feet equals 203.3 lineal feet. Based on these formulas, we can estimate that for each acre of gross land area that is devleoped for residential uses, approximately 200 feet of road will be required to provide adequate access. Based on our assumption that the length of water and sewer lines is equivalent to the length of roads on a gross area basis, it is estimated that 200 lineal feet of water line and sewer line are also required to serve each acre of developed land.

By comparison, three hypothetical cases based on different development densities are presented below. Example A represents the development of new dwelling units at the maximum density allowed by the R-1 zone in the Kodiak Zoning Ordinance (4.35 units per acre). Hypothetical Example B represents new residential development based on a density of 15.7 units per acre (six-plex development in the R-3 zone). Hypothetical Example C involves one additional factor. As discussed in the section on Housing Impacts, a substantial amount of residential development could occur outside the reasonable limits of public services (water, sewer and roads). This could occur based upon the desires of the new residents or upon the goals and objectives established by the existing residents of Kodiak. For the purposes of comparison, we assumed that 50 percent of the new housing units constructed through 1988 would be beyond the limits of public services and would be developed at a gross density of .67 units per acre (1.5 acres per dwelling unit). The remaining 50 percent of the new housing will be developed within the metropolitan area at a gross density of 4.35 units per acre (R-1) and would utilize public services.

The following figure has two basic intents. First it provides a generalized estimate of the land area and public services required to serve new residential development at varying densities. Second, it allows comparison of the results of land use decisions relative to the requirements for public services. See Table 26.

Analysis of these figures reveals that the relatively low denstiy, typical single family development indicated in Example A requires construction of 24.5 to 41.83 miles each of roadways, water, and sewer lines, depending on the development scenario used. The lower number is almost twice as much road as the City currently maintains. However, relatively high density development (Example B) will require 6.79 to 11.59 miles each of water, sewer, and roads, again depending on scenario. Hypothetical Example C calls for 12.25 to 21.12 miles of public services, about half as much as in Example A. The lower number, representing the no development scenario, is slightly below the current amount of roads now maintained by the City of Kodiak. The magnitude of the difference caused by the varying densities is further emphasized by looking at lineal feet of public services per dwelling unit. In Examples A and C, required footage is some 3.5 times more than the high density Example B.

These comparisons point out the importance of land use decisions. If the community elects to encourage high density development with a full range of community facilities and utilities, the ratio of lineal feet of public service per dwelling unit is much lower than if it decides to encourage low density development.

Table 26: Development Requirements With OCS Development

Case	# New Housing Required	Land Required	Road Required	Water & Sewer Lines Required
Example "A" @ 4.35 Units Per Acre				
Case 1	2814	646.9	129,380'	129,380'
Case 2a	3545	814.9	162,980'	162,980'
Case 2b	2955	679.3	135,860'	135,860'
Case 3	4804	1104.4	220,880'	220,880'
Example "B" @ 15.7 Units Per Acre				
Case 1	2814	179.2	35,851'	35,851'
Case 2a	3545	225.8	45,144'	45,144'
Case 2b	2955	188.2	37,646'	37,646'
Case 3	4804	305.9	61,195'	61,195'

Example "C" @ 4.35 Units per Acre (1)

Case	New Hous. (no Public Services)	Land Req. @ .67 Unit/Ac.	New Hous. w/ Public Services	Land Req. @ 4.35 Units/Ac.	Miles of Water,Sewer Road(2)	Total Land Required
Case 1	1407	2100	1407	323.4	66,000'	3432.0 Ac.
Case 2a	1773	2646	1772	408.3	81,682'	3054.3 Ac.
Case 2b	1478	2206	1477	339.5	67,901'	2545.5 Ac.
Case 3	2402	3585	2402	552.2	111,514'	4137.2 Ac.

(1) Example "C" = 50% of new housing units are beyond reasonable limits os public services -- developed at gross density of .75 units per acre (upa). Remaining housing utilizing publis services -- developed at gross density of 4.35 upa.

(2) Within Metropolitan Area

Source: Simpson Usher Jones, Inc. (Sontag), 1977.

Total land area required in Example A ranges from 647 to 1,104 acres, depending on the development scenario; in Example B, from 179 to 306 acres; and in Example C, from 2423 to 4137 acres, half of which is inside and half outside the metorpolitan area.

Presumably, as development activity increases the majority of new structures will be on existing utilities and roads. Shortly after the initial impacts of OCS development and resultant population growth, the existing road and utility system will be utilized to capacity. New facilities must then be constructed to accommodate any additional growth. Given this basis, future costs of these public services are estimated. As that land served by existing road and utility lines is developed, it

will be necessary to extend those services or force new development outside the area of public services and, consequently, require extremely low densities.

Cost per lineal foot of these services in Kodiak is now quite high: an average $180 per lineal foot for combined water and sewer service. This average is based on trunk and lateral sewers and various soil conditions. Cost of streets and street improvements, including paving, is approximately $250 per lineal foot. However, gravel roads built to minimum standards (20 feet wide) cost approximately $60 per lineal foot. (8) Utilizing these figures, we can calculate the potential costs of the public services based on the densities indicated in the Hypothetical Examples A, B and C. It is assumed in Example C that the housing units outside the reasonable limits of public services will have privately owned and maintained roads, water and sewer systems. Table 27 shows the cumulative costs for each case.

Table 27: Cost of Public Services*

Case	Miles Public Serv.	Sewer & Water	Paved Road	Minimum Gravel Rd.
Example "A"/4.35 upa				
Case 1	24.50	$11,642,000	$32,340,000	$ 7,761,600
Case 2a	30,87	14,669,424	40,748,400	9,779,616
Case 2b	25.73	12,226,896	33,963,600	8,151,264
Case 3	41,83	19,877,616	55,215,600	13,251,744
Example "B"/15.7 upa				
Case 1	6.79	$ 3,225,608	$ 8,962,800	$ 2,151,072
Case 2a	8.55	4,062,960	11,286,000	2,708,640
Case 2b	7.13	2,288,176	9,411,600	2,258,784
Case 3	11.59	5,507,568	15,298,800	3,671,712
Example "C"/50% @ 4.35 upa; 50% @ .67 upa				
Case 1	12.25	$ 5,821,200	$16,170,000	$ 3,880,800
Case 2a	15.47	7,351,344	20,420,400	4,900,896
Case 2b	12.86	6,111,072	16,975,200	4,074,048
Case 3	21.12	10.036,224	27,878,400	6,690,816

* Sewer and water @ $90.00 per lineal foot = $475,200 per mile.
Paved Road @ $250.00 per lineal foot = $1,320,000 per mile.
Minimum Gravel Road @ $60.00 per lineal foot = $316,800 per mile.

Source: Simpson Usher Jones, Inc. (Sontag), 1977.

Estimates assume that all new development subsequent to 1980 will require new public services, and residential development prior to 1980 will utilize existing services. In actual fact there will probably be a gradual switch from existing to new public services. The relative ratio of development within lands currently served by public services to development in newly served areas is impossible to determine on a year-to-year basis.

