2.720 h. Petaluma. Terminal facilities along Petaluma River (Plate I-6) include five petroleum products terminals (presently inactive for waterborne traffic), freight receiving wharves, four shipping terminals for fabricated construction products, one shell receiving dock and one bulk grain receiving wharf. Commercial traffic on the river consists of tugs and barges, with draft ranging from 8 to 12 feet. During 1973 these vessels made a total of 81 trips, carrying 7,650 short tons of oyster shells, 8,000 short tons of sand and gravel, 4,295 short tons of concrete products, 349 short tons of fabricated metal products, and 50 short tons of machinery, for a year-end total of 20,344 short tons (197).

2.721 Shipping reached a peak in 1966, with 416,162 short tons shipped, but declined to 70,277 short tons by 1972, largely due to a ruling of the Bay Area Air Pollution Control Board, which declared that storage tanks holding motor gasoline at Petaluma must be modified or replaced to eliminate organic gas emissions. Rather than modify these tanks, the oil companies have stopped shipping petroleum to Petaluma; they are using tractor-trailers instead.

2.722 One of the growing industries in the Petaluma area is the production of prefabricated structural concrete products. However, shipments of concrete products along Petaluma River have declined from 35,994 short tons in 1972 to 4,295 short tons in 1973 - one-eighth of the previous year's shipment. This industry finds that the existing river depths are too restrictive for navigation by large barges, especially during periods of low tide. This results in carriers being loaded at less than capacity and operating only when tidal action permits, resulting in higher shipping rates. However, when the river is dredged sometime in 1975, the depth will not be restrictive.

2.723 i. New York Slough Channel. This channel, shown on Plate I-20, is located at the eastern end of Suisun Bay and forms the initial reach of the San Joaquin River Deepwater Channel. New York Slough provides for safe navigation of waterborne traffic enroute to and from the Port of Stockton. Total commercial traffic through New York Slough Channel in 1973 shipped 3.7 million short tons of commodities. Types of commodities are listed on Table II-77. Large quantities of farm products indicate the importance of this channel to the agricultural community of the Delta area. Petroleum importing also accounts for a large portion of the shipping. Virtually all traffic through New York Slough travels the entire length of the San Joaquin River to the Port of Stockton.

2.724 j. Port of Stockton. The Port of Stockton is in the central part of the State at the head of the San Joaquin River-Stockton Deepwater Channel. The distance of the port from the

TABLE II-77

WATERBORNE COMMERCE
NEW YORK SLOUGH CHANNEL, CALIF.

COMPARATIVE STATEMENT OF TRAFFIC

YEAR	TONS	YEAR	TONS
1964	5,093,917	1969	8,504,509
1965	4,987,633	1970	6,553,524
1966	4,607,055	1971	6,839,741
1967	3,916,334	1972	3,025,392
1968	3,834,228	1973	3,706,993

FREIGHT TRAFFIC, 1973

FOREIGN

(SHORT TONS)

