clyde/Soros plan in this report are included for comparison and information purposes. It is not considered a viable development plan. Based on needs projected to 1990, Homer's small boat harbor would be expanded to provide slips for an additional 350 recreational boats and 200 commercial boats. The depth of the entrance channel and fish unloading areas would be increased from 15 to 20 feet to accommodate larger, deep-draft fishing vessels. A 30-acre commercial port area would be built immediately north of the boat harbor. This port area would accommodate the following activities:

- A possible staging area for offshore drilling support

- Additional space for fish unloading and processing



PROPOSED HOMER PORT EXPANSION

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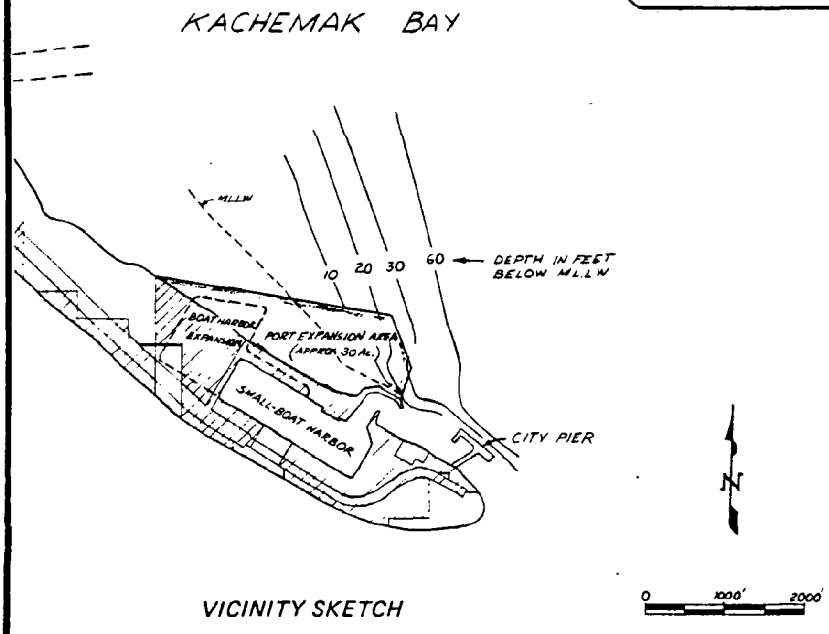


VICINITY SKETCH

Figure 1

WOODWARD-CLYDE/SOROS PROPOSED PORT AND HARBOR DEVELOPMENT PLAN FOR HOMER

SOURCE: WOODWARD-CLYDE/SOROS, 1980

- A facility for general cargo shipping and receiving in both containerized (roll-on/roll-off) and breakbulk form

- Space for port-related light industry

Under the Woodward-Clyde/Soros plan, the existing City pier would continue to be used as a ferry terminal and supply base for servicing offshore platforms. Costs for the small boat harbor expansion and commercial port development were estimated at $25,186,000 (1979 dollars).

The COE plan (Figure 2) was predicated on shallow and medium draft navigation improvements. The plan would expand the existing 16.5-acre harbor to a mooring basin of 48.7 acres that could accommodate an additional 548 commercial boats and 977 recreational boats. Dredged material and armor rock would be used to create a 17-acre breakwater (berm) with a crest width of 220 feet. Project costs were estimated at $12.7 million.

TAMS' preliminary port development plan (Figure 3) was designed to accommodate needs to year 2005. The plan encompasses four phases with a total estimated cost of $88,180,000 (1980 dollars). Phase I calls for the construction of a new fish dock and access trestles at the southwestern end of the small boat harbor. The dock would be capable of handling fishing vessels up to 180 feet in length. It would be outfitted with four 25-ton-per-day ice machines, a vacuum pump, four hydraulic hoists, cool and cold storage facilities, and a conveyor system. Phase II would incorporate the COE plan to expand the small boat harbor. However, the berm would be widened to 585 feet to create a 30.5-acre staging area and portions of a 12-acre support yard. Phase III calls for construction of a 700-foot long ocean berth equipped with a multi-purpose 40-ton gantry crane. Access would be provided by a trestle. Shoreside support facilities would be located on the staging and support yard areas constructed as part of Phase II. Phase IV would include an additional 700-foot long ocean berth with a multi-purpose 40-ton gantry crane and development of a roll-on/roll-off barge and ferry facility.

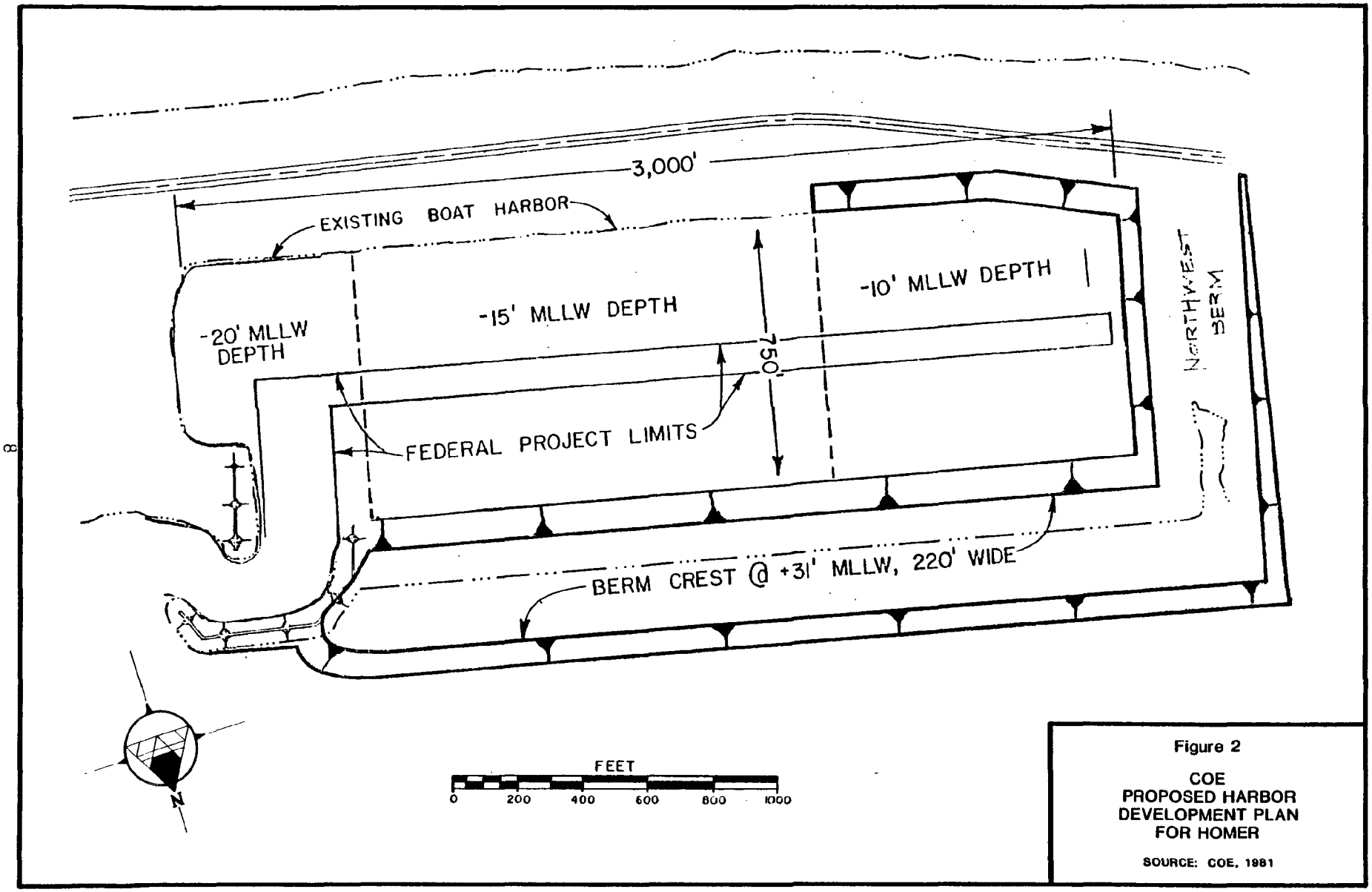
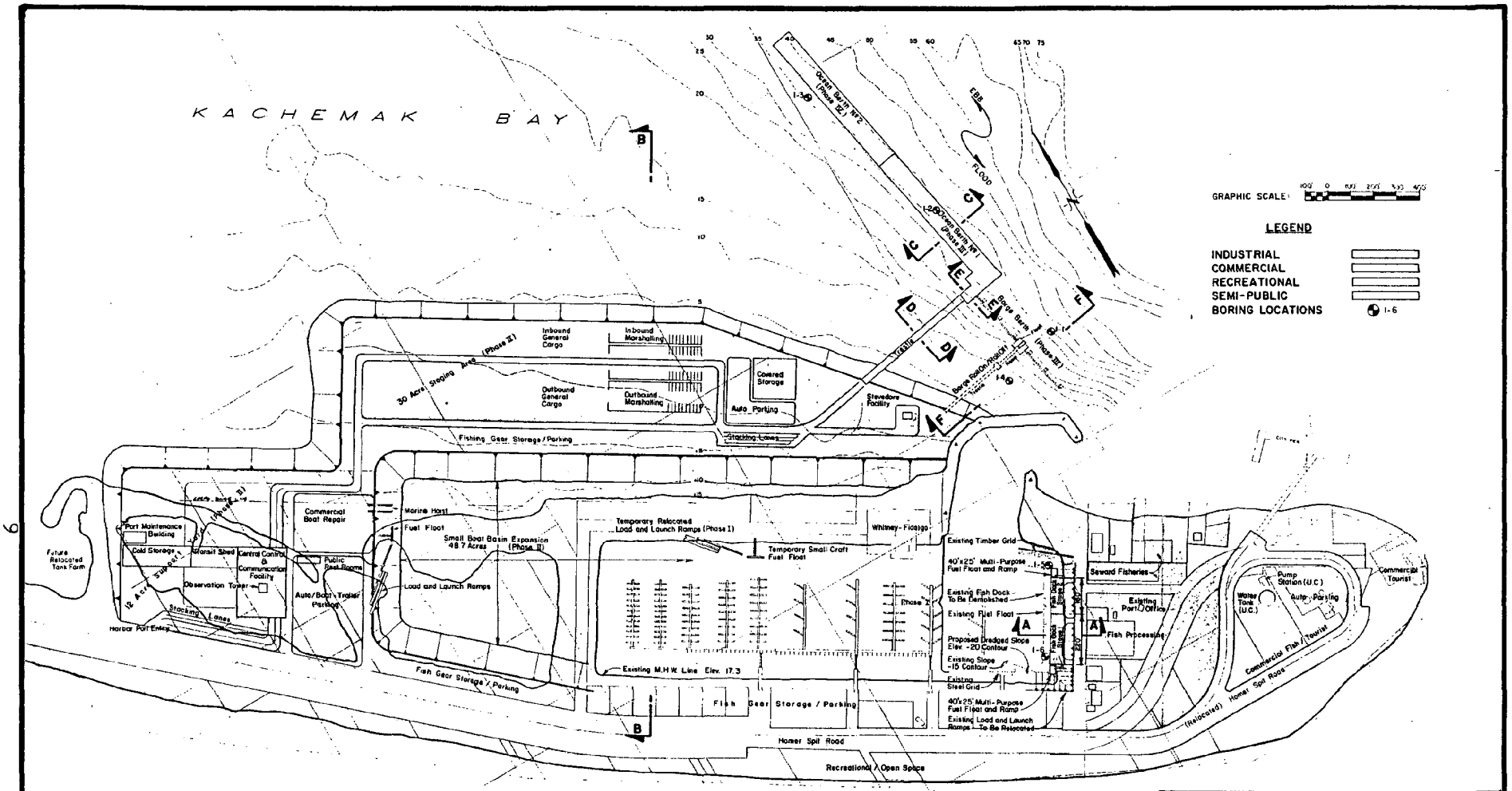