This information clearly shows that higher density development is more economical per dwelling unit from a direct cost standpoint. Traditionally, low density single family development does not pay for the services it requires through the taxes it generates, and medium density apartments normally pay in taxes more than their share of costs of public services. These factors should be considered when determining the mix of densities necessary to support adequate public facilities.

Housing

Anticipating housing impacts from OCS development are calculated by multiplying the projected population increases by the estimated family size, taking into account the historical trend of a decreasing number of persons per family. (See Housing Inventory and Demographic Inventory, Volume II).

Table 28 shows the housing required between 1978 and 1992 with OCS development according to the various scenarios. Family size figures are based on historical trends in Kodiak and the population projections in the Demographic Inventory in Volume II. The table shows the total number of housing units required to support the indicated population, as well as the yearly increase in housing units necessary to accommodate the yearly population increase.

As Tables 28-31 show, demand for new housing units corresponds to population increases (Table 24) and to the type of employee activity (Table 16 in first section). This demand increases as short term employment decreases.

Peak number of additional units needed in each case is 409 in Case 1 (1985); 843 in Case 2a (1987); 769 in Case 2b (1989); and 894 in Case 3 (1989). Total additional housing needs vary from 2814 units in the low find scenario to 4804 units in the high find scenario; likewise, average number needed per year from now until 1992 range from 165.5 to 283. These are only averages, and in any given year the requirements are either well below or above that figure. However, they do represent an increase in annual housing requirements from those predicted in the Housing Inventory of Volume II.

The community must make many decisions concerning the location and type of housing to meet this expected demand. Presumably a disproportionate majority of the new housing units will be in the Kodiak metropolitan area and along the road system. This is primarily because most population increases will be due to OCS development, and employment opportunities will either be within the Kodiak metropolitan area, at service base sites, or near the road system (see Map 3).

Table 28: Housing Requirements - Case 1 - Low Find

Year	Family Size	Population	# Housing Units	# New Units
1978	3.24	10,634	3,282	127
1979	3.22	10,996	3,415	133
1980	3.20	11,563	3,613	198
1981	3.18	12,092	3,803	190
1982	3.16	12,637	3,999	196
1983	3.14	12,791	4,074	75
1984	3.12	12,997	4,166	92
1985	3.10	13,439	4,335	409
1986	3.08	13,896	4,512	177
1987	3.06	14,368	4,695	183
1988	3.05	14,857	4,871	176
1989	3.04	15,362	5,053	182
1990	3.04	15,884	5,225	172
1991	3.03	16,424	5,420	195
1992	3.03	16,982	5,604	184

Total Number of Housing Units Needed	2,689
Average Number of Housing Units Needed per Year	179.2

Source: Simpson Usher Jones, Inc. (Sontag), 1977

Table 29: Housing Requirements - Case 2a - (Pipeline)

Year	Family Size	Population	# Housing Units	# New Units
1978	3.28	10,634	3,282	127
1979	3.22	10,996	3,415	133
1980	3.20	11,662	3,644	229
1981	3.18	12,434	3,910	266
1982	3.16	13,248	4,192	282
1983	3.14	13,617	4,337	145
1984	3.12	14,023	4,495	158
1985	3.10	14,612	4,714	219
1986	3,08	16,094	5,225	511
1987	3.06	18,568	6,068	843
1988	3.05	17,217	5,645	423
1989	3.04	19,345	6,363	718
1990	3.04	19,735	6,492	129
1991	3.03	20,040	6,614	122
1992	3.03	20,133	6,645	31

Total Number New Housing Units Needed	4,336
Average Number of Housing Units Needed per Year	289

Source: Simpson Usher Jones, Inc. (Sontag), 1977.

Table 30: Housing Requirements Case 2b (S.M.B.S.)

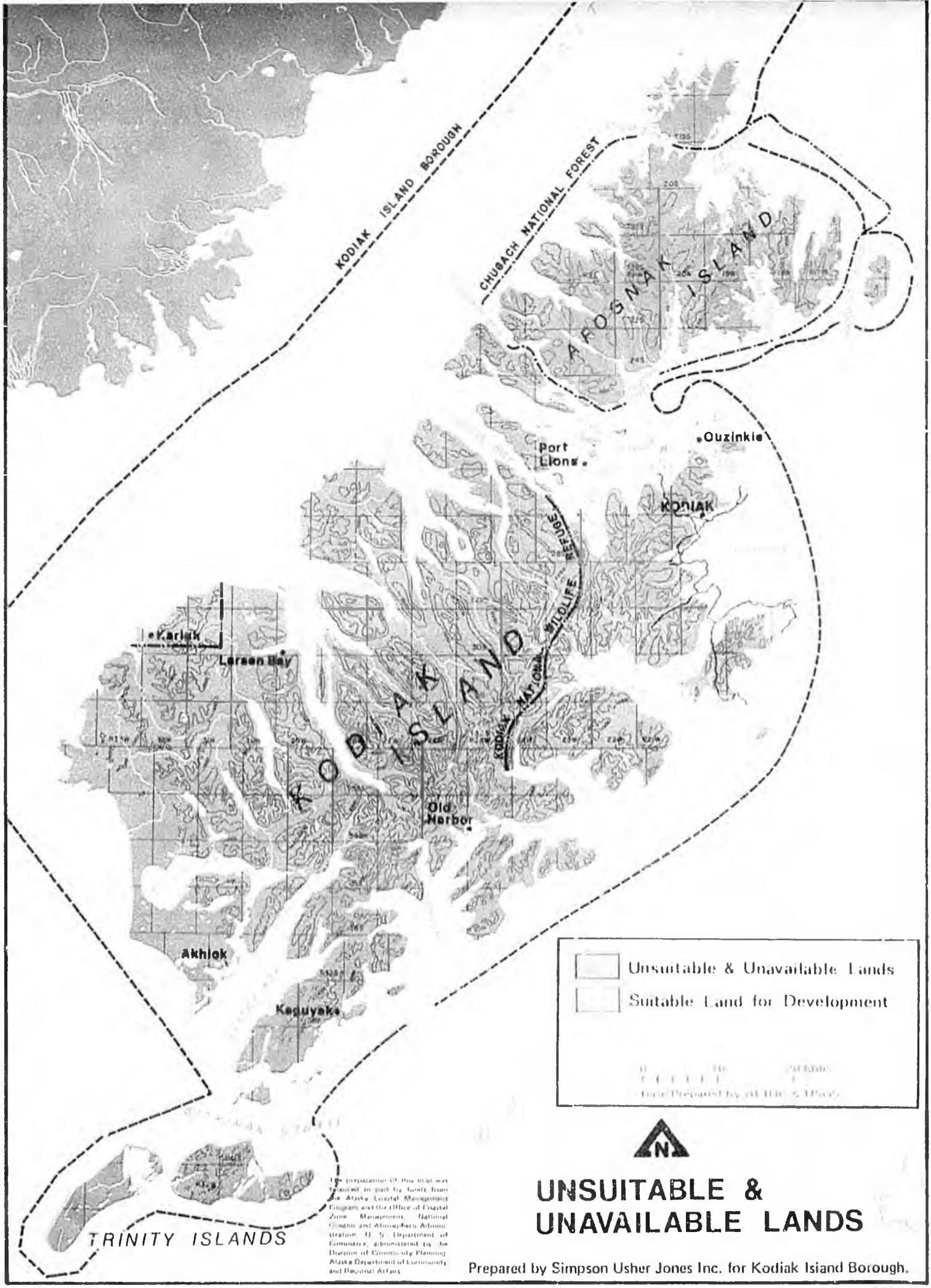
Year	Family Size	Population	# Housing Units	# New Units
1978	3.28	10,634	3,282	127
1979	3.22	10,996	3,415	133
1980	3.20	11,662	3,644	229
1981	3.18	12,434	3,910	266
1982	3.16	13,116	4,151	241
1983	3.14	13,353	4,253	202
1984	3.12	13,559	4,346	93
1985	3.10	13,829	4,461	115
1986	3.08	15,200	4,935	474
1987	3.06	16,090	5,258	323
1988	3.05	16,579	5,435	177
1989	3.04	18,861	6,204	769
1990	3.04	19,251	6,333	129
1991	3.03	19,556	6,454	121
1992	3.03	19,649	6,485	31
Total Number New Housing Units Needed				3,430
Average Number of Housing Units Needed per Year				228.8