COMMODITY	TOTAL	IMPORTS	EXPORTS
TOTAL	1,517,409	351,898	1,165,511
0101 COTTON, RAW	193	----------	193
0102 BARLEY AND RYE	15,680	----------	15,680
0103 CORN	64,425	----------	64,425
0105 RICE	41,616	----------	41,616
0106 SORGHUM GRAINS	109,349	----------	109,349
0107 WHEAT	104,826	----------	104,826
0119 OILSEEDS, NEC	50,216	2,480	47,736
0122 HAY AND FODDER	1,702	----------	1,702
0129 FIELD CROPS, NEC	374	----------	374
0131 FRESH FRUITS AND TREE NUTS	2	2	----------
0141 FRESH AND FROZEN VEGETABLES	2	2	----------
0161 ANIMALS AND PRODUCTS, NEC	2	2	----------
0861 FOREST PRODUCTS, NEC	51	51	----------
0911 FRESH FISH, EXCEPT SHELLFISH	7	7	----------
1091 NONFERROUS ORES, CONCENT, NEC	3,144	3,144	----------
1411 LIMESTONE	170,427	170,427	----------
1451 CLAY	69,516	----------	69,516
1491 SALT	16,400	----------	16,400
1499 NONMETALLIC MINERALS, NEC	10,615	2,010	8,605
2021 DAIRY PRODUCTS, NEC	4	4	----------
2022 DRIED MILK AND CREAM	2,207	----------	2,207
2031 FISH AND SHELLFISH, PREPARED	30	30	----------
2034 VEGETABLES AND PREP, NEC	167	167	----------
2039 PREP FRUIT AND VEG JUICE, NEC	228	95	133
2041 WHEAT FLOUR AND SEMOLINA	1	1	----------
2042 PREPARED ANIMAL FEEDS	163,528	9,251	154,277
2049 GRAIN MILL PRODUCTS, NEC	7	7	----------
2062 MOLASSES	26,274	26,274	----------
2081 ALCOHOLIC BEVERAGES	65	65	----------
2091 VEGETABLE OILS, MARG, SHORT	1,120	1,120	----------
2099 MISCELLANEOUS FOOD PRODUCTS	5,440	159	5,281
2211 BASIC TEXTILE PRODUCTS	68	68	----------
2311 APPAREL	450	450	----------
2411 LOGS	77,400	----------	77,400
2416 WOOD CHIPS, STAVES, MOLDINGS	30	30	----------
2421 LUMBER	333	333	----------
2431 VENEER, PLYWOOD, WORKED WOOD	546	546	----------
2491 WOOD MANUFACTURES, NEC	66	66	----------
2511 FURNITURE AND FIXTURES	64	64	----------
2611 PULP	61,260	61,260	----------
2691 PULP AND PAPER PRODUCTS, NEC	5	5	----------
2711 PRINTED MATTER	1	1	----------
2821 PLASTIC MATERIALS	10	10	----------
2841 SOAP	6	6	----------
2891 MISCELLANEOUS CHEMICAL PROD	126	126	----------
2913 KEROSENE	62,615	62,615	----------
3011 RUBBER AND MISC PLASTICS PROD	96	96	----------
3111 LEATHER AND LEATHER PRODUCTS	124	124	----------
3211 GLASS AND GLASS PRODUCTS	297	297	----------
3251 STRUCTURAL CLAY PRODUCTS	10	10	----------
3291 MISC NONMETALLIC MINERAL PROD	101	101	----------
3313 COKE, PET ASPHALTS, SOLVENTS	333,866	----------	333,866
3314 IRON AND STEEL PRIMARY FORMS	148	----------	148
3315 IRON, STEEL SHAPES, EXC SHEET	2,678	2,678	----------
3316 IRON AND STEEL PLATES, SHEETS	28,036	2,469	25,567
3317 IRON AND STEEL PIPE AND TUBE	401	401	----------
3319 IRON AND STEEL PRODUCTS, NEC	18	18	----------
3321 NONFERROUS METALS, NEC	14	14	----------
3323 LEAD AND ZINC, UNWORKED	164	164	----------
3411 FABRICATED METAL PRODUCTS	311	311	----------
3511 MACHINERY, EXCEPT ELECTRICAL	3,238	3,223	15
3611 ELECTRICAL MACH AND EQUIP	233	228	5
3711 MOTOR VEHICLES, PARTS, EQUIP	230	230	----------
3731 SHIPS AND BOATS	2	2	----------
3791 MISC TRANSPORTATION EQUIPMENT	477	477	----------
3811 INSTR, TIME, PHOTO, OPT GOODS	14	14	----------
3911 MISC MANUFACTURED PRODUCTS	159	159	----------
4011 IRON AND STEEL SCRAP	86,189	----------	86,189
4112 COMMODITIES, NEC	5	4	1
TON-MILES, FOREIGN, 43,045,583,			

TABLE II-77 (Cont'd)

DOMESTIC

(SHORT TONS)