Figure 2

COE
PROPOSED HARBOR
DEVELOPMENT PLAN
FOR HOMER

SOURCE: COE, 1981



SECTION	SEE FIGURE
A-A	7.3-1
B-B	7.23-1
C-C	7.33-1
D-D	7.33-2
E-E	7.33-3
F-F	7.33-4

Figure 3

TAMS PROPOSED PORT AND HARBOR PLAN FOR HOMER

SOURCE: TIPPETTS-ABBETT-McCARTHY-STRATTON, 1980

1.4 STUDY ORGANIZATION

This report is divided into seven chapters. Following this first introductory chapter are four chapters on the major use categories for Homer Spit, viz: commercial fishing, tourism and recreation, transportation and support of offshore petroleum development. For each of those use categories the existing conditions are described, projections of future needs are summarized, and proposed plans are analyzed to indicate how well these needs would be served. In Chapter 6, the various development plans are evaluated in order to assess the nature and extent of construction activities that would result from implementation of these plans. The multiple uses of the Spit are viewed from an integrated standpoint in Chapter 7. Inconsistencies between plans are noted. The chapter concludes with discussion of unresolved conflicts and unanswered questions.

2.0 COMMERCIAL FISHERIES

2.1 EXISTING FISH STOCKS, HARBOR, AND PROCESSING FACILITIES

More than 14 million pounds of fish were processed on Homer Spit in 1979 (TAMS, 1980). Traditional target species fished include king, tanner, and dungeness crab, halibut, and all five species of salmon (red, pink, chum, coho, and king, in decreasing order of abundance). In addition to the traditional species, the past few years have seen the emergence of a successful trawl shrimp industry in Kachemak Bay and the beginnings of a bottomfish industry supplying fresh fillets to the lower 48. Salmon and to some extent the halibut catch have increased in the past two years due either to the reduction in foreign fishing pressure under the recently extended fishery management zone or natural cycle fluctuations (TAMS, 1980). The crab catch has remained fairly constant for the past few years while shrimp quotas and catch have been rising gradually, according to the Alaska Department of Fish and Game (Schroeder, 1980).

Current docking and fishing vessel support facilities are located within the Homer small boat harbor on the the distal end of Homer Spit. This 16.5-acre, 398-berth harbor is used by 227 commercial fishing boats, of which 74 percent are 32 feet or longer (1978 data from COE, 1979). The harbor is shared with 171 recreational boats, including a growing number of charter boats for sport fishermen. Eighty-six percent of the recreational fleet are 24 feet or less in length. In addition to the above vessels with reserved berths, many boats (mostly recreational) dock at Homer in summer under a space available or "hot berth" system. On peak weekends more than 1,000 boats per day call at Homer (COE, 1979). Thus, the harbor is often overcrowded in summer.

In addition to the berthing facilities, two fish docks, two repair grids and a gas dock are available in the small boat harbor. One fish dock is 100 feet long and is owned by the City (Tryck, 1977). This dock can accommodate three boats in the 35 to 40-foot range or one 160-foot vessel

(TAMS, 1980). It is equipped with a vacuum fish loading pump. The second fish dock is a 90-foot timber structure. It is owned by Whitney-Fidalgo and is available to their boats on a priority basis, and to public boats when space is available (Bertolio, 1980).

Two repair grids are available, one a wooden structure (168 x 22 feet) and the other a modern larger steel and wood structure. A number of hull and engine repair businesses serve the harbor.

Seward Fisheries and Whitney-Fidalgo operate the two largest fish processing facilities in Homer, with a combined product of 14.5 million pressed pounds in 1979, up from 10 million pounds in 1977 (TAMS, 1980). Both plants are located next to the small boat harbor and process year-round all the commercial species fished from Homer, plus over-flow salmon and crab from Dutch Harbor and Bristol Bay. Normally, fish are chilled, processed, and either stored or shipped directly by truck to Anchorage for containerized shipment to the lower 48 or export. In addition to the two major processors, four smaller processors serve a fresh harvest demand (COE, 1979). One small processor initiated operations this year, hand filleting bottomfish and shipping the fillets as well as fresh dungeness crab by truck to Anchorage and then by commercial air carrier to the Midwest (Hagberg, 1980).

2.2 FUTURE COMMERCIAL FISHERY NEEDS

There is general consensus among Homer city officials (Farnen and Calhoun, 1980), their consultants (TAMS, 1980), and consultants to the Kenai Peninsula Borough (Woodward-Clyde/Soros, 1980) that summer congestion in the existing small boat harbor severely hampers commercial fishing operations. Even with existing catch levels, berths, maneuvering, loading, unloading, storage, and fueling facilities are over-taxed. The need for facilities to meet anticipated future needs is more controversial, and depends on catch projections and perceptions of Homer's role in the fishing industry. This is a subject for disagreement, as indicated by the following summary of fish catch projections:

Salmon: There is general agreement that Homer's salmon catch will increase due to decreased foreign fishing pressures and improved spawning habitat. The extent of the increase is not certain, however. TAMS (1980) does not quantify the projected increase, but indicates that increasing amounts of salmon will be brought to Homer for processing from Kodiak and the Bering Sea area. Woodward-Clyde/Soros (1980) provides two conflicting estimates.(1) In their summary report, they project a 5 percent per year increase, while in the master plan, they project an increase of only 10 percent every 5 years. Alaska Department of Fish and Game (Schroeder, 1980) projects a more modest increase in salmon stocks due to increased hatchery activities. Pink salmon harvests have increased significantly as a result of the State's hatchery at Tutka Bay.

Halibut: The reported projections of halibut stocks are more variable than those of salmon. Woodward-Clyde/Soros (1980) predicts a doubling of catch to 8 million pounds per year in their summary report while in the master plan an increase of 5 percent per year is cited. TAMS does not explicitly project halibut yields but total catch figures imply continuation at present levels. Schroeder (1980) looks for yield to level off or decline slightly.