Source: Simpson Usher Jones, Inc. (Sontag), 1977

Table 31: Housing Requirements Case 3 - High Find

Year	Family Size	Population	# Housing Units	# New Units
1978	3.28	10,634	3,282	127
1979	3.22	19,996	3,415	133
1980	3.20	11,662	3,644	229
1981	3.18	12,809	4,028	384
1982	3.16	13,364	4,229	201
1983	3.14	14,152	4,507	278
1984	3.12	14,988	4,804	297
1985	3.10	16,506	5,325	521
1986	3.08	19,038	6,181	856
1987	3.06	19,380	6,333	152
1988	3.05	19,369	6,350	17
1989	3.04	22,022	7,244	894
1990	3.04	22,128	7,279	35
1991	3.03	22,433	7,404	125
1992	3.03	22,526	7,434	430
Total Number New Housing Units Needed				4,679
Average Number of Housing Units Needed per Year				312

Source: Simpson Usher Jones, Inc. (Sontag), 1977.



UNSUITABLE & UNAVAILABLE LANDS

Prepared by Simpson Usher Jones Inc. for Kodiak Island Borough.

MAP 3

As indicated earlier, apparently the only suitable land available from directly related onshore facilities is either near or on the road system. This does not necessarily mean that all or even most housing will be in or immediately adjacent to the City of Kodiak. Depending on land use decisions made by the Kodiak Island Borough, a situation could easily arise whereby large numbers of housing units could be placed on the road system beyond the limits of public utilities and services but close to places of employment. For instance, if onshore service bases, marine terminals, and crude oil storage facilities are constructed near the end of the Chiniak Road at Chiniak or on Ugak Bay, personnel there who did decide to live in Kodiak permanently may choose to live relatively close to those facilities. Thus, a population center in that area is possible assuming developable land were made available for housing and ancillary commercial uses.

Conversely, if the Borough prefers to concentrate residential development in the metropolitan area, it could discourage and, in some cases, even prohibit residential development in other areas. This would affect the characteristics and, therefore, the impacts of growth related to OCS development.

Electrical Service

As indicated in the Community Facilities Inventory (Volume II), the Kodiak Electrical Association (KDA) has a current generating capacity of 24,918 kilowatts. At present all of KEA's generating capacity comes from diesel genrating turbines.

The current kilowatt-to-opulation ratio is 2.5 kilowatts per person utilizing the estimated 1976 population as a base. KEA feels that their current generating capacity will be satisfactory to accommodate the expected population growth through the early 1980's. This projection does not, however, take into account additional growth resulting from OCS development. Under normal growth conditions, by 1985 the population would be 13,439 people and the kilowatt-to-population ratio would be 1.8 kilowatts per person. However, with the induced population as a result of OCS development, that 13,000 plus population will be reached one to three years earlier than expected, depending on the development scenario. In addition, the population will continue to grow at an accelerated rate for about five years after that population is reached. Therefore, it is imperative that the electric utility begin to plan for additional power demands immediately. Also, if OCS facilities locate close enough to the City of Kodiak to utilize KEA power, it is likely that the current generating capacity would not be adequate past 1982.

With this obvious need for accelerated development of additional generating capacity, the question of the source of electrical power arises. As indicated in the Community Facilities Inventory (Volume II), KEA's plant is the largest diesel electrical generating plant in the state. At present the price of diesel fuel is rising at an extremely rapid rate. If diesel power is utilized to increase capacity and thus additional fuel supplies are required at the higher rates, then the cost of electrical power will rise accordingly.

This trend indicates a need for the development of alternative power sources. Hydroelectric power generation is historically the most inexpensive method of generating electicity. Consequently, the feasibility of the Terror Lake Hydroelectric project should be investigated thoroughly.

Law Enforcement Services

As indicated in the Community Profile and in Volume II (Public Safety Facilities), historically crime has not been a significant problem in Kodiak. However, in the last year there have been significant increases in criminal rates. This trend can be expected to continue throughout OCS development. The mobility of the new population and work force, the social and cultural differences, and pressures due to rapid population growth will result in increased crime rates. In order to cope with this situation, all of the law enforcement services should increase their effectiveness, primarily through increases in work force.

At present the ratios of police officers and public safety employees to population is relatively high in Kodiak, as is the number of law enforcement officers per thousand population. According to the 1975 Federal Bureau of Investigation, the average ratio of full time law enforcement employees (including civilians) per 1,000 population in cities under 10,000 in population in the Pacific states is 2.8 employees per 1,000 population in 1975. (9) In Kodiak, however, in 1976 the ratio of police department employees per 1,000 population was 5.1 per 1,000. However, the ratio of law enforcement officers per 1,000 in similar cities in 1975 was 2.2. In Kodiak the ratio is 2.5. This is based on an estimated city population in 1975 of 5,500 persons (see Volume II, Demographic Inventory). This ratio is about 13 percent higher than the average for cities of similar size and location. However, the high increase in crime rate justifies these higher ratios. In fact, to handle the work load required by the increase in crime, the department has proposed adding three officers to its force. This would bring the ratio of officers to population to 3 officers per 1,000 population.

In order to maintain the same police officer to population ratios throughout the rapid population growth period during OCS development, significant increases will have to be made in the police force. Table 32 shows an estimate of the required police force increases based on the growth of population of the entire Kodiak Island Borough. The estimated requirements for police force personnel was calculated in this manner for two reasons. First, it is impossible to determine the rate in which the City of Kodiak will grow relative to the entire population because of possible changes in city limits and unknown factors concerning the location of future residential units. Also, as the City of Kodiak is the only major city within the Kodiak Island Borough, most of that population spends some time within the city limits.

The current ratio of city police officers to total Borough population is 1.046 officers per 1,000. Based on the current estimated need for three new officers (see City Police Department - Public Safety Inventory, Volume II), the desirable rate would be slightly over 1.3 officers per

1,000 population. This figure is used in calculating the requirements for new police officers through the OCS development period.