COMMODITY	TOTAL	COASTWISE		INTERNAL				
		RECEIPTS	SHIPMENTS	INBOUND	OUTBOUND	DOWNBOUND	THROUGH UPBOUND	THROUGH DOWNBOUND
TOTAL	2,189,184	866,765	86,864	1,055,107	106,046	30,400	42,557	1,445
0101 COTTON, RAW	842				842			
0104 OATS	5,352				5,352			
0106 SORGHUM GRAINS	814				814			
0107 WHEAT	2,259				814			1,445
0119 OILSEEDS, NEC	22,545				22,545			
0122 HAY AND FODDER	1,370				1,370			
0131 FRESH FRUITS AND TREE NUTS	265			265				
0141 FRESH AND FROZEN VEGETABLES	9			9				
0861 FOREST PRODUCTS, NEC	30,447			47		30,400		
0911 FRESH FISH, EXCEPT SHELLFISH	1			1				
1442 SAND, GRAVEL, CRUSHED ROCK	98,855			19,098	37,200		42,557	
1451 CLAY	4,025				4,025			
1471 PHOSPHATE ROCK	93,009	93,009						
1491 SALT	204,000			204,000				
1499 NONMETALLIC MINERALS, NEC	1,210				1,210			
2021 DAIRY PRODUCTS, NEC	8			8				
2031 FISH AND SHELLFISH, PREPARED	4			4				
2034 VEGETABLES AND PREP, NEC	1,480			1,480				
2039 PREP FRUIT AND VEG JUICE, NEC	1,015	389		626				
2042 PREPARED ANIMAL FEEDS	31,601				31,601			
2062 MOLASSES	108,272			108,272				
2081 ALCOHOLIC BEVERAGES	26,191	483	25,708					
2099 MISCELLANEOUS FOOD PRODUCTS	7			7				
2211 BASIC TEXTILE PRODUCTS	31			31				
2311 APPAREL	61			61				
2421 LUMBER	4			4				
2431 VENEER, PLYWOOD, WORKED WOOD	635			635				
2491 WOOD MANUFACTURES, NEC	8			8				
2511 FURNITURE AND FIXTURES	5			5				
2691 PULP AND PAPER PRODUCTS, NEC	149			149				
2810 SODIUM HYDROXIDE	102,437	50,936	51,501					
2813 ALCOHOLS	3,923	3,923						
2819 BASIC CHEMICALS AND PROD, NEC	24,190	24,190						
2831 DRUGS	25			25				
2871 NITROGENOUS CHEM FERTILIZERS	17,950	17,950						
2876 INSECTICIDES, DISINFECTANTS	35,684			35,684				
2911 GASOLINE	211,185			211,185				
2912 JET FUEL	147,458	146,819		639				
2914 DISTILLATE FUEL OIL	471,444	364,829		106,615				
2915 RESIDUAL FUEL OIL	378,796	18,159		360,637				
2916 LUBRICATING OILS AND GREASES	719	719						
3011 RUBBER AND MISC PLASTICS PROD	79			79				
3111 LEATHER AND LEATHER PRODUCTS	13			13				
3211 GLASS AND GLASS PRODUCTS	46			46				
3291 MISC NONMETALLIC MINERAL PROD	2,101			2,101				
3314 IRON AND STEEL PRIMARY FORMS	93,315	89,369	3,946					
3315 IRON, STEEL SHAPES, EXC SHEET	52,655	48,545	4,110					
3316 IRON AND STEEL PLATES, SHEETS	1,510		1,510					
3317 IRON AND STEEL PIPE AND TUBE	7,400	7,093		307				
3319 IRON AND STEEL PRODUCTS, NEC	337	281		56				
3321 NONFERROUS METALS, NEC	53	43		10				
3411 FABRICATED METAL PRODUCTS	2,076			2,076				
3511 MACHINERY, EXCEPT ELECTRICAL	211		14	197				
3611 ELECTRICAL MACH AND EQUIP	40			40				
3721 AIRCRAFT AND PARTS	116			116				
3731 SHIPS AND BOATS	104	28	75	1				
3791 MISC TRANSPORTATION EQUIPMENT	322			322				
3811 INSTR, TIME, PHOTO, OPT GOODS	5			5				
3911 MISC MANUFACTURED PRODUCTS	231			231				
4011 IRON AND STEEL SCRAP	273				273			
4112 COMMODITIES, NEC	12			12				
TON-MILES, DOMESTIC, 38,291,151,								
TONS, ALL TRAFFIC, 3,706,593,								
TON-MILES, ALL TRAFFIC, 81,336,734,								

SOURCE: U.S. Army Corps of Engineers. Waterborne Commerce of the United States, Calendar Year 1973.

Golden Gate is 75 nautical miles. In operation since 1933, the Port of Stockton is a major port of exit for agricultural products grown in the valley and for mineral ores from throughout Western U.S. It is a port of entry for a wide variety of bulk materials and manufactured goods (Table II-78). Foreign trade in 1973 was 54.2 percent of the waterborne commerce of the Port: imports were only 6.5 percent, but exports were 47.7 percent.

2.725 The port covers 485 acres, including a 275-acre industrial park built around the port. There are berths for 13 ships, eight transit sheds, and more than 200,000 square feet of open area for general cargo storage. The port has two gantry cranes each having a 30-ton lift capacity. Stockton is the only port in California that provides its own warehousing, stevedoring, and terminal operations.

TABLE II-78

WATERBORNE COMMERCE
STOCKTON HARBOR, CALIFORNIA

COMPARATIVE STATEMENT OF TRAFFIC

YEAR	TONS	YEAR	TONS
1964	2,970,741	1969	6,774,262
1965	2,835,701	1970	1,927,654
1966	2,635,253	1971	3,590,006
1967	2,022,745	1972	1,514,790
1968	1,724,886	1973	1,806,500

FREIGHT TRAFFIC, 1973

(SHORT TONS)