Shellfish: TAMS, Woodward-Clyde/Soros, and Schroeder all expect the crab catch to remain at present levels, although Woodward-Clyde/Soros expects larger vessels to be used. Schroeder anticipates that the Kachemak shrimp quota will be raised as the current catch is below the maximum sustainable yield.

Bottomfish: While the State of Alaska has continued to encourage bottomfish development and considerable interest has been expressed by fish processors and fishermen (Alaska Division of Labor, 1980a, b, c), the current shore-processed catch is small (no totals are available). TAMS projects that by 1985, 3 million pounds of bottomfish will be processed in Homer, while Woodward-Clyde/Soros (1980) projects a Borough-wide catch of 40 million pounds. Attributing even a third of the Borough's catch to Homer (a low

(1) Those and all other fishery estimates apply to the entire Kenai Peninsula Borough.

estimate) yields a 13 million pound total. This compares with the 10 million pound projection used by the Corps of Engineers (COE, 1979) in their Homer small boat harbor expansion plan. The wide range in estimates is not surprising considering that the industry is still in its infancy.

Fleet and Processing Capacity Projections: The significance of the above projections of catch is their implications for fishing fleet size increases and the resultant need for expanded harbor and processing facilities.

An increase in total vessels in response to rising pink salmon harvests is not anticipated since the fishery is a limited entry fishery.

Woodward-Clyde/Soros (1980) projects a 15 to 22 percent increase in the salmon fleet and a 20 to 30 percent increase in the halibut fleet over the next decade. In addition, that report projects that 10 new 130-foot vessels will begin bottomfishing in Homer and Seward. COE (1979) projects 15 new commercial fishing vessels in Homer as a direct result of harbor expansion.

TAMS does not project the size of the fishing fleet. They do, however, project increases in fish processing through Homer. In their "most probable" scenario, they project a 5 million pound annual increase in herring and salmon processed by Seward (Icicle) Corporation and an additional 6 million pounds per annum increase in fish and shellfish processed by Whitney-Fidalgo. The Seward increase is expected to result from additional raw fish transshipped from the Bering Sea and Bristol Bay. No source of fish stocks is reported for the Whitney-Fidalgo plant, and the current Homer operations manager does not anticipate an expansion.

TAMS also reports that it is probable that an additional 9 million pounds per year of salmon will be transshipped from Kenai for processing at Homer by 1995.

Summary of Commercial Fishery Projections: In summary, the salmon, shrimp and halibut catch will increase at an unknown rate. The crab catch

will remain fairly constant while bottomfish could either remain a minor industry or increase dramatically. Fleet size may increase by 10 or more large (130-foot class) boats. Processed catch may increase by as much as 20 million pounds per year, plus an additional 13 million pounds of bottomfish. This increase might also be negligible if:

1. Salmon catch increases do not respond to hatchery activity and current high catches are merely a cyclical phenomenon.

2. Halibut catch is already at maximum sustained yield.

3. Transshipments of salmon, herring, and crab from other fisheries for processing at Homer do not materialize.

4. Bottomfish stocks prove inadequate or the fishery proves uneconomic.

The uncertainty attached to these events complicates Homer Spit fisheries planning.

2.3 ADEQUACY OF PROPOSED DEVELOPMENT PLANS

The adequacy of the proposed Homer small boat harbor and related commercial fisheries facilities expansion on the distal end of the Spit depend on the current and projected future level of fisheries activities. It is universally agreed that even at current levels, the facilities are inadequate. But the projected levels of future local fish catch and future processing of non-local catch are extremely uncertain. Based only on current needs, the harbor needs to be expanded and deepened. Overtaxed support facilities also need to be expanded.

Apart from general planning goals expressed in Borough and City planning documents, three plans relating to commercial fisheries expansion have been proposed: TAMS, COE, and Woodward-Clyde/Soros. Each of those plans is discussed below, followed by a discussion of existing and proposed zoning and private developments affecting commercial fisheries.

COE: The Corps' 50-year plan was not aimed at commercial fishing operations and, therefore, is not comprehensive in appraising industry needs. Under the COE plan, the expansion would accommodate 548 commercial boats compared to the current capacity of 227 commercial stalls. The estimated need was obtained by totalling existing full-time (227), transient (123), and wait-listed (158) boats. To those were added a projected 15 new commercial boats and 24 charter boats.

The COE plan also provides for a 17-acre berm with a crest width of 220 feet. The plan does not specify what use would be made of this area. Presumably, part of it could be used to relocate the existing Whitney-Fidalgo fish dock and processing plant now located northwest of the harbor entrance. The COE plan does not address additional fish handling, processing, and support facilities.

TAMS: The report prepared by TAMS for the City of Homer incorporates the COE harbor plan into a comprehensive plan for meeting not only commercial fishing industry needs, but also transportation and recreational needs at the distal end of the Spit.

Phase I of the preliminary report involves replacing the existing 100-foot fish dock with a new 380-foot dock. This new dock would also replace the existing Whitney-Fidalgo dock. Facilities would include four 25-ton-per-day ice machines, two 30-ton-per-day vacuum fish loading pumps, a conveyer system to bring fish directly to the processing plants, a 600-square-foot chill storage area and a similar size cold storage area. Estimated cost for this two-year phase is $6.2 million.

Phase II would incorporate the small boat harbor design discussed in the COE plan. However, TAMS proposes that the 220-foot wide berm be widened to 585 feet to create a 30.5-acre staging area. This would support the development of an ocean berth facility to be constructed in Phase III. Estimated cost for this two-year phase is $21.3 million.

In summary, the TAMS expansion of harbor and handling facilities should be sufficient to handle all but the highest levels of projected catch.

Assuming that the area between the fish dock and the relocated road is dedicated to fish processing facilities, the plan should be ample to handle catch shipped from non-local fisheries.

Woodward-Clyde/Soros: This plan recognizes the insufficiency of slips for fishing (and recreational) boats, although it indicates that "...services to the port are limited but adequate with the exception of road access...." Under this plan, the entrance channel and fish dock areas would be dredged and the harbor would be expanded toward the northwest. Dredged materials would be used to create a 30-acre area on the northeast side of the existing harbor. The part of the fill area adjacent to the harbor would serve as a fisheries support area. The harbor expansion is less extensive than the other two plans in that only 550 new boat slips would be created to serve both recreational and commercial fishing boats. Two hundred of the 550 new slips would be assigned to commercial vessels. This should be adequate, providing the deeper slips are kept available for fishermen. Although a fisheries support area is created, this plan does not indicate the type of support facilities that would be provided.

The harbor expansion plan would cost $6.38 million, exactly half of the cost estimated for the COE plan. Both Woodward-Clyde/Soros' and COE's plans require additional (unspecified) investments in fish handling and support facilities in order to realize the full commercial fisheries benefits.

Other Plans: The entire Spit is currently zoned for industrial uses. All proposed harbor and commercial fisheries support and processing activities would be compatible with this zoning designation. The City of Homer has proposed to the Kenai Peninsula Borough Zoning Commission (which has ultimate zoning authority) that the area on the Kachemak Bay side of Homer Spit road be zoned "marine industrial," in keeping with the City's comprehensive plan (Homer, 1978). Such a special zoning designation would also permit commercial fishing activity. The difference between the two designations is that an industrial zone is not limited to marine dependent uses as is a marine industrial zone. It is conceivable, although highly unlikely, that enough non-marine industrial development could take place on the Spit so that insufficient

area would remain for commercial fishing support. This remote possibility would be avoided under the City's proposed ordinance.

A private developer, Douglas Sweat, is in the process of developing a marine industrial park on the bay side of the Spit road, about halfway along the Spit. He has built up berms along the bay shore. Although he has indicated to the press (Homer News, October 2, 1980) that he plans to develop harbor and fish processing facilities on this site, no firm plans have been publicized, and no other permits have been issued.

2.4 CONCLUSIONS AND RECOMMENDATIONS

1. The uncertainty regarding the amount of fish products available for processing in Homer complicates planning for commercial fishing facilities. Traditional species may increase only slightly or rapidly, depending on which projection is credited. Bottomfish development is even more uncertain, ranging from negligible to more than double the volume of traditional species. The amount of fish to be transshipped through Homer and the amount of fish to be processed in Homer is uncertain. Therefore, a flexible, phased approach to facility development is warranted.

2. The COE plan provides more than adequate berthing facilities for all but the most optimistic development levels. It does not address additional support facilities.

3. The TAMS plan incorporates features of the COE plan. Support facilities commensurate with harbor development are provided. The plan offers a phased development approach designed to minimize interruption to existing port activity. It also accommodates potential processing and related facilities.

4. The Woodward-Clyde/Soros plan is more modest than those of COE or TAMS. This plan may be appropriate if it can be revised to permit

additional berth capacity if and when need develops. Plans for commensurate fishery support facilities (publically or privately funded) should be added.