Table 32: Police Force Requirements - City of Kodiak - With OCS

	Case 1		Case 2a		Case 2b		Case 3	
Year	Est. Pop.	Req.# Officers	Est. Pop.	Req.# Officers	Est. Pop.	Req.# Officers	Est. Pop.	Req.# Officers
1978	10,634	14	10,634	14	10,634	14	10,634	14
1979	10,996	14	10,996	14	10,996	14	10,996	14
1980	11,663	15	11,662	15	11,662	15	11,662	15
1981	12,092	16	12,434	16	12,434	16	12,809	17
1982	12,637	16	13,248	17	13,116	17	13,364	17
1983	12,791	17	13,617	18	13,353	17	14,152	18
1984	12,997	17	14,023	18	13,559	18	14,988	19
1985	13,439	17	14,612	19	13,829	18	16,506	21
1986	13,896	18	16,091	21	15,200	20	19,038	25
1987	14,368	19	18,568	24	16,090	21	19,380	25
1988	14,857	19	17,217	22	16,579	22	19,369	25
1989	15,362	20	19,345	25	18,861	25	22,022	29
1990	15,884	21	19,735	26	19,251	25	22,128	29
1991	16,424	21	20,040	26	19,556	25	22,433	29
1992	16,982	22	20,133	26	19,649	26	22,526	29

Source: Simpson Usher Jones, Inc. (Sontag), 1977

As can be seen, by 1992 the need for officers will increase in proportion to the population, rising by some 69 percent in Case 1 and some 123 percent in Case 3. These figures also apply to other public safety personnel, whose activity is directly related to police activity.

Kodiak must maintain a high level of law enforcement capabilities to maintain the quality of life. The "boom" that could occur will draw a higher proportion of cirminals that would normally come. To avoid severe criminal and social problems, police services must remain commensurate with population.

Educational Facilities

Rapid population growth will especially affect educational facilities in Kodiak. In the past public schools in Kodiak have generally shown increased enrollment figures as the population has grown. Between 1970 and 1974 the population within the five- to seventeen-year old age group grew at approximately three percent per year, comparable to the rate of growth for the total population. By 1974 that age group represented 28.2 percent of the total population on Kodiak Island. However, the continuation of that relative increase is difficult to project accurately for a number of reasons. First is the decrease in size of the average family in Kodiak, as described in the Demographic Inventory (Volume II). Second, families that move into Kodiak as a result of OCS development will tend to be younger and thus more likely to have children of school age. However, the fact that these people are more mobile and are in most cases moving to a new environment, often without prior knowledge of its characteristics, would tend to result in less children.

In estimating the future demands on educational facilities, we assumed that all these trends will stabilize the percentage of the population in the five to seventeen year old age group at approximately 30 percent. Table 33 shows the number of people in that age group that will result from the population growth associated with OCS development.

Table 33: Additional Classrooms Needed With OCS Development

	5-17 Age Group (30% of Total Population)				Classrooms Needed			
Year	Case 1	Case 2a	Case 2b	Case 3	Case 1	Case 2a	Case 2b	Case 3
1978	3190	3190	3190	3190	160	160	160	160
1979	3199	3299	3299	3299	165	165	165	165
1980	3469	3499	3499	3499	173	175	175	175
1981	3628	3730	3730	3843	181	187	187	192
1982	3791	3974	3935	4009	188	199	197	200
1983	3837	4085	4006	4246	192	204	200	212
1984	3899	4207	4068	4496	195	210	203	225
1985	4032	4383	4149	4952	202	219	207	248
1986	4169	4828	4560	5711	208	241	228	286
1987	4310	5570	4827	5814	216	279	241	291
1988	4457	5165	4974	5811	223	258	249	291
1989	4609	5804	5658	6607	230	290	283	330
1990	4765	5921	5775	6638	238	296	289	332
1991	4927	6012	5867	6730	246	301	293	337
1992	5094	6040	5895	6758	255	302	295	338

Source: Simpson Usher Jones, Inc. (Sontag), 1977.

The table also shows the number of classrooms needed to maintain a 20 student per classroom ratio in the schools. At present the schools within the Kodiak metropolitan area are slightly above 20 students per classroom, and the village schools are in most cases well below that ratio. As most population growth associated with OCS development will probably be in the Kodiak metropolitan area and its environs, most classrooms will be needed there.

Now the urban area has 161 classrooms, according to the Kodiak Island Borough School District. This will meet the needs generated by population growth through 1978. After 1979 additional classrooms will be required as shown in Table 33.

Communication Facilities

The Glacier State Telephone Company has recently expanded its facilities in Kodiak to meet estimated demands under normal growth rates to 1980. The population expected in the Kodiak Island Borough under normal growth rates in 1980 would be 11,370 people. However, the next few years will experience the accelerated population growth generated by OCS development. Again it is imperative that the telephone company begin planning now to meet that demand as it occurs. Fortunately, according to Glacier State Telephone Company, the facilities in Kodiak are capable of expansion to meet any reasonable future demands. (See Communications Inventory - Volume II.)

The demands on commercial communication facilities (radio and television) will increase according to population increases. Since they are owned by profit-making corporations whose revenues are generated primarily by advertising, it is anticipated that the level of service will increase as revenues from advertising increase. This is a normal function of the commercial market and should represent no appreciable impact on the Kodiak community.

Recreational Facilities

Kodiak is fortunate to have a tremendous amount of park land and open space surrounding the city. The Chugach National Forest and the Kodiak Wildlife Refuge occupy the great majority of the land area of the Kodiak Island Borough. They offer good recreational facilities and opportunities. In addition Kodiak's location on the coastline near some of the best fishing areas and water recreation areas in the State further enhances the recreation opportunities available to the residents.

Neighborhood parks are another consideration, however. Currently Kodiak has less than 15 acres of neighborhood park area. According to the ratios developed in the Demographic Inventory, approximately 84 percent of the population, or 8,347 residents, currently live within the metropolitan area or on the road system. The National Park Recreation and Open Space Association recommends a minimum of 2.5 acres of neighborhood parks per 1,000 population. The ratio for Kodiak currently is 2.5 acres per 1,400

population. To bring the amount of parks into conformity with the national standards, an additional five acres is currently needed in the Kodiak metropolitan area for park lands. Based on the projected population increases due to OCS development, an additional 20 acres of neighborhood parks will be needed by 1988. See Table 34.

Table 34: Neighborhood Park Requirements - 1988 - With OCS

Case	1988 Population	Total # Acres Needed	# Additional Acres Needed
1	14,857	37	17
2a	17,217	43	23
2b	16,579	41	21
3	19,369	48	28

Source: Simpson Usher Jones, Inc. (Sontag), 1977.

Again, according to the National Park Recreation and Open Space Association standards, neighborhood parks for a community the size of Kodiak should be between five and ten acres each. To accomplish this goal, Kodiak must begin planning the locations of these parks now.