COMMODITY	TOTAL	FOREIGN		DOMESTIC			
				COASTWISE		INTERNAL	
		IMPORTS	EXPORTS	RECEIPTS	SHIPMENTS	RECEIPTS	SHIPMENTS
TOTAL	1,806,500	117,061	861,915	258,678	25,783	474,217	68,846
0101 COTTON, RAW	1,035	-	193	-	-	-	842
0102 BARLEY AND RYE	15,680	-	15,680	-	-	-	-
0103 CORN	64,425	-	64,425	-	-	-	-
0104 OATS	5,352	-	-	-	-	-	5,352
0105 RICE	41,616	-	41,616	-	-	-	-
0106 SORGHUM GRAINS	110,163	-	109,349	-	-	-	814
0107 WHEAT	105,440	-	104,826	-	-	-	814
0119 OILSEEDS, NEC	72,761	2,480	47,736	-	-	-	22,545
0122 HAY AND FODDER	3,072	-	1,702	-	-	-	1,370
0129 FIELD CROPS, NEC	374	-	374	-	-	-	-
0131 FRESH FRUITS AND TREE NUTS	267	2	-	-	-	265	-
0141 FRESH AND FROZEN VEGETABLES	11	2	-	-	-	9	-
0161 ANIMALS AND PRODUCTS, NEC	2	2	-	-	-	-	-
0861 FOREST PRODUCTS, NEC	98	51	-	-	-	47	-
0911 FRESH FISH, EXCEPT SHELLFISH	8	7	-	-	-	1	-
1451 CLAY	73,541	-	69,516	-	-	-	4,025
1471 PHOSPHATE ROCK	93,009	-	-	93,009	-	-	-
1499 NONMETALLIC MINERALS, NEC	11,825	2,010	8,605	-	-	-	1,210
2021 DAIRY PRODUCTS, NEC	12	4	-	-	-	8	-
2022 DRIED MILK AND CREAM	2,207	-	2,207	-	-	-	-
2031 FISH AND SHELLFISH, PREPARED	34	30	-	-	-	4	-
2034 VEGETABLES AND PREP, NEC	1,647	167	-	-	-	1,480	-
2039 PREP FRUIT AND VEG JUICE, NEC	1,243	95	133	389	-	626	-
2041 WHEAT FLOUR AND SEMOLINA	1	1	-	-	-	-	-
2042 PREPARED ANIMAL FEEDS	195,129	9,251	154,277	-	-	-	31,601
2049 GRAIN MILL PRODUCTS, NEC	7	7	-	-	-	-	-
2062 MOLASSES	134,546	26,274	-	-	-	108,272	-
2081 ALCOHOLIC BEVERAGES	26,256	65	-	483	25,708	-	-
2091 VEGETABLE OILS, MARG, SHORT	1,120	1,120	-	-	-	-	-
2099 MISCELLANEOUS FOOD PRODUCTS	5,447	199	5,281	-	-	7	-
2211 BASIC TEXTILE PRODUCTS	99	68	-	-	-	31	-
2311 APPAREL	511	450	-	-	-	61	-
2411 LOGS	77,400	-	77,400	-	-	-	-
2416 WOOD CHIPS, STAVES, HOLDINGS	30	30	-	-	-	-	-
2421 LUMBER	337	333	-	-	-	4	-
2431 VENEER, PLYWOOD, WORKED WOOD	1,181	546	-	-	-	635	-
2491 WOOD MANUFACTURES, NEC	74	66	-	-	-	8	-
2511 FURNITURE AND FIXTURES	69	64	-	-	-	5	-
2691 PULP AND PAPER PRODUCTS, NEC	154	5	-	-	-	149	-
2711 PRINTED MATTER	1	1	-	-	-	-	-
2821 PLASTIC MATERIALS	10	10	-	-	-	-	-
2831 DRUGS	25	-	-	-	-	25	-
2841 SOAP	6	6	-	-	-	-	-
2871 NITROGENOUS CHEM FERTILIZERS	17,950	-	-	17,950	-	-	-
2876 INSECTICIDES, DISINFECTANTS	39,684	-	-	-	-	39,684	-

TABLE II-78 (Cont'd)

FREIGHT TRAFFIC, 1973--CONTINUED

(SHORT TONS)

COMMODITY	TOTAL	FOREIGN		DOMESTIC			
				COASTWISE		INTERNAL	
		IMPORTS	EXPORTS	RECEIPTS	SHIPMENTS	RECEIPTS	SHIPMENTS
2891 MISCELLANEOUS CHEMICAL PROD	126	126					
2911 GASOLINE	211,185					211,185	
2912 JET FUEL	147,458			146,819		639	
2913 KEROSENE	62,615	62,615					
2914 DISTILLATE FUEL OIL	106,170					106,170	
2915 RESIDUAL FUEL OIL	9,485					9,485	
3011 RUBBER AND MISC PLASTICS PROD	175	96				79	
3111 LEATHER AND LEATHER PRODUCTS	137	124				13	
3211 GLASS AND GLASS PRODUCTS	343	297				46	
3251 STRUCTURAL CLAY PRODUCTS	10	10					
3291 MISC NONMETALLIC MINERAL PROD	101	101					
3313 COKE, PET ASPHALTS, SOLVENTS	56,890		56,890				
3315 IRON, STEEL SHAPES, EXC SHEET	2,678	2,678					
3316 IRON AND STEEL PLATES, SHEETS	17,979	2,469	15,510				
3317 IRON AND STEEL PIPE AND TUBE	708	401				307	
3319 IRON AND STEEL PRODUCTS, NEC	74	18				56	
3321 NONFERROUS METALS, NEC	24	14				10	
3323 LEAD AND ZINC, UNWORKED	164	164					
3411 FABRICATED METAL PRODUCTS	2,387	311				2,076	
3511 MACHINERY, EXCEPT ELECTRICAL	3,414	3,217				197	
3611 ELECTRICAL MACH AND EQUIP	273	228	5			40	
3711 MOTOR VEHICLES, PARTS, EQUIP	230	230					
3721 AIRCRAFT AND PARTS	22					22	
3731 SHIPS AND BOATS	106	2		28	75	1	
3791 MISC TRANSPORTATION EQUIPMENT	799	477				322	
3811 INSTR, TIME, PHOTO, OPT GOODS	19	14				5	
3911 MISC MANUFACTURED PRODUCTS	390	159				231	
4011 IRON AND STEEL SCRAP	86,462		86,189				273
4112 COMMODITIES, NEC	17	4	1			12	