5. Private plans for commercial fisheries development should continue to be coordinated with the public plans to insure that capacity is appropriate to the level of fish processed through Homer.

3.0 TOURISM AND RECREATION

3.1 EXISTING CONDITIONS

Homer Spit is a magnet for recreational activities. Surrounded by the mountains of the Kenai and the Aleutian Range, and offering good near-shore fishing and clamming, Homer draws vacationers by land, air and sea. Being at the terminus of the Sterling Highway, an easy day's drive from Anchorage, Homer attracts a large number of campers, especially on summer weekends. Despite crowded harbor conditions, Homer is easily the most popular destination for Anchorage boaters. The following is a more detailed description of camping and boating activities.

Camping: Camping on Homer Spit ocurs at the City-owned/leased campground near the distal end of the Spit, at a roadside area, at the boat harbor parking area, at Lands End campground, and wherever physical access allows along the entire length of the Spit. Land Design North and Quadra Engineering Inc. (1980) inventoried designated campgrounds on the Spit during the 1979 season. Facilities and features from this inventory are shown below.

CAMPGROUND INVENTORY: HOMER SPIT, 1979 SEASON

Campground	Ownership	Approx. Acreage	Campsite Capacity	Density/ Acre	Facilities & Features
Homer Spit Campground	City of Homer (Lease Operation)	7	115	25.6	Flush toilets, hot showers, 40 electric hook-ups, some tables camp supplies available.
Lands End Campground	City of Homer	1	18	15.0	No facilities.
Spit Roadside Camping	City of Homer	.5	25	13.0	Toilet access across road.
Boat Harbor Camping	City of Homer	1.5	30	20.0	No facilities.
	TOTALS	10	188		

Land Design North and Quadra Engineering (1980) also collected baseline data to document general camping use patterns and frequency on Homer Spit during the 1979 summer season. Their data established a peak camping period from July through mid-August with other peak use during Memorial and Labor Day weekends. The peak period supported in excess of 500 camping units on an average weekend day and 300 units on an average weekday. Throughout the season, average week-day camping ranged from approximately 50 to 600 units. Average weekend day units ranged from approximately 100 to 800. Over 75 percent of all camping uses involved a recreational vehicle and over 85 percent of all campers were Alaska residents.

Non-camping Tourism: Homer has six hotels; one, the Lands End, is open only in the summer (May through October). These hotels have a total of 155 rooms. There are 11 restaurants in Homer, two of which are open only in the summer. Many retail businesses in Homer also rely on the tourist trade.

There is no tourist information center in Homer and no surveys have been made of the number of visitors arriving in Homer by road. The number of visitors to Homer is limited by the available lodgings during the summer. Only one hotel (Lands End) is located on the Spit, although all visitors to Homer undoubtedly spend some time recreating on the Spit.

Recreational Boating: The small boat harbor at Homer is by far the most popular destination for recreational boats in the Kenai-Cook Inlet area, according to a 1979 survey (Woodward-Clyde, 1979). This survey cites access to good fishing as the primary reason for choosing Homer. According to the COE feasibility report (COE, 1979), over 1,000 boats per day (mostly recreational) are handled by the small boat harbor during peak summer weekends. With only 171 recreational and 398 total stalls currently available, the overload is handled by "hot berthing" -- using temporarily vacant stalls -- and by stacking boats beam to beam. At present, 23 percent of the 5,500 recreational boats registered in the Anchorage-Kenai area use the Homer harbor. COE (1979) estimates that unmet demand (indicated by the long waiting list) could raise this total to 30 percent if facilities were currently available.

The overcrowding and harbor congestion discussed in connection with commercial fishing applies as well to recreational boating. The single fuel float serves both vessel classes. Parking can be a problem in summer for cars and trucks that trailered boats to Homer.

Kachemak State Park, located a short distance from Homer across Kachemak Bay, is reachable only by private boat and float plane.

Charter Boats: Fourteen charter fishing boats operate out of Homer's small boat harbor. These boats provide one-day fishing trips for individuals and groups visiting Homer. This activity contributes to the harbor congestion and particularly parking congestion at the end of the Spit. Fishing by charter boat has gained popularity with the fleet growing from 4 to the current 14 in the past four years (COE, 1979). The Homer harbor master reports that approximately 40 charter boats are registered for summer 1981.

3.2 FUTURE RECREATIONAL NEEDS

Tourism and Camping: It is reasonable to assume that demand will increase with the rapid population growth rates projected for the Anchorage-Kenai region.

Land Design North and Quadra Engineering, Inc. (1980) project Homer Spit camping demands to 1990 based upon 1979 peak season average weekday and weekend day user demand. Regional population increases of 25 percent over each five-year period plus a 10 percent increase in tourism statewide were used as the base for demand projections shown below.

	User Demand		
	1979	1985	1990
Peak season average weekend day	500	675	900
Peak season average week day	300	405	540
Peak day for season	800	1080	1458

Woodward-Clyde/Soros (1980) provides tourism projections for the Borough as a whole. The annual growth rate for tourism has been 16 percent from 1964 to 1977. Assuming that this rate must taper off, they reduce this figure to 8 percent for the future. On this basis, they project a continued growth estimate of 20,000 additional visitor days per year by 2005. This could increase by another 15,000 visitor days if facilities to serve cruise ships are developed.

Boating: The recreation demand study conducted in 1979 found a boating ownership ratio of 37 Anchorage-Kenai residents to one registered boat (Woodward-Clyde, 1979). This study estimates that since only half of the boats are registered, the actual Homer harbor ratio is 18.5:1. They project that the popularity of recreational boating will increase, resulting in a ratio of 14.3:1 in the year 2000. The COE (1979) uses the conservative 40:1 ratio and projects a constant participation rate into the future. This still results in a demand for 503 additional moorage spaces at Homer. In reaching a design total of 977, COE estimates an existing latent demand for spaces 2.5 times greater than those presently available. The demand estimate was obtained by adding the 503 new spaces to the existing 171 full-time spaces, 177 transient spaces, and 85 boats wait-listed for spaces.

In a study for the Kenai Peninsula Borough (Woodward-Clyde/Soros, 1980), the future demand recreational moorings in Homer is estimated to range between 500 and 1300 with a medium (sustained development strategy) demand of 900. This medium demand is roughly consistent with the COE projection cited above.

Charter Boating: COE (1979) projects that the existing popularity of charter boat fleets will continue to grow, and that 24 additional charter boats will be added in the next 10 years to the existing 14. Again, it should be noted that approximately 40 charter boats are registered for summer 1981.

3.3 ADEQUACY OF PROPOSED DEVELOPMENT PLANS FOR RECREATION

Most of the proposed plans for recreational development are confined largely to recreational boating and charter boating. The recreational impacts

of three plans (COE, TAMS, and Woodward-Clyde/Soros) are discussed below, followed by other related development plans.

COE: The COE plan for expansion of Homer's small boat harbor would create an additional 800 recreational boat spaces, as well as ample commercial berths suitable for charter boat use. The number of berths is sufficient to serve the demands projected by COE (1979) and the medium demand specified in Woodward-Clyde/Soros (1980). The creation of new recreational boat berths will undoubtedly increase the demand for fuel, water, electricity, sanitary facilities, and parking as well as increase traffic on the Spit. The scope of the COE study did not include analysis of these demands.

TAMS: Phase II of the preliminary TAMS plan incorporates the COE plan except that instead of a 17-acre berm, the excess fill from the dredging of the harbor would be used to create a larger (30.5-acre) area as well as part of a 12-acre support yard.

The preliminary TAMS plan includes additional water, sewage, electrical, and fuel support facilities. A new small boat fuel float would replace the existing combined float, and should substantially relieve congestion. In addition, this float would be equipped with pump and holding tanks for sanitary sewage, and facilities for refilling freshwater tanks. Electric demands from small boat floats totaling 500 KW would be provided.

The preliminary TAMS plan appears adequate to serve projected boat needs except for parking, which is reduced from the existing capacity. The plan also reduces the space currently available for camping.

Woodward-Clyde/Soros: This plan would create 550 new 25-foot equivalent boat berths. Like the COE plan, Woodward-Clyde/Soros does not address needs for water, fuel, sewage, and electricity for the expanded recreational boat fleet. Nor does it provide for additional parking, camping or other recreational facilities on the Spit.

Other Recreational Plans: The City of Homer has recently announced plans for a new campground to be built, partially on fill, on the Cook Inlet side at the base of Homer Spit. This campground would replace the City-owned/leased campground at the distal end of the Spit. A total of 341 units would be developed on the 57-acre site, including 280 units to accommodate recreational vehicles and 34 units for walk-in tent camping. Limited storage parking for boat trailers would be provided.

In a Master Plan for Roads and Streets prepared in 1979 by Silvers Engineering for the City of Homer, the suggestion is made that the Homer Spit road may require expansion to four lanes in the future unless demand is controlled. While a campground located at the base of the Spit may reduce Spit traffic, the increased harbor and port development and projected increases in recreational demand will have the reverse effect.