Local Economy

Some of the largest impacts generated by rapid growth and development are felt in the economy. Many are the positive effects of economic growth: businesses flourish, job opportunities increase, and salaries rise. At the same time, however, prices and unemployment rise and those persons and families who cannot or do not partake of the higher salaries are adversely affected.

One basic cost that will probably rise as a result of an economic boom is the cost of government. As population increases, so does the demand for services provided by government. Funds to pay for those services will be generated by two sources. One is an increase in taxes. This is normally resisted by local government for a variety of reasons. The other is an actual increase in population which increases the tax base.

There is normally a lag in the services provided by government in a boom situation. Consequently, the demand for the services increases even more. In addition to this supply and demand function, increased government costs will be generated by the need for governmental provision of increased regulatory functions in a number of areas.

Rapid and increasing development demands monitoring and regulatory functions in order to preserve the health, safety and welfare of the population. These functions come in the areas of building codes, zoning, health and social services, education and police protection. All of these aspects have been discussed previously and their potential for increase has been noted.

In addition to regulatory and public service functions, additional governmental activity will be desirable in order to monitor the activities of the oil industry. Without such monitoring and the background data that it generates, the local governments cannot plan for and respond to the major phases of development.

Assigning exact numbers or percentages of increase to these factors is impossible without prior knowledge of the methods the community will utilize in approaching future growth. However, in general, increases from 10 to 15 percent per year in the cost of government would not be unexpected.

Increase in the cost of government also connotes an increase in the cost of living. The cost of living is affected not only by government but also by the increased demand and consequent costs of goods and services and housing. Housing is one of the most basic and largest cost in the cost of living index. As indicated before, demand for housing units will rise substantially during the exploration and development phases of OCS development in the event of a high find. Subsequent to those phases, the demand should return to a growth rate similar to that experienced prior to OCS development. During those periods of high demand, however, the cost of housing will be determined by the basic market function. If new development is encouraged and keeps pace with population growth, then increases in the cost of housing will be relatively normal. However, if residential development occurs at a pace slower than population growth, the cost of housing will increase.

As in the case of government services, there is a great potential lag in the provision of housing units. In the early 1980's population could jump substantially. However, most of that population growth will be based on short term employment. There could be a distinct tendency for the construction industry to avoid overbuilding during that period. Consequently, when permanent population increases do result from the longer term work in the mid-1980's, housing could be in extremely short supply.

The situation relative to basic commercial goods and services is similar to that of housing. However, the impact of OCS development should not be as direct. Most of the goods and services provided for OCS activities will be shipped from places other than Kodiak (Anchorage, Seattle, etc.). Consequently, the market function should provide basic goods and services to the population as it grows.

Impacts on basic industries could be either significant or neglible. As indicated in the Economic Inventory in Volume II, fishing is the basic industry in Kodiak. There are a number of ways in which the fishing

industry could be affected. If there is a major environmental catastrophe, the productivity of the industry could be drastically reduced. This would severely damage the economy of Kodiak despite the economic growth due to OCS development. In the absence of environmental catastrophes, the potential productivity of the fishing industry would be governed, as it is today by primarily natural instead of economic factors. The economic productivity of the industry increases due to increased local demand for fresh fish products.

The fishing industry could also be affected by a reduction in the labor force. If wages and salaries paid to workers associated with OCS development are competitive with earnings in the fishing industry, industrial activities could syphon off some of the fishing labor market. If so, the overall economic productivity of the fishing industry could be reduced. Even this impact could have beneficial qualities. If fishing productivity remains high, it is doubtful that successful fishermen would abandon their current jobs. If the fishing productivity declined because of natural factors, then the industrial activity associated with OCS development might serve as a "labor sponge" for these fishermen not able to make competitive wages. This might also reduce the intensity of fishing activity in those lean years, allowing marine resources to regenerate.

Another potential impact on the fishing industry is the increase in oil-related marine activity. As indicated, at the peak of activity as many as 12 supply boats could be making up to 300 trips per month. This would be in addition to the associated barge and tanker traffic.

Collisions are a serious result of this increased marine traffic. While the number of boats involved in oil activities will be insignificant compared to the total number of fishing boats, the frequency of supply boat trips makes collisions a hazard. This is especially true considering the frequency of weather conditions limiting visibility in the Kodiak area. A collision between a supply boat and a fishing vessel could have serious repercussions in addition to the possible loss of life and property. It could create resentment against oil-related people and a subsequent increase in social and psychological pressures. On the other hand, oil-related boats and platforms could provide navigational and emergency services.

Impacts on the fishing industry can also be caused by obstructions on the sea floor that interfere with fishing gear. Obstructions could include pipelines, production facilities, anchors associated with semi-submersible rigs, and debris. All but the latter should be marked by buoys. However, some buoys will enevitably be lost. To minimize fishing gear damage, the industry should initiate a strict bouy maintenance program. They may also establish a fund to replace of been damaged by oil-related equipment or activity.

Another adverse effect on the fishing industry results from potential competition for harbor facilities and marine services. Although Kodiak is among the top three fishing ports in the United States, the community is extremely short on harbor facilities and marine services. The small

boat harbor is hopelessly overcrowded and boats are normally parked up to four abreast at the transient docks. Competition is high for space on the grids and fuel dock. Nevertheless, through a spirit of cooperation and common purpose, the fishing boats seldom have serious conflicts. The addition of oil industry-related marine traffic could create significant problems. Harbor facilities cannot handle the 200 foot supply boats and no maintenance facilities are capable of servicing oil-related vessels. In fact, there are no dry dock facilities on Kodiak Island.

In addition, fuel supplies may not be sufficient for both oil and fishing boats. For example, in August 1976 several geophysical vessels operating on the Kodiak Shelf refueled in the harbor. In doing so they depleted the supply, and fishing boats were left without fuel. This situation can create an adverse reaction toward the oil industry as well as economically affecting the fishing industry. To avoid this competition between oil and fishing vessels, the oil industry could moor, maintain and fuel their boats at supply bases remote from the fishing ports on Kodiak Island. In addition, operators of both oil and fishing industry vessels should understand the purpose, needs and capabilities of each vessel's use.

Transportation Impacts

As with other basic community facilities and services, OCS impacts on Kodiak's transportation system would be substantial. They can be measured in terms of the expected increases in industrial activity as well as increases in population. The potential increased demand for roads and airport facilities has already been described. Impacts, especially those associated with surface transportation, will be substantial and costly.

Air Transportation

Considering the labor force directly related to oil development and production (not including construction workers), we can estimate the requirements for commercial air carrier service. This kind of shift or "hitch" work has been common in the oil fields of Alaska.

During the peak years of 1987 in Case 2a and 1986 in Case 3, 1375 and 2122 people will be employed, respectively, in the offshore/onshore support services. If a three week on, one week off crew change schedule is utilized, the 25 percent of that work force will change crews each week. Consequently, 319 or 530 people per week will leave their jobs for home, assuming most workers do not move to Kodiak.