SOURCE: U.S. Army Corps of Engineers. Waterborne Commerce of the United States, Calendar Year 1973.

2.726 k. Port of Sacramento. The Port of Sacramento is situated on the Sacramento River 80 miles inland from the Golden Gate. At the port, the river is the boundary line between Yolo County on the west and Sacramento County on the east. The port serves the Sacramento Valley and the Sierra Nevada mountains, and has become an important center for shipment of wood chips, fertilizer, rice, grains and other bulk cargo (Table II-79). A unique feeder system for containerized cargo to and from San Francisco Bay steamship terminals exists at the port. It is referred to as the Sacramento Container Barge Service (CBS).

TABLE II-79

WATERBORNE COMMERCE
SACRAMENTO HARBOR, CALIFORNIA

COMPARATIVE STATEMENT OF TRAFFIC

YEAR	TONS	YEAR	TONS
1964	2,248,085	1969	1,563,233
1965	2,258,281	1970	1,437,317
1966	1,825,758	1971	1,437,994
1967	1,868,717	1972	1,392,640
1968	1,773,665	1973	1,600,746

FREIGHT TRAFFIC, 1973

(SHORT TONS)

COMMODITY	TOTAL	FOREIGN		DOMESTIC		
				COASTWISE	INTERNAL	
		IMPORTS	EXPORTS	SHIPMENTS	RECEIPTS	SHIPMENTS
TOTAL	1,600,746	75,804	1,227,178	128,597	110,635	58,572
0103 CORN	11,265	----------	11,265	----------	----------	----------
0104 OATS	612	----------	----------	----------	----------	612
0105 RICE	387,798	----------	251,507	117,889	----------	18,402
0107 WHEAT	166,467	----------	166,467	----------	----------	----------
0119 OILSEEDS, NEC	6,775	----------	6,063	----------	----------	712
0861 FOREST PRODUCTS, NEC	6	----------	----------	----------	6	----------
0911 FRESH FISH, EXCEPT SHELLFISH	1	----------	----------	----------	1	----------
0912 SHELLFISH, EXCEPT PREPARED	9	----------	----------	----------	9	----------
2011 MEAT, FRESH, CHILLED, FROZEN	89	89	----------	----------	----------	----------
2015 ANIMAL BY-PRODUCTS, NEC	6	----------	6	----------	----------	----------
2039 PREP FRUIT AND VEG JUICE, NEC	1,973	----------	1,973	----------	----------	----------
2041 WHEAT FLOUR AND SEMOLINA	7,840	----------	7,840	----------	----------	----------
2042 PREPARED ANIMAL FEEDS	74,323	----------	67,601	----------	----------	6,722
2099 MISCELLANEOUS FOOD PRODUCTS	52	----------	52	----------	----------	----------
2411 LOGS	85,537	----------	85,537	----------	----------	----------
2416 WOOD CHIPS, STAVES, MOLDINGS	573,650	----------	562,982	10,668	----------	----------
2491 WOOD MANUFACTURES, NEC	4	4	----------	----------	----------	----------
2621 STANDARD NEWSPRINT PAPER	2,669	2,669	----------	----------	----------	----------
2819 BASIC CHEMICALS AND PROD, NEC	19,929	----------	----------	----------	----------	19,929
2871 NITROGENOUS CHEM FERTILIZERS	4,962	----------	----------	----------	----------	4,962
2872 POTASSIC CHEM FERTILIZERS	33,197	----------	33,197	----------	----------	----------
2879 FERTILIZER AND MATERIALS, NEC	70,670	70,670	----------	----------	----------	----------
2891 MISCELLANEOUS CHEMICAL PROD	5,975	----------	----------	----------	----------	5,975
2911 GASOLINE	72,996	----------	----------	----------	72,996	----------
2912 JET FUEL	10,564	----------	----------	----------	10,564	----------
2913 KEROSENE	2,118	----------	----------	----------	2,118	----------
2914 DISTILLATE FUEL OIL	22,748	----------	----------	----------	22,748	----------
2915 RESIDUAL FUEL OIL	2,193	----------	----------	----------	2,193	----------
3111 LEATHER AND LEATHER PRODUCTS	2	2	----------	----------	----------	----------
3291 MISC NONMETALLIC MINERAL PROD	1	1	----------	----------	----------	----------
3316 IRON AND STEEL PLATES, SHEETS	379	379	----------	----------	----------	----------
3317 IRON AND STEEL PIPE AND TUBE	484	484	----------	----------	----------	----------
3411 FABRICATED METAL PRODUCTS	30	30	----------	----------	----------	----------
3711 MOTOR VEHICLES, PARTS, EQUIP	1,475	1,475	----------	----------	----------	----------
3721 AIRCRAFT AND PARTS	1,258	----------	----------	----------	----------	1,258
3911 MISC MANUFACTURED PRODUCTS	1	1	----------	----------	----------	----------
4011 IRON AND STEEL SCRAP	32,688	----------	32,688	----------	----------	----------