It has been suggested (Farnen, 1980) that a park headquarters and ferry service be developed on the Spit to serve Kachemak State Park. Douglas Sweats' proposed marine industrial park is mentioned as the site for such a development. Although those plans are very tentative at present, they could have a potentially great influence on recreational uses of Homer Spit.

3.4 CONCLUSIONS AND RECOMMENDATIONS

1. Camping facilities are woefully inadequate at present. The proposed campground at the base of the Spit reflects an increase of 200 units over the existing campground at the end of the Spit. However, the proposed 314 units is 200 units under 1979 user demands. Land Design North and Quadra Engineering, Inc. (1980) recommend that the City encourage development of suitable upland sites to satisfy current and future demands.

2. Tourist facilities in Homer are generally inadequate. Planning for these facilities is hampered by lack of data on supply and demand.

3. Berths for recreational boats would be ample under the COE and TAMS plans (projected to Year 2000). The Woodward-Clyde/Soros plan might provide an adequate number of berths (projected to Year 1990) at a lower cost. Woodward-Clyde/Soros and COE did not address needs for fuel, electricity, and toilet facilities for boaters. These two plans were also deficient in providing for parking needs.

4. Plans for increased public access to Kachemak State Park, with possible ferry service should be developed.

4.0 TRANSPORTATION FACILITIES

4.1 EXISTING PORT FACILITIES

In addition to the small boat harbor described previously, the City of Homer maintains a deep draft ocean pier (known as the "city pier") with a main face 410 feet long and a depth of minus 25 feet at mean lower low water (MLLW). A second face of 140 feet is used primarily for U.S. Coast Guard vessels. The main face is capable of serving vessels up to 500 feet in length. The pier is constructed of timber but has recently been reinforced by a wood and steel, rubber cushioned fendering system. The port is relatively ice free, but limited by weather on occasion.

The city pier is equipped with petroleum lines for unloading Standard Oil tankers and for fueling certain vessel types. (Other vessels must be loaded from tank trucks.) Potable water is available year-round.

Cargo handling facilities include fork lifts, privately-owned cranes with capacities up to 70 tons, a D-8 Caterpillar, a 40 x 100-foot warehouse, a 21 x 44-foot warehouse, and some open storage areas.

Homer is served by the Alaska Marine Highway ferry Tustumena, which has priority rights to use the City pier. The Tustumena has facilities for passengers, automobiles and vans.

The Port of Homer is at the terminus of the Sterling Highway, a paved two-lane road to Anchorage. The road distance to Anchorage is 225 miles and the travel time is 5 to 6 hours.

Traffic on the Homer Spit road has been growing at a rate of 10 percent per year since 1970. The 1979 average daily volume was 2,345 vehicles with a summer peak estimated at 6,000 vehicles. Parking facilities are limited with reported saturation of 1,000 vehicles. Parking from tourist, boating and fishing activities often interfers with cargo staging and handling (TAMS, 1980).

Homer's airport has a 7,400-foot paved runway and has regularly scheduled flights to Anchorage and other Alaska destinations. This provides an air-sea link for perishable fish products.

4.2 CARGO CURRENTLY HANDLED

The port of Homer currently serves three markets:

1. General cargo for the Kodiak-Kenai Peninsula area

2. Lower Cook Inlet OCS support

3. Seafood transportation.

The Port of Homer serves the general cargo needs of a local market area population of about 18,000 in the western portion of the Kenai Peninsula including the 2,185 people in the City of Homer, and 6,100 in Homer's surrounding area. In addition, cargo for Kodiak, for the most part carried in vans, is transshipped via Homer on the State ferry.

OCS support has thus far been confined to rig tending supply boats serving the oil exploration platforms in lower Cook Inlet. These tenders take on water, fuel, and other cargos needed on the platforms but the lack of warehouse and staging areas has prevented Homer from assuming a major role as an offshore oil supply base. These activities are discussed in more detail in Chapter 5.0.

Fish products, from both local fisheries and from non-local stocks processed in Homer, have typically been shipped from Homer by truck or air rather than by ship. Containerized shipments of salmon and crab are limited but increasing. Homer has recently assumed a role as a major transshipment point for Bristol Bay and Aleutian fisheries products. In May 1980, for example, 1.2 million pounds of salmon from Norton Sound were airlifted to

Homer for processing and truck transshipment. In fall of 1980, a large shipment of crab was delivered by ship to Homer for transshipment by truck to Anchorage.

4.3 PROJECTIONS OF FUTURE MARINE TRANSPORTATION NEEDS

Three studies have projected commodity movements through the port of Homer: TAMS (1980), Woodward-Clyde/Soros (1980), and Frederick R. Harris (1979). The projections are summarized in Table 1 for comparison.

All of these projections assume that improved container handling facilities will be available at Homer. The Woodward-Clyde/Soros and TAMS projections assume the projected levels of fisheries activities reported for these studies in Section 2.2 of this report. The basis for the Harris projections are not clearly specified, but presumably include a trend analysis based on projections of population and economic activity growth rates for this area.

The TAMS "trend and fisheries activities" projections and the Harris and Woodward-Clyde/Soros projections are reasonably comparable. The TAMS "market potential" is well above the other projections, however. This difference is presumably based on the assumption that improvements in cargo handling capacity at Homer will cause general cargo movements through Anchorage to the western portion of the Kenai Peninsula to be diverted to Homer. In addition, the TAMS report is more optimistic concerning the level of seafood processed at Homer.

The role of Homer in support of OCS activities is another unknown factor affecting Homer's cargo throughput. This will be discussed in detail in Chapter 5.0.

4.4 ADEQUACY OF PROPOSED PLANS

There are only two plans currently proposed for expansion of port facilities at Homer: TAMS and Woodward-Clyde/Soros. These plans are described below, followed by a discussion of their adequacy.

TABLE 1

PROJECTED COMPARISON OF COMMODITY MOVEMENT THROUGH THE PORT OF HOMER

(Thousands of Short Tons)

STUDY	1985	1990	1995	2000	2005
TAMS[1]					
Trend & Fisheries Activities	75	80	90	110	120
Market Potential & Fisheries Activities	150	180	230	275	300
Harris[2]					
Container	14		15		20
Neobulk	2		3		5
Liquid bulk	72		119		185
TOTAL	88		137		210
Woodward-Clyde/Soros[3]					
Petroleum & Products	50	57	62	69	
Other	26	33	37	39	
TOTAL	76	90	99	100	

Sources:

1. TAMS, 1980, III-129. Interpolated from a graph of their "probable" development scenarios. "Trend" refers to projections of historic trends. "Fisheries Activities" refers to the projected fishery activities discussed in Section 2.0. "Market Potential" refers to TAMS estimates of increases in cargo which would occur if adequate facilities were available (i.e., the facilities proposed in TAMS Phases III and IV).

2. Frederic Harris Inc., 1979, 2-59, Table 2.10.

3. Woodward-Clyde/Soros, 1980, Tables 9 and 10, combining inbound and outbound cargo.

TAMS: Phase III of the TAMS plan calls for the construction of an ocean berth oriented north-south on the Kachemak Bay side of the small boat harbor, as well as shoreside support facilities. Phase IV includes construction of a second ocean berth extending off the end of the first berth. Both these facilities would be in addition to the existing City pier, which would be maintained in its present configuration.

The 30.5-acre staging area serving the proposed new berth would be created from fill obtained from dredging during the small boat harbor expansion (Phase II of the TAMS plan). This staging area would include:

- Inbound and outbound marshalling yards.
- A large, covered storage facility with a 10,000-square-foot transit shed and 30,000 square feet of expansion space.
- A 13-acre general storage area.
- A parking and gear storage area.

The parking and gear storage area, together with existing land, would include 9.5 acres of parking (0.8 spaces per each of 1,525 small boat harbor stalls) and 2.8 acres of gear storage.

The first ocean berth would be built in two 350-foot sections and would be equipped with a 40-ton gantry crane, plus utility and fueling lines to shore. These utility lines would include adequate electrical and water service, as well as sewage pump-out equipment with a line to an onshore holding tank.

The second ocean berth (Phase IV) would provide an additional 700 feet of berth area, as well as a roll-on/roll-off barge (ferry) facility capable of handling the largest of the current side-loading ferries in Alaska. This phase would not be built until required by habor demand.

The Phase III development is designed to accomodate 271,000 short tons of cargo, 75 percent of which is incoming. As seen from Table 1, this is almost adequate for the high throughput projected under the TAMS "Market Potential Plus Fisheries Activity" probable scenario. This projection may be optimistic as to future throughput; therefore, the plan might represent excess capacity for the port.

Phase III is estimated to cost $37.4 million, and Phase IV to cost $23.2 million for a total of $60.6 million.