At present Wien Air Alaska flies up to 14 flights into Kodiak per week, and Western Airlines flies three flights a week to Kodiak from Seattle for seven months of the year. During the summer, then, a total of 17 flights a week to Kodiak. The Boeing 737 aircraft that Wien uses carries 112 persons; however, Wien often has cargo on the same aircraft. Based on an average two-to-one passenger to cargo area ratio, it can

carry approximately 900 persons per week into and out of Kodiak.(10) The Western plane carries almost all passengers, giving an average capacity of 110 passengers and allowing 330 passengers in and out of Kodiak per week. This gives Kodiak a total commercial air carrier capacity of 1230 passengers per week. The addition of 319 employees, as in Case 2a, would require an extra three flights per week; 530 workers, as in Case 3, would require five extra flights.

In addition to the employees directly related to OCS development, construction crews will be moving in and out of Kodiak. It is impossible to estimate the volume and frequency of their travel. However, if the local government isolates OCS industrialization from population centers, the work force will live in construction camps at the construction site. Constractors would then probably to go to the crew change mode of operation. Added to these employees will be the increased population due to economic development and the increased in transient assuming a relatively large number of "boomers" or "camp followers" will arrive in Kodiak on a regular basis.

Along with passenger traffic increase comes an increase in cargo volume. Additional cargo capacity will be needed primarily to supply the everyday goods necessary to support an increased population, although there may be an added increase due to the OCS related supplies utilized for the construction camps, marine service bases, and offshore rigs. Again, it is difficult to estimate the increases in cargo necessary without extensive research into airline records. However, based on the information available, an additional two flights per week from Anchorage would be required for purely cargo purposes in the event of a high find.(11)

This brings the total increase in flights into the Kodiak airport to a potential five to eight per week, or a 29 to 47 percent increase in commercial air carrier activity. This would give a total of 22 to 25 flights per week, or about three flights per day, into Kodiak on a year round basis.

Marine Transportation

The impacts on marine transportation facilities will also be significant. As indicated in the Transportation Inventory (Volume II), City of Kodiak dock facilities are currently operating at their maximum capacity. In the last year, 165 vessels have utilized the city dock facilities and have moved 205,000 tons of cargo to and from Kodiak. That cargo volume represents no extraordinary industrial acitvity. We can assume that the demand for cargo tonnage will increase at least in proportion to population growth, not including increases in cargo due to OCS-related activity. Since the capacity of existing facilities is limited, thier use for OCS-related cargo should be avoided.

In 1976 the ratio of cargo tonnage at the city dock per population was approximately 21 tons per person based on the estimated population of the Borough. Table 35 gives the total tonnage through 1992 based on population growth anticipated by OCS development.

Table 35: Estimated Tonnage*- Kodiak Cargo Dock - With OCS

Year	Case 1 No Find	Case 2a Mod Find Pipeline	Case 2b Mod Find S.B.M.	Case 3 High Find
1978	223,314	223,314	223,314	223,314
1979	230,916	230,916	230,916	230,916
1980	242,823	244,902	244,902	244,902
1981	253,932	261,114	261,114	268,989
1982	265,377	278,208	275,436	280,644
1983	268,611	285,957	280,413	297,192
1984	272,937	294,483	284,739	314,748
1985	282,219	306,852	290,409	346,626
1986	291,816	337,974	319,200	399,798
1987	301,728	389,928	337,890	406,980
1988	311,997	361,557	348,159	406,749
1989	322,602	406,245	396,081	462,462
1990	333,564	414,435	404,271	464,688
1991	344,904	420,840	410,676	471,093
1992	356,622	422,793	412,629	473,046

* Estimated at 21 tons/person

Source: Simpson Usher Jones, Inc. (Sontag), 1977.

Over the next 16 years cargo weight increases steadily by some 65 percent in Case 1 and 119% in Case 3. Since current dock facilities are operating at capacity, additional facilities will be required. It is not necessarily true that the frequency of vessel berthings will increase commensurate with the total tonnage increase. As Kodiak demands more cargo tonnage, it will become more economical for shippers (in this case, Sealand) to devote more cargo space on board each ship to Kodiak. There will undoubtedly be some increase in berthings, but the magnitude of increase is impossible to determine. Even so, under current conditions of 165 berthings per year, an average 2.2 days per berthing is available for unloading. As the frequency of berthings increases, the time available to load and unload ships decreases. As this happens, the need for storage and maneuvering space on the dock will become more critical. The City of Kodiak should expand port facilities as demand increases, and plans should be formulated now to keep abreast of community requirements.

Surface Transportation

Surface transportation between the airport and the service bases will generate additional transportation needs, as will transport of freight by barge and ship from the "Lower 48" or ports in Alaska (Seward or Anchorage) into the service base. Without knowing the size of the ships involved, it is impossible to estimate the frequency of trips needed to supply the 800,000 to 1.2 million tons of freight involved in the highest estimated level of development, Case 3. However, marine traffic is sure in increase substantially.

Industrial vehicular traffic between the service bases and the City of Kodiak will also increase if the bases are located on the highway system. This increase will be lower than that for marine traffic, as the bulk of drilling materials will be transported via ships and barges. (12) If it proves a significant increase, though, the roadbed along the Chiniak Highway must be upgraded. Bridges on the highway are relatively new and can support large semi-tractor/trailer trucks, according to the Highway Department (see Volume II - Transporation Facilities).

SUMMARY OF IMPACTS

Based upon the discussions and assumptions made in the preceding sections, it is clear that the total environment, both natural and human, will be subject to significant changes throughout the OCS development depending upon the level of oil activity. In Cases 2 and 3, the population will increase dramatically and change the social, economic and environmental characteristics of Kodiak Island. Public services will be in demand and possibly in short supply. Prices and the cost of living will increase at a rate never before experienced by the indigenous population of Kodiak. The everyday life of the resident of Kodiak will change as activity increases.

Many people are concerned that the quality of human life will be drastically and adversely affected. To some extent this is undeniable. However, in large part, the assessment of the quality of human environment is subjective. Presumably, most current residents live there becasue they like the attributes of Kodiak. From their standpoint the changes will undoubtedly degrade the quality of life. However, new residents who move there as a result of OCS development may feel that the quality of life may improve.

The potential for impacts on the natural environment are indeed frightening. In a "worst case scenario", large areas of land could be destroyed, the resources of the abundant sea could be reduced or destroyed, the quality of water, both fresh water and salt water, could be severely degraded, and the air around Kodiak could turn to a hazy brown. Conversely, if strict controls are placed on industry activities and if the oil development process is fortunate enough to be free of natural catastrophes and significant human error, the final assessment of impacts on the natural environment could be minimal. The potential for each case is there. Much depends upon the residents' level of concern, the efficiency of the

government in its regulatory functions, the responsiveness and responsibility of the oil industry, and, perhaps most important, the cooperation of nature.

ALTERNATIVE POLICIES AND PROGRAMS

There are a number of methods available to the Kodiak community and its governments that will allow preparation for and some degree of control over the impacts of OCS development. As has been indicated earlier, the actions of the oil industry have the potential of affecting all segments of the social and economic structure of Kodiak and almost all locations in the Kodiak Borough. Some of these impacts will be more significant than others; however, all of them need to be addressed by the community.