Source: U.S. Army Corps of Engineers. Waterborne Commerce of the United States, Calendar Year 1973.

2.727 1. Fairfield-Suisun City. This shallow-draft channel, shown on Plate I-19, extends the entire length of Suisun Slough, located on the north side of Suisun Bay. Waterborne commerce along this channel ships only fuel oil. In 1973, 39 barges aided by 47 tugboats shipped 22,920 short tons of distillate fuel oil and 37,228 short tons of residual fuel oil up the channel to the towns of Fairfield and Suisun (197).

2.728 m. Other Private Wharves. Other private wharves are operated by C&H Refining Company at Crockett, by Crown Zellerbach Corporation at Antioch, Dow Chemical at Pittsburg, and the Holly Corporation at Ozol.

3. Military and Government Facilities.

29 a. Alameda Naval Air Station. NAS Alameda is a large, strategic naval air base located on the west end of the city of Alameda (Plate I-22). The mission or purpose of NAS Alameda is to provide services and material to support units of the Pacific Fleet.

30 An air base at Alameda was planned as early as 1917, but the Navy did not acquire the land until 1936, when 1,075 acres were transferred from the Army and 1,222 acres were donated by the city of Alameda. Construction began in 1938, with over 25 contracts awarded for fill, dredging, installation of services, buildings, quarters, and waterfront facilities. To meet the needs of the fighting forces during World War II, additional land was acquired and larger buildings added. The resident population almost tripled as NAS Alameda became the "aviation gateway to the Pacific." The postwar period saw a decline in activity, but the Korean conflict brought about new construction. With the expansion of the Naval Air Rework Facility in the 1950's, NAS Alameda grew to a vast complex of industrial aircraft and missile repair shops. The Naval Air Reserve Training Unit became a major tenant activity at NAS Alameda in 1961.

31 NAS now serves as a major seaport for attack carriers, service force ships, and many other transient vessels as assigned within the Twelfth Naval District; a major naval aviation industrial complex; primary aviation supply point; and training base for Fleet and Reserve aviation units. Its strategic value derives from the fact that NAS Alameda is one of the two air stations on the Pacific Coast capable of berthing aircraft carriers. It is currently homeport for four carriers. (Two of these carriers will be retired, leaving only two.) It is also homeport for six large service force ships. The base covers 2,720 acres and employs approximately 3,500 military and 8,500 civilian personnel, with an annual payroll of over $114 million. An additional $76 million is spent locally by activities at NAS Alameda on construction contracts, utilities and local material purchases. This does not include pay from the several thousand military personnel stationed on the homeported ships. Although the base is adjacent to the City of Alameda, most of the base personnel live outside Alameda. NAS Alameda encompasses the largest industrial complex in the East Bay and one of the largest in the entire Bay Area (120).

32 The channel and turning basin, dredged by the Corps of Engineers, will in the future continue to be used by the carrier Coral Sea, the nuclear carrier Enterprise, and the service force ships. The carriers bring aircraft requiring maintenance, modification, or overhaul to the Naval Air Rework Facility (NARF), which is a vast industrial complex occupying 68 buildings and

employing more than half the personnel on base. The primary mission of NARF is to overhaul aircraft. NARF facilities include an aircraft engine overhaul building, engine test cells, avionics building, hanger for minor aircraft repair and modification, and related facilities. Other activities on base are:

Commander Carrier Group THREE
Commander Carrier Group SEVEN
Attack Carrier Air Wing Reserve THIRTY
Fleet Tactical Support Squadron THIRTY
Navy Air Logistic Control Officer Eastern Pacific
Marine Air Reserve Training Detachment
Navy Air Reserve Training Unit
Fleet Maintenance Assistance Group
Naval Weather Service Facility
Navy Construction Battalion Unit 416
Marine Barracks
Navy Commissary Store
Navy Disease Vector Ecology and Control Center
Human Resources Management Detachment

2.733 b. MOTBA North. MOTBA* North is a four-berth military cargo terminal located on the north side of Oakland Outer Harbor (Plate I-22). The purpose of MOTBA North is to provide logistic support for all armed services in the Pacific area. It is owned and operated by the Military Traffic Management Command (MTMC), which is a separate military agency in charge of logistic support for the Army, Navy, Marines, Air Force, and Coast Guard.