Woodward-Clyde/Soros: The proposed port expansion is conceptual only and does not provide detailed plans. The concept is similar to TAMS in that the dredgings from a small boat harbor expansion would be used to create a 30-acre area northeast of the harbor. The plan calls for construction of a 450-foot roll-on/roll-off barge berth, followed if needed by development of a 700-foot wharf with lift-on/lift-off capacity. (This is the reverse of the phasing suggested in TAMS.) A transit shed and a container storage area are included in the plan, but it is assumed that additional storage areas would be privately developed. Although not discussed in the plan, additional dredging would appear to be necessary for the roll-on/roll-off facility since it is within the 35-foot MLLW contour.

The roll-on/roll-off barge berth alone would have a capacity of 150,000 tons per year. The City pier would continue to service the ferry and OCS tender ships. Without the 700-foot commercial wharf, this development is estimated to cost $13.0 million. The commercial wharf is an additional $5.8 million.

A comparison of the TAMS plan with Woodward/Soros is difficult because the TAMS plan includes the cost of support facilities. It is clear, however, that the two plans differ as to the level of cargo anticipated, and that the development costs reflect those differences. This issue is further complicated by the fact that the predictions are somewhat self-fulfilling. The improvement in port facilities is an inducement for more traffic.

4.5 CONCLUSIONS AND RECOMMENDATIONS

1. Both OCS activities and commercial fish shipments present significant uncertainties in planning for future marine transportation needs.

2. Although the TAMS port plan is to be implemented in two phases, the first phase may provide more dock and support facilities than needed. However, the facilities may encourage use of the port.

3. The Woodward-Clyde/Soros plan is much more modest than the TAMS plan since it provides for less capacity and does not provide the storage and other support facilities of the TAMS plan.

5.0 OCS DEVELOPMENT

5.1 EXISTING CONDITIONS

The Port of Homer is strategically located with respect to OCS petroleum development activities in lower Cook Inlet. Homer has already performed a support base function with respect to exploration on leases sold in the November 1977 lower Cook Inlet OCS Lease Sale CI. A second oil and gas lease, OCS Sale 60, in lower Cook Inlet and Shelikof Strait is scheduled for September 1981.

Considerable research has been conducted into projecting the nature, schedule and impacts of OCS petroleum development in lower Cook Inlet. Petroleum development scenarios based on U.S. Geological Survey estimates of oil and gas resources have been developed by CH_2M Hill (1978), Dames & Moore (1979), the final environmental impact statement for Sale CI (U.S. Department of the Interior, 1976) and the draft environmental impact statement for Sale 60 (U.S. Department of the Interior, 1980).

All these reports identify Homer as the site of a temporary exploration and construction support base as well as a possible permanent service base. Each of the major planning documents, including the Homer Comprehensive Development Plan (City of Homer, 1978), the Kenai Peninsula Borough OCS Development Baseline Study (Kenai Peninsula Borough, 1977), the TAMS (1980) report and the Woodward-Clyde/Soros (1980) report, addresses the adequacy of the Port of Homer as an OCS support base.

The record of Homer's role in support of Sale CI exploration activities, which has been much less intensive than most predictions, has been documented in detail by Northern Resource Management (1980). Homer has served as one of the two major shore bases (the other being Nikiski) for supply boats and helicopters serving the drill rigs operating in lower Cook Inlet. Between October 1977 and January 1980, when a total of seven wells were drilled, an average of about 27 supply boat dockings per month

were made at Homer; the peak activity occurred in August 1979 when 42 dockings were made (with three rigs drilling). The principal function of the Port of Homer in the OCS activity was the loading of fresh water and light supplies. Nikiski served as the major support base providing heavy supplies such as mud, cement and tubular goods. Use was made of Homer harbor employees to assist in docking/loading operations but this generally involved little time. A private crane operator was employed to load boats. Only on one occasion were longshoremen called in to assist loading.

In addition to servicing supply boats, Homer served as a support base for helicopters ferrying crews to and from the offshore rigs and connecting with charter aircraft flying between Homer, Kenai and Anchorage.

Two new hangers were constructed at the airport, in part, as a response to this activity. The Northern Resource Management study reported that the existing port facilities at Homer were not strained by this OCS activity and that the overall adverse impacts from Sale CI exploration on Homer were minimal.

The general absence of adverse impacts on Homer's port facilities resulting from OCS exploration on Sale CI tracts can be explained by:

- The relatively low level of exploration activity with only seven wells drilled between October 1977 and January 1980.

- The use of Nikiski as the major support base through which the bulk supplies such as mud, cement and tubular goods were transferred to supply boats.

However, it is apparent that a significant increase in supply boat traffic and the shipment of heavy goods would have strained Homer's capacity; the City dock can only accommodate two supply boats at a time; warehouse and other storage space is limited and heavy cranes are lacking.

5.2 PROBABLE FUTURE OCS REQUIREMENTS

Forecasting probable future OCS petroleum development and related onshore facility requirements is an exceedingly risky exercise based upon estimates of oil and gas resources which in turn may be based on limited geologic data. Development scenarios are in turn based upon a set of engineering, environmental, economic and geographic (locational) assumptions.

Table 2 provides a comparison of various petroleum development scenarios formulated for lower Cook Inlet OCS lease sales CI and No. 60. It should be noted that the resource estimates upon which the scenarios are based are different, reflecting either different data bases or resource allocation assumptions. None of the studies conducted to date have considered in detail the cumulative impacts of Sales CI and 60. The Dames & Moore (1979) report, however, recognizes the distinct probability of infrastructure sharing arrangements if commercial resources are discovered in both lease sale areas.

With respect to Homer's role in support of OCS petroleum development in lower Cook Inlet, the major forecasts (CH_2M Hill, 1978; Dames & Moore, 1979; U.S. Department of the Interior, 1976 and 1980) are in general agreement about Homer's role. These studies indicate that Homer would be used as a support base during exploration and field construction. This role would, however, be subordinate to that of Nikiski (Table 3). Homer, due to space limitations and environmental factors, has not been considered as a feasible site for a major oil terminal, LNG plant or partial processing facility.

The principal development strategies assuming commercial discoveries of oil and gas in lower Cook Inlet are either: (1) pipelines to existing upper Cook Inlet terminal and petrochemical facilities (offshore pipelines would probably landfall in the Anchor Point area), or (2) pipelines to new oil terminal and petrochemical plant on the lower Kenai Peninsula (the Anchor Point-Cape Starichkof area). Both these development options would not involve major construction in Homer but would impact the port with respect to

TABLE 2

SUMMARY OF PETROLEUM DEVELOPMENT SCENARIOS
FOR LOWER COOK INLET OCS LEASE SALES CI and 60

Report/Source	Scenario	Resource Estimates: Oil (MMBBL) Sale CI	Oil (MMBBL) Sale 60	Gas (TCF) Sale CI	Gas (TCF) Sale 60	Number of Fields Sale CI	Number of Fields Sale 60	Number of Exploratory Wells Sale CI	Number of Exploratory Wells Sale 60	Number of Development Wells Sale CI	Number of Development Wells Sale 60	Number of Platforms Sale CI	Number of Platforms Sale 60	Peak Production: Oil (MBD) Sale CI	Oil (MBD) Sale 60	Gas (MMCFD) Sale CI	Gas (MMCFD) Sale 60
Sale CI FEIS (U.S. Dept. of Interior, 1976)	High	2600	--	3.3	--	--	--	84	--	520	--	23	--	930	--	465	--
Sale 60 DEIS (U.S. Dept. of Interior, 1980)	Mean	--	670	--	1.17	--	--	--	16	--	195	--	4	--	265	--	465
Dames & Moore, 1979	Exploration Only	--	--	--	--	--	--	--	19	--	--	--	--	--	--	--	--
	Medium	--	698	--	--	--	2	--	40	--	96	--	2	--	269	--	--
	High	--	1400	--	1.36	--	6	--	57	--	224	--	6	--	518	--	768
CH_2M Hill, 1978	Low	90	--	0.6	--	0	--	--	--	--	--	0	--	--	--	--	--
	Medium	750	--	1.6	--	5	--	--	--	--	--	5	--	210	--	220	--
	High	2600	--	3.3	--	10	--	--	--	--	--	17	--	660	--	450	--

TABLE 3

PROPOSED SHORE FACILITY SITES
LOWER COOK INLET OCS PETROLEUM DEVELOPMENT

Shore Facilities

OCS Lease Sale	Report/Source	Scenario	New Crude Oil Terminal(s) No./Location	New LNG Plant(s) No./Location	Support Bases Location
CI	Sale CI FEIS (U.S. Dept. of Interior, 1976)	High	2 Seldovia area, Anchor Point area, Nikiski,[1] Drift River[1]	1 Kenai-Nikiski area	Nikiski, Homer, Seldovia, Seward
60	Sale 60 DEIS (U.S. Dept. of Interior, 1980)	Mean	2 Anchor Point-Cape Starichkof area, Talnik Point (Kodiak Island), none	None (use existing Nikiski facilities)	Nikiski, Port Lions (air support)
60	Dames & Moore, 1979	Exploration Only	None	None	Nikiski, Homer
		Medium	1 Afognak Island, Nikiski[1]	None	Nikiski, Homer, Afognak Island
		High	1 Afognak Island, Drift River[1]	1 Afognak Island, Nikiski[1]	Nikiski, Homer, Afognak Island
		Low	None	None	None
CI	CH_2M Hill, 1978	Medium	Existing facilities in upper Cook Inlet	Existing facilities in upper Cook Inlet	Nikiski, Homer, Seldovia
		High	2 Anchor Point-Cape Starichkof area, Cape Douglas, Nikiski	1 either Anchor Point-Cape Starichkof area or Nikiski	Nikiski, Homer, Seldovia

[1] Existing facilities or expanded existing facilities.

handling materials and equipment for pipeline and petrochemical plant construction on the lower Kenai Peninsula.