The community should be constantly aware that the most effective way to control impacts of any development, including OCS related activities, is to control the source of those impacts. This does not necessarily mean imposed or totalitarian control; cooperative control can be even more effective. In this case the source of the impacts is OCS activity. However, in the case of each individual impact there is also a subsource, i.e., marine traffic, environmental degradation due to construction, population growth, etc. In each case some form of control over those subsources would be the ideal method of mitigating the impacts. In a totalitarian government control of the impact sources would be a basic function of government and would be relatively uncomplicated in terms of the power of control. However, that situation would also give rise for opportunities for abuse of the control, both over the activities and the people affected by the impacts. In the United States, in order for a community to gain the level of control that will be effective in determining negative impacts, cohesive actions on the part of the entire community is necessary. Any OCS community has the power to control OCS related development to a certain extent. In order to do so, however, it requires a tremendous amount of human energy. Public officials and the residents of the community have to be knowledgeable of the operational modes, attitudes, and methods of the oil industry. In addition, the community must identify the factors which can give them a good bargaining position. Those that are already available should be strengthened. Any others that are possible should be developed. Alternative courses of action should be formulated with respect to dealing with the oil industry and the direct and indirect impacts that can be expected. A wide range of community input should be received prior to settling on the utilization of one of those alternatives. When that decision is made, and only after it is made, the community can begin to effectively exert a controlling influence on their future with respect to OCS development.

In a step designed to begin that decision making process, the Kodiak Island Borough has recently signed a contract with the State Department of Community and Regional Affairs that will provide funds for the preparation of a Comprehensive Plan and an economic adjustment strategy intended to allow the community to prepare for the impacts of OCS development. The funds are being made available through the Federal Economic Development Administration and the Department of Housing and Urban Development.

These studies will include a set of comprehensive goals and objectives, a land use plan, an economic base study, a community facilities study, a housing study, a transportation plan (both internal and external), an implementation plan, a capital improvements plan and a government services program. The results should provide detailed recommendations for policies and programs to be pursued in each area based on the goals and objectives. This will be Kodiak's first opportunity to express its desires and needs in relation to OCS oil development. The strategies formulated will give direction to the governments and the oil industry concerning the community's intended approach toward OCS activities and their impacts.

The program and policy areas discussed below are intended to provide the impetus for direction that those studies should take. They are discussed in terms of alternatives. Without the input and information developed in the forthcoming studies, no final decisions can be made concerning the exact policies and programs that should be implemented. However, some recommendations are made where specific problems have been identified.

LAND USE POLICIES

Almost any economic activity requires the use of land. OCS development is no exception. Land is very important to the oil industry both in terms of dollars and convenience. Land will also be required by the community as a result of the indirect impacts of OCS development. Population growth will require land for housing, commercial activities and community facilities. All of these areas should be addressed by the community as they formulate their land use policies.

Industrial Site Planning for OCS Activities

There are a number of methods available for community control and/or regulation of OCS projects. In the coming years the local governments will be faced with numerous decisions concerning OCS related development projects as well as projects resulting from population growth and community expansion. In evaluating the suitability of industrial facilities related to OCS development, the community should know what stage of OCS development activity is involved in the facility, the scale and size and duration of the project, the type of activity that will be carried out as a result of the project, complete information concerning the ownership, management and ultimate responsibility for all aspects of the project, and the need for any public services that will be required by the project. Also, prior to making a final decision, the community must determine, either through assistance from the project sponsor or assistance from other governmental agencies (the state and federal government) or through its own staff, what the environmental, economic and social implications of the project might be.(13) There are two primary methods available to gain this information.

The most direct method of control is ownership. The community can either own the land or own the facility itself. If it owns the land, it

can lease it or it can sell it. Leasing is an extremely powerful method of control. A lease can contain many stipulations. The local government has almost no restrictions on the type of requirements they can include, such as the type of facility involved, the operational methods of the projects, the scale and magnitude of the project, design review requirements, and mandatory scheduling restrictions.

If the local government elects to sell land to the sponsor of an OCS related facility, the sale can affect almost any aspect of the ensuing development. However, control through deed restrictions is not as direct nor is it as effective as the controls that can be placed on a lease document.

The community also has the option of actually building the faciltiies through a public development corporation or an independent authority. The complete facilities can then be leased to the industry operatives. Pros and cons are associated with special purpose authorities. They offer a method of obtaining financing and funds other than those utilized by local governments. They also offer the opportunity to oversee a particular development with personnel who have the specific technical and professional expertise in the related field. Authorities can unfortunately be extremely complicated and redundant in terms of the powers that they exercise. Special purpose authorities are used throughout the United States for the development and control of ports, airports, housing programs and public services and facilities.

An alternative to creating a special purpose authority would be for the local governments to build and own the required industrial facilities as public facilities. Financing for an endeavor such as this could come from the oil industry itself.

The major method of controlling or affecting the impacts of OCS development is through regulations. Local governments in Alaska are charged with the responsibility to provide guidance and regulation in a number of fields. The resultant regulations have the potential of being extremely powerful in terms of effective control over OCS related projects. The types of regulations available include zoning ordinances, building codes, comprehensive planning and associated so-called specific area planning, capital improvements scheduling and growth phasing, and specific regulations developed for the purpose of controlling OCS development.(14)

The most common and probably the most affective of these regulations in terms of their potential for control over OCS industrial projects is the zoning ordinance. Through the use of a zoning ordinance, local government has the opportunity to establish land use limitations, dimensional requirements which include height, lot coverage, building placement, noise requirements, parking regulations, access requirements, review processes and a variety of other specialized regulations and requirements. Through judicious use of zoning powers, the Borough can determine the exact location and size of a particular zone that will allow OCS development. It should be noted, however, that these tools must not be used indiscriminately. One of the most basic concepts of planning, and one that has been upheld by the courts repeatedly in recent years, is that

zoning patterns and ordinances must be based upon comprehensive planning decisions that have already been made and published by the community. Without the proper background and implementation procedures, the zoning ordinances stand a good chance of being declared unconstitutional if taken to court.

The comprehensive plan is also a good tool for the regulation of industrial activities. It should indicate the type of development that the community expects to see, and the locations within which that development should occur. Within the comprehensive planning process, the community may include neighborhood plans or specific area plans. These are normally much more detailed in their scope and recommendations concerning land use and development.

Another strong method of control and/or regulation of OCS development is the environmental review process which is available through the federal government when federal funds are utilized. However, the local government has the authority to establish environmental criteria and review procedures for specific types of development. These can be used to affect the operational modes as well as the location of OCS related facilities.

Many of the above stated direct and indirect regulatory and control processes are currently available in the Kodiak Island Borough. However, a number of them are not available and have not been considered. The following recommendations are made based on obvious needs that currently exist in Kodiak. Acceptance and implementation of the recommendations should be based on goals and objectives that are developed during the comprehensive planning process.

Recommendations

1. To the extent possible, the Kodiak Island Borough should discourage the location of OCS related industrial facilities within the Kodiak metropolitan area or in any of the other villages on Kodiak Island. The location of such facilities within those areas would be extremely disruptive to the traditional lifestyles, community structures, and social and economic characteristics. Also none of the communities provide the services and facilities required by the oil industry; consequently, an attempt to provide those facilities would result in an extreme hardship on the community for many years to come. The Borough should insist that the oil industry be self sufficient and willing to pay its own way in terms of the impacts resulting from facilities directly related to OCS development and the indirect impacts created by population growth accompanying OCS development.