2.734 MOTBA North was constructed as a landfill and wharf during 1941-42, as the war in the Pacific was escalating. At the height of World War II, MTMC was using all the facilities in Oakland Outer Harbor for shipments to the Pacific. All the property along the eastern and souther sides of the harbor was being leased from the Port of Oakland. Military activity diminished after World War II, and increased again during the Korean and Vietnam wars. In the mid-1960's, when the Port of Oakland and its commercial tenants began building containerized cargo terminals, MTMC began shipping its cargo through these commercial carriers - cargo that was previously shipped through MOTBA North. The result was a further diminishment of activity at MOTBA North. Today approximately 80 to 90 percent of MTMC cargo is shipped commercially, primarily by the Sea-Land Company. MOTBA North and MOTBA East (described below) handle the other 10 to 20 percent.

2.735 MOTBA North consists of: Piers 6, 6-1/2 and 7; two warehouses adjacent to the piers; and seven warehouses used for packing containers for commercial shipment. Pier 6 was used recently by the U.S. Post Office, but is now considered inactive. Shipments through Piers 6-1/2 and 7 are shown below:

* Military Ocean Terminal, Bay Area.

TABLE II-80

WATERBORNE COMMERCE 1974
MOTBA NORTH

58 import trips totalling 209,783 measured tons

96 export trips totalling 223,835 measured tons

SOURCE: Military Traffic Management Command, MOTBA North

2.736 The cargo (sometimes referred to as "break-bulk" cargo) consists almost entirely of large items such as automobiles or structural steel, which are too big to fit in the commercial containers. Ships frequenting MOTBA North range in draft from 30 to 32 feet. MOTBA North is presently operating at a one-berth workload. If military activity in the Pacific increases or decreases in future years, shipments through this facility may be expected to vary accordingly.

2.737 c. Naval Supply Center - Oakland. NSC - Oakland is a 13-berth Navy base yard and storage area located in Oakland Middle Harbor (Plate I-22). The facility was constructed in 1941-42 during the Nay's World War II building boom. Previously known as MOTBA South, this facility was orginally a cargo terminal. In the mid-60's, the military began shipping containerized cargo through commercial carriers. Cargo shipments through NSC-Oakland diminished accordingly, and the MOTBA designation was dropped. NSC is now used by the Navy as a general mooring base. It is homeport for a variety of naval vessels, including supply ships, destroyers, oilers, cargo ships, and special purpose ships such as cable layers. During a 13-month period from January 1974 to Febbruary 1975, 61 ships with a maximum draft of 36 feet visited NSC. Some cargo is still shipped from this base, and approximately 30 percent of the cargo handled by MOTBA North is first packed or otherwise processed at NSC. Many of the buildings are used to store general supplies for all Navy facilities in the Bay Area.

2.738 d. MOTBA East. MOTBA East, also known as the Naval Supply Center - Alameda Facility, is a four-berth Navy cargo terminal located on the south side of Oakland Inner Harbor (Plate I-22). This facility was constructed during World War II along with the other naval facilities in Oakland Harbor, and is the primary food distribution center for the Pacific Fleet. It serves as a supply annex to the main Naval Supply Center in Oakland, and consists primarily of two warehouses and a berthing area parallel to the Oakland Inner Harbor Channel. The warehouse nearest the water is used for storage of refrigerated foods and other perishables. The second warehouse is used for dry food and

general storage. In 1970, MOTBA East handled 80,000 tons of refrigerated foods, which were brought to the warehouses by specially modified rail cars (called "reefer vans"). A portion of the berthing area is occasionally used by Coast Guard ships based at nearby Government Island (124).

2.739 MOTBA East serves the same purpose as the other MOTBA facilities, which is to provide logistic support for the Navy's Pacific Fleet, the U.S. Sixth Army Region, and other military units in the Pacific area.

2.740 e. Government Island. The Coast Guard uses Government Island as a training station and berths three large Coast Guard cutters along the pier wall. The pier is also used by craft-on-call as well as by transient boats navigating through Oakland Inner Harbor.

2.741 f. Point Molate. Point Molate is a Navy fuel depot located just north of the Richmond-San Rafael Bridge on the Richmond shoreline (Plate I-13). It is the sole Navy bulk fuel handling facility for fleet units and shore establishments in the Bay Area and for other naval facilities as assigned within the Twelfth Naval District. Fuel transfer is only accomplished from and to ships and barges at the pier. Listed below are oil shipments through Point Molate during 1974 (Table II-81):

TABLE II-81

OIL SHIPMENTS THROUGH POINT MOLATE
1974

Conveyance	Quantity (barrels*)	Trips
Barge movements		
Commercial	3,154,988	230
Navy	546,526	182
Vessels/ships		
U.S. Navy	5,866	6
NSC PAC	35,890	8
Miscellaneous	13,271	37
Tankers in with product	600,759	8
Tankers out with product	412,893	6
Totals	4,770,193	477

SOURCE: Personal communication with NSC-Oakland, 18 February 1975.