In summary, the key problems concerning assessment of Homer's role in lower Cook Inlet OCS petroleum development are:

1. Reliance on uncertain projections concerning oil and gas resources and related development activities. It is apparent that there is a significant chance that no commercial oil and gas resources will be discovered and that the only OCS activity will be exploration. If the pace of exploration in Sale CI is emulated in Sale 60, then the port of Homer is unlikely to be overtaxed and overall impacts in Homer would be minimal. Indeed, the pace of exploration could be somewhat greater without overtaxing Homer's port facilities.

2. The adequacy of existing facilities with respect to OCS development forecasts, including the level of activity that would exceed the ports current capacity. If commercial discoveries of oil and gas are made in lower Cook Inlet, there is a significant chance that expanded port facilities at Homer would be required both for exploration (the pace of which would undoubtedly increase following a significant discovery) and field construction.

5.3 POSSIBLE ROLES FOR HOMER AND ADEQUACY OF PROPOSED PLANS

The following roles for Homer in support of OCS petroleum development can be envisioned:

1. A service base to provide support boats with water and light supplies at a level commensurate with the capabilities of the existing facilities.

2. Assuming a greater exploration pace than has occurred to date, the same service base role as Item 1 but at a level requiring

improvements in the berthing capacity, water supply, onshore storage and loading equipment.

3. A major service base to support offshore and onshore field development activities including platform installation, offshore pipelaying, and construction of onshore pipelines and terminal facilities on the lower Kenai Peninsula. Such a role would require major expansion of port facilities, including construction of several new berths, open and covered storage yards, repair facilities, office space and related utility infrastructure. The scale of these improvements could, however, be highly variable depending upon which "scenario" was closest to reality.

4. A permanent service base, performing functions similar to those of Nikiski, to support the routine operation of offshore oil and gas fields.

Each of the major development plans for the Port of Homer should be evaluated with the above roles in mind and the risk that such OCS development will take place.

Woodward-Clyde/Soros: This report addresses future port facility requirements in support of OCS petroleum development only in general terms and does not link the port plan with a specific development scenario. The report indicates that the present role of the port in servicing supply boats would occur in Sale 60 exploration and that the port may perform a similar role in connection with the Kodiak sale (now postponed to 1983). Construction of a new service base at Anchor Point-Cape Starichkof to perform support activities not permitted or located in Homer is recommended in the report.

The Woodward-Clyde/Soros plan for improvement of Homer's port facilities includes a 30-acre commercial port area provided by material from the dredged expansion of the small boat harbor. Part of this commercial port area would provide a "staging area for offshore drilling support." No mention is made of improvement or expansion of the City dock except with respect to OCS

activity. Additional dock space to accommodate increased supply boat traffic is not identified although a 450-foot barge berth for a roll-on/roll-off facility could possibly be used. A 700-foot wharf for a lift-on/lift-off facility cannot be justified in the near future, according to Woodward-Clyde/Soros, given the projected growth in port traffic. Such a facility, however, could conceivably be justified assuming major hydrocarbon discoveries in lower Cook Inlet and provided Homer is selected as a major construction support base. This possibility is not mentioned in the Woodward-Clyde/Soros report.

TAMS: This report closely examines petroleum development scenarios and related transportation projections for OCS lease sales CI and 60 (Dames & Moore, 1979; Peter Eakland and Associates, 1980) in order to determine the level of activity that may be experienced by the Port of Homer. The Dames & Moore and Eakland reports consider only the existing support facilities; they assume that Nikiski will serve as the principal support base and that Homer will serve as the supply base for water, fuel and light supplies.

Rather than translate projections of support base functions into facility needs, the TAMS report relates the proposed port development plan to the ability to attract and accommodate additional OCS activities. Thus the TAMS plan is not predicated on OCS petroleum development in lower Cook Inlet.

Phase II of the TAMS plan would provide a 30.5-acre staging area (developed from the dredged material of the small boat harbor expansion) of which 10 acres of open storage could be used by companies involved in OCS activities. Without a commensurate improvement in docking and loading facilities, however, it is difficult to envisage how this staging area alone would permit an increase in port utilization and types of cargo handled resulting from OCS activities. Phase III of the TAMS plan would provide these additional docking and loading facilities through construction of a 700-foot long ocean berth, installation of a 40-ton gantry crane and construction of various port buildings and utilities. The dock could accommodate up to three 200-foot supply boats at one time as well as barges transporting bulk materials. Phase II and III would thus provide the necessary dock loading and storage facilities for

Homer to handle bulk oil field supplies, such as mud, cement, casing and pipe. As a rule of thumb, such an OCS service base would require between 5 and 12 acres per supply boat berth (Alaska Consultants, 1976). A three-berth service base, for example, would require between 19 and 29 acres of land. TAMS recognizes that even with this expanded OCS role Homer would probably still remain subordinate to Nikiski. Further, if discoveries exceeded the "mean scenario," another support base may have to be constructed in the Anchor Point-Cape Starichkof area.

Phase IV of the TAMS plan involves longer range planning. This phase involves construction of a second 700-foot ocean berth if, and when, the first berth is fully utilized and the volume and scheduling of general cargo activity requires additional investments. Phase IV, which also includes construction of a roll-on/roll-off barge (and ferry) facility, appears to be predicated on the long-term economic growth of the Cook Inlet area rather than OCS petroleum development.

5.4 CONCLUSIONS AND RECOMMENDATIONS

1. Homer can accommodate a small increase (over that experienced to date) in supply boat servicing with the existing facilities but at the expense of congestion at the City dock.

2. In order to perform a greater role in OCS petroleum development, in particular that of a construction support base, the port would require additional dock frontage, loading equipment, storage areas, and related buildings and utilities. This is adequately provided for assuming the mean scenario (Table 3) in TAMS Phase II and Phase III but not by Phase II alone.

3. Only a pragmatic, phased approach to port development is appropriate when considering a high risk venture such as OCS petroleum development. The TAMS plan does not appear to be predicated on OCS petroleum development but rather has the flexibility to accommodate such development if it takes place.

4. The small boat harbor expansion and provisions of a staging area in Phase II should be completed as soon as possible to provide the ability to rapidly respond to OCS petroleum development, which would require implementation of all or part of Phase III.

6.0 A SUMMARY OF ALTERNATE DEVELOPMENT PLANS FOR HOMER SPIT ACCORDING TO POTENTIAL FOR ENVIRONMENTAL IMPACTS

A detailed biological sensitivity study of Homer Spit is underway; the results will be presented in a separate Dames & Moore report. The following discussion, which summarizes the environmental impact implications of the various development plans, is based solely on already published information.

6.1 CORPS OF ENGINEERS PLAN

The Corps of Engineers plan would expand and deepen the existing small boat harbor. The spoil resulting from this expansion would be used in the construction of a staging area and/or a protective seawall adjacent to the small boat harbor. This plan would expand the current 16.5-acre harbor into a 48.7-acre basin. Approximately 39 acres of intertidal and subtidal land would be covered by the fill operation. Nearly 32 acres of upland and intertidal habitat would become part of the expanded boat basin.

Construction impacts would result primarily from the dredge and fill operations. Elutriate sampling was performed on the sediments within the small boat harbor by the Corps of Engineers (COE, 1979). These samples indicated rather low levels of possible toxic substances. Consequently, no significant biological impacts are anticipated as a result of dredging in the existing basin. The water quality in the basin would be severely degraded during the excavation. Activities involving the placement of dredge spoils as core for either the breakwater or the staging and breakwater system would noticeably degrade water quality along the adjacent coastline. It is possible that some of the impacts from the construction activities could be mitigated by installation of a silt boom or the construction of a temporary containment berm that would confine much of the highly turbid water. However, the benefit would be slight. These impacts would disappear quickly upon completion of the construction phase and no long-term adverse effects should occur. A small amount of fine material may be washed out of the fill structure for a period of time following its construction, but this should not create a significant impact because of the naturally high turbidity levels.