2. As stated, the community is beginning a comprehensive planning process. A great deal of attention should be devoted to this on the part of the public officials as well as the residents of the community. Extraordinary measures should be taken to involve the community in the process so that an educated, cohesive and unified position can be taken by all of the residents of Kodiak Island on subjects of future growth and industrialization.

3. The Borough should completely revise its land use regulations in conjunction with the new comprehensive plan. As part of this revision process, the Borough is urged to look at new and innovative land regulation techniques such as planned unit developments, specific area plans, contract zoning, and conditional use permits.

4. The transportation portion of the comprehensive plan should include an official streets and highways plan that delineates major and minor arterials, collectors and neighborhood streets as well as standards for construction and traffic loads for those streets.

5. A complete detailed six year capital improvements program should be developed and adhered to.

In addition to these recommendations for specific programs and policies, the community should investigate the feasibility of utilizing the following methods of OCS control.

1. Special purpose authorities.

2. Financial and staff assistance from state and federal agencies.

3. The possibility of cooperative and/or joint agreements with the oil industry for development of OCS facilities.

Residential Policies

The current housing problem in Kodiak will become more severe unless action is taken now to solve the problem. The community must determine its goals and objectives and desires as well as its capabilities. The type of housing, the density and the location at which housing should be placed should be specifically identified. Also important are the obstacles present that could inhibit the development of housing in Kodiak. These could include financing, community facilities and utilities, and land. Assistance is available from both state and federal agencies as well as private consultants in solving these problems.

A number of approaches can be taken in dealing with housing problems. They must be coordinated with the comprehensive planning effort and an adopted set of goals and objectives.

One of the first tasks necessary will be to determine what lands are appropriate and available for housing development. Plans must be made for the provision of a full range of community services and facilities (water, sewer, roads, electricity) to that land. Without this action, housing development in the future will be haphazard, scattered and provision of public services in the future will be significantly more expensive.

The community should also encourage utilization by developers and public agencies of federal and state housing programs. Numerous programs are available ranging from assistance to the housing occupant to mortgage

insurance and direct assistance to contractors. It is also possible for the local governments to set up housing authorities through federal programs and thus be able to develop the housing themselves.

It will be important during certain phases of the OCS development for theIt will be important during certain phases of the OCS development for the community to have made provisions for temporary housing. During periods of high intensity, short term employment the demand for housing will be especially high. This "spill over" housing could be developed through mobile home parks with temporary water, sewer and electric facilities that could either be converted or removed when the demand for such housing decreases.

One of the most serious housing problems in Kodiak is cost. Throughout the various phases of OCS development that problem will become consistently more serious. It is important for the community to institute programs and policies that will help alleviate escalating cost trends to the extent possible. Rapid inflation of land costs can be stabilized through the passage and strict adherence to comprehensive plans.(15) If a landowner or prospective land buyer knows that the land in question has been planned and zoned for a specific use, the value of that land will not only be established and maintained, but the potential for speculative increases in land costs will be reduced.

Escalating construction costs can also be counteracted through a number of public policies. These are primarily centered around zoning and the provision of public services. As we have pointed out previously, higher densities will normally decrease public costs. They will also result in lower cost per unit to the consumer. Higher density housing does not necessarity mean that the living environment within those units is degrading. Through modern zoning and design techniques, townhouses and condominiums with adequate recreational and design amenities can be encouraged. The result can be very attractive residential projects on relatively small amounts of land. Such projects have the potential of a greater efficiency of public utilities and roads and less expensive building costs compared with the quality of the units involved.

This concept applies to almost any type of housing development. Through the use of incentives, the local governments can allow the housing developer an opportunity for a high rate of return on his investment in return for the provision of greater amounts and qualities of amenities.

Recommendations

The following recommendations are made for consideration by the local community.

1. In the capital improvements program and the comprehensive plan, the community should indicate exact areas where public utilities and facilities are to be extended. They should also specifiy the timing of the provision of those services. This will allow both public and private entities to prepare for development well in advance of its occurrence

and thus reduce escalation in land costs and result in improved physical planning. There is no question that as population grows housing units will be built, and in many cases public facilities, utilities and roads will have to be extended to them. If their location and densities are predicted in advance, the cost of providing those services could be reduced.

2. The rewrite of the zoning ordinance should include conditional use or special exception provisions in order to provide the local governments with the tools necessary to encourage innovative quality development. These will also provide the decision makers with a review and veto power over both residential and other types of development that are not in compliance with the comprehensive planning principals.

3. The community should develop and adopt a mobile home park ordinance and indicate on the comprehensive plan map, as well as the zoning map, areas in which it can be utilized. This will help to provide the spill over housing on a temporary basis and, if developed for permanent use, can allow moderate income families to own their own homes. Mobile home parks can be developed in an extremely attractive manner, assuming the inclusion of appropriate design and recreational amenities. The value of the mobile homes involved can actually appreciate over the years rather than depreciate, which has historically been the case in Kodiak.

Auxiliary Commercial and Industrial Policies

As the population in Kodiak grows as the result of normal growth trends or at an accelerated rate due to OCS development, the demand for commercial services and ancillary industrial uses will increase. There will be many development proposals placed before the community that are not directly associated with OCS activities. The community must be ready to analyze and make decisions concerning those developments with respect to the community goals. In reviewing commercial and industrial projects, information similar to that required for review of OCS related projects needs to be determined. In addition communities should analyze the market area that would be served by commercial projects. This will have an impact on the analysis of the locational characteristics of the project. In addition the communities should analyze the potential land use conflicts that could result from the location of commercial uses. In order to do so, information has to be gathered on current trends in Kodiak and their appropriateness to the communities' goals and objectives. This should be done as part of the comprehensive planning process. An important aspect of commercial and industrial projects are the traffic flows that will be created by their locations. Adequate streets that will prohibit the use of noncommercial (i.e., residential/recreational) streets for industrial or commercial oriented traffic should be provided. An official streets and highways plan would be extremely valuable in this type of analysis.

Recommendations

1. Kodiak should concentrate all major commercial development in the downtown area. The zoning ordinance could aid in doing this by providing incentives or bonuses for design amenities in this area. The incentives could be in the terms of height increments, density or intensity allowances, and a variety of other dimensional factors. Also, in order to encourage development in the downtown area, the community should consider the addition of municipal parking lots or structures in the downtown area. If the problems of vehicular conjestion continue to worsen, retail shoppers will tend to go to outlying shopping centers for their commercial services. Consequently the downtown area could actually decline in relative importance to the retail industry as the population increases.

2. While encouraging major commercial development in the downtown area, the planning authorities should allow for small neighborhood shopping facilities. These facilities should provide the commercial services that are needed to supply residential areas with their day-to-day commercial needs. It should not include commercial services that are provided on a community wide basis or other retail and heavy