2.742 As discussed in the Project Description, a $3 million reconstruction project is planned by the Navy to repair 550 feet of the 1,000-foot hammerhead pier during fiscal year 1976 or 1977. The volume of shipments through Point Molate may increase following the reconstruction.

2.743 g. Mare Island Naval Shipyard. Navigation commerce through Mare Island Strait is only one percent or so of the quantity through Pinole Shoal. Nevertheless, Mare Island channel is a key route in the Bay system due to the movements of Navy vessels in this area (Plate I-8).

2.744 Mare Island Strait became an important waterway when the Bureau of Yards and Docks, U.S. Navy, chose a site on Mare Island opposite the city of Vallejo for a Navy shipyard. Since 1854, when the shipyard was established, the Strait has been the connection from the naval shipyard to deep water in San Pablo Bay. The shipyard is important to national defense efforts because it constructs and overhauls nuclear-powered submarines that patrol the expanse of the Pacific Ocean. The Navy Department has designated Mare Island as the only west coast shipyard capable of performing such overhauls. The shipyard also conducts research and development on watercraft.

2.745 The shipyard presently employs about 10,000 people (1975). Mare Island Naval Shipyard is a major factor in the economic and social health of Vallejo.

2.746 h. Concord Naval Weapons Station. Concord NWS is a naval ammunition depot and supply center located on the south side of Suisun Bay (see Plate I-21). The official mission of this facility is to receive, renovate, store, maintain and issue ammunition, explosives, and expendable ordnance as directed by the Naval Sea Systems Command. It is the only trans-shipment point on the west coast for military ammunition.

2.747 The history of the Station dates back to 1853 when a location at Mare Island was established to provide storage for ships' ammunition. The location of the facility was moved to the Port Chicago area in 1942 and by 1944 had grown from the original 630 acres to an area encompassing nearly 7,000 acres. With the advent of space age weaponry, a missile facility was constructed in 1963. At this time the facility was redesignated Naval Weapons Station - Concord.

2.748 Transportation accommodations serving the Station consist of two transcontinental railroads and a county road that runs east and west through the property. There is a system of

roads that service the three piers and six berths at Port Chicago. During 1968 the Station acquired the town of Port Chicago and the persons living there were relocated for their protection.

2.749 The Station now covers 12,800 acres and employs 1,600 people. Activity reached a peak during the Vietnam War, with 3,500 people employed at the base and shipments approaching 900,000 long tons in 1968 and 1972. The tonnage handled over the piers at Port Chicago from 1966 to 1973 was as follows:

TABLE II-82

TONNAGE HANDLED OVER PIERS AT CONCORD NWS

Year	Long Tons
1966	604,992
1967	670,133
1968	876,759
1969	604,380
1970	546,310
1971	482,006
1972	890,497
1973	569,438

SOURCE: Personal communication with Harold Baltazar, Concord Naval Weapons Station, 20 June 1975.

The Navy has considered constructing a container handling facility at Pier 2, and has prepared an environmental impact statement on the dredging which would be associated with this project (50). The present method of trans-shipment is by barges or lighters, which may dock at any one of the six mooring areas, or by deep-draft vessels, which may dock at Piers 2, 3, or 4.

2.750 i. Sausalito Operations Base. The Ocean Traders Fish Company is based in Sausalito at the Corps of Engineers North Dock. From 40 to 50 commercial fishing boats berth at the dock permanently and as many as 200 boats may use the facility during peak fishing periods. The fish landing facility at the dock accounts for about 30 percent of all the fish landings within San Francisco Bay, or about $2.5 million worth of fish per year. The entire operation provides about 75 jobs (2.5 employees per boat) and an average annual income of $60,000 per boat.

2.751 The design of the new Corps of Engineers North Dock precludes the use of the dock by any other interests except the Corps of Engineers. Therefore, the Ocean Traders Fish Company will be forced to relocate.

2.752 If the fish company is unable to find new berthing facilities in Sausalito, they may cease operation. This might mean that the 40 to 50 boats permanently berthed will have to find berthing elsewhere. Moreover, transient fishing craft may be forced to unload fish elsewhere. Both berthing and fish unloading facilities are congested at other Bay Area ports. Thus, it is likely that some of the fishing boats would be forced to berth or unload fish outside of the San Francisco Bay Area.

2.753 However, the City of Sausalito is presently negotiating with the General Services Administration (GSA) to secure the South Dock for commercial fishing use. It is fully expected that the City will be successful in its efforts to obtain the said lease for the South Dock. Therefore, the effect of relocating non-government users of the existing North Dock to the South Dock will be minimal. Assuming this to be the case, the proposed project will not significantly affect the existing socio-economic structure of the project area.