Operation and maintenance impacts would result as a consequence of the added boat traffic within the expanded small boat harbor. Potential impacts to the marine system include:

1. Increased sloughing of slope material within the basin
2. Discharge of oily wastes
3. Spills during refueling
4. Solid waste disposal
5. Sewage waste disposal
6. Altered circulation patterns at boat harbor entrance

6.2 TAMS PLAN

The TAMS plan incorporates the Corps of Engineers boat basin expansion concept but would enlarge the breakwater to 30.5 acres. In addition, a fish dock inside the harbor and two steel-supported trestles and docks on Kachemak Bay would be constructed. Construction in Kachemak Bay would probably create a bar and change circulation patterns.

The construction impacts would be essentially the same as those described for the Corps' development. Water quality would be impaired temporarily by introducing suspended material into the water column through dredging activities. Construction of the breakwater would reduce intertidal and subtidal habitats. Initial construction of a berm to contain core material during construction would mitigate a certain amount of water quality degradation. Installation of the trestles and docks would temporarily increase the suspended solids in the coastal water. These impacts should disappear shortly after construction is completed. Since the basic basin geometry is the same as suggested by the Corps of Engineers, circulation within the harbor should be adequate to maintain sufficient water quality.

With regard to operational impacts, coastal transport and circulation should adequately maintain water quality along the shoreline in the vicinity of these developments. Undoubtedly, additional wastes would be deposited into Kachemak Bay as a result of increased boat traffic. If the expected growth in

the bottomfish industry occurs, additional fish-process wastes would be discharged into the coastal waters near the development. These discharges probably would have no significant effect on the water quality near the beach providing the outfalls are properly designed and sited in areas where circulation is adequate.

6.3 WOODWARD-CLYDE/SOROS PLAN

This plan is similar to the TAMS phased-development plan. The basic difference is in the configuration of the various elements. Essentially it also calls for expanding the small boat harbor, using the dredged materials to construct a shoreside staging area and construction of facilities to support fishing and cargo handling. The staging area incorporated in this plan would be 30 acres. The expansion of the small boat harbor is somewhat more modest than those suggested by either the Corps of Engineers or the TAMS report.

During construction, water quality would be degraded temporarily due to the increase in suspended material. Operation and maintenance impacts should be limited to increased wastes arising from more vessel traffic.

6.4 SUMMARY

With the construction of containment structures and the proper scheduling of dredge and fill activities, certain impacts can be mitigated. Other than permanent loss of certain habitats and subsequent creation of other habitats, long-term effects should not be significant. The potential short-term impact in all of the plans appears to be the effect on water quality resulting from the introduction of suspended material. This impact would occur only during construction and should not result in long-term effects.

The most severe problem would arise from poor design and placement of fish waste outfalls from seafood processing plants. The gyre resulting from the breakwater would act to concentrate large quantities of wastes in the harbor entrance channel.

The maintenance and operational impacts would be associated primarily with the increase in boat traffic using both the small boat harbor and the ocean dock facilities. Circulation is good around the Spit as a result of a high tidal range and strong winds. Therefore, water quality should not be severely impaired over the long term.

Homer Spit has two very different sides. This arises from the difference in exposure to winds and waves. The south side displays a high energy regime with relatively high waves and large sand transports. Most of this sand probably is transported into deep water near the end of the Spit or goes into the creation of shoals; relatively little is transported around the Spit into the more benign energy regime on the Kachemak Bay side. Most of the sediment that does move around the end of the Spit is probably deposited near the inlet of the small boat harbor. Probably very little moves across the inlet for eventual transport into Coal Bay to the north.

This suggests that development on the north side of the Spit, providing it is located north of the inlet for the small boat harbor, would not have a significant impact on the present littoral drift pattern.

Dredging is presently being done annually on a maintenance basis. The Corps of Engineers estimates that approximately 12,000 to 15,000 cubic yards may need to be dredged each year at the inlet of the small boat harbor. It is believed that this material is transported around the end of the Spit from the Cook Inlet side.

7.0 INTEGRATED PLANS FOR HOMER SPIT

7.1 CONSISTENCY AMONG PLANS

There is general agreement regarding the need for expanding the small boat harbor at Homer. The TAMS plan essentially incorporates the COE plan and has the support of the City of Homer. The Woodward-Clyde/Soros plan differs in detail but not in basic concept from the above plans. The major difference is in the use and configuration of the filled area created from dredging of the harbor. The Woodward-Clyde/Soros expansion provides fewer new slips, and would not meet existing recreational boating demands.

With regard to port expansion at Homer, TAMS and Woodward-Clyde/Soros differ as to their planned capacity and the need for publicly-funded support facilities. The Woodward-Clyde/Soros plan is predicated on a lower level of fishery cargo, smaller amounts of western Kenai Peninsula-destined cargo diverted from Anchorage, and a greater reliance on private development of support facilities than is the TAMS plan.

The private plans for development on Homer Spit may not be consistent with the public planning goals. Although detailed private plans for development were not available during the preparation of this study, it is possible that such plans as the marine fisheries industrial park proposed by Douglas Sweat might reduce the justification for development of publicly-funded fisheries support facilities.

The proposed City campground at the base of Homer Spit would seem to be consistent with other stated planning goals. Both the City and the Borough as well as the Coastal Development Program have emphasized the need for recreation facilities and the reduction of traffic on the Spit. The proposed campground would further those goals.

7.2 UNRESOLVED CONFLICTS, UNANSWERED QUESTIONS

This review of planning studies and identification of Homer Spit's coastal development needs has uncovered a number of unresolved conflicts and unanswered questions. These include:

- The biological sensitivity of the marine environment surrounding the Spit (results of the Dames & Moore study will be presented in a separate report).

- The growth potential of the fishing industry.

- Allocation of land and facilities for recreation, commercial fishing, and marine transportation.

- Provision for utilities, transportation, and parking on the Spit.

The success of each of the alternative port expansion plans hinges on the continued growth of the fishing industry in Homer, particularly the bottomfish industry. Growth in the volume of traditional species is questionable. The major increase, if any, will result from either bottomfish development or fish stocks from non-local fisheries. Both of those sources are uncertain. Bottomfish development is just beginning, and both the resource base and the economic viability are as yet unproven. Projections of fish shipped from Bering-Aleutian fisheries, or Kodiak assume that these areas will not expand their local processing capacities.

Any further development of the Spit, regardless of emphasis, must include careful consideration of utility and transportation systems. Water supplies should be adequate for any type of development, as soon as the new storage tank and pumping system is operational. Electrical demands for port and harbor expansions were identified in the TAMS plans, but not in other plans. The adequacy of the electrical generating plant to meet increased

demands was not addressed. At present, there is no municipal sewage service on the Spit. All sewage disposal is by septic tank. Provision of plans for sewage collection and treatment should accompany any further development. This need is noted in Homer's Comprehensive Plan (Homer, 1978).

Transportation and parking problems on the Spit will be exacerbated by any further development. The TAMS plan addresses these problems but does not coordinate the parking and traffic demands of the port and harbor with the other uses of the Spit. A traffic and parking survey providing for existing and future needs is another necessary part of any future Spit development plan.

Finally, a conscious choice must be made as to which types of uses will be emphasized on Homer Spit. Before resources are irrevocably committed, both the City and the Borough should carefully consider the trade-offs between the various uses for the Spit and reach consensus on goals. Only then can the development plans for individual uses be merged in a coordinated plan for the Spit.

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Addendum

The first paragraph on page 1, under 1.0 Introduction of this report, misinterprets the Area Meriting Special Attention (AMSA) designation under the Alaska Coastal Management Program regulations, 6 AAC 80.160 specifically. This regulation is clarified by Alaska Coastal Policy Council Resolution No. 10: Special Area Designation and Management. Although anyone may recommend a AMSA to a coastal resource district such as the Kenai Peninsula Borough, it is the district that designates the AMSA in its district coastal management program. Consequently, the only means of designating an AMSA within a coastal resource district is through Alaska Coastal Policy Council approval of a district program. Thus, the Kenai Peninsula Borough has the sole authority to include any proposed AMSA into its coastal management program when presenting its program to the Coastal Policy Council.

Since the Kenai Peninsula Borough has not reached the stage of passing a concept approved draft of its Coastal Development Program, nor received Alaska Coastal Policy Council approval of its program to date, the Homer Spit cannot be considered as a designated AMSA . Only If the Kenai Peninsula Borough proposes the Homer Spit as an AMSA in its Coastal Development Program and the Alaska Coastal Policy Council approves its program will the Homer Spit be designated as an AMSA under the Alaska Coastal Management Program.

Also, on page 2, second paragraph, under 1.2 Purpose and Scope of This Study, the report states that funds were made available to study the resources of the Homer Spit because the Alaska Department of Natural Resources, Division of Parks recommended the Homer Spit as an AMSA. In actuality, the overidding reason the Alaska Department of Community and Regional Affairs made funds available to study the Homer Spit was because the Kenai Peninsula Borough and the City of Homer requested and justified the need for these studies and were willing to provide a 20% match for the project.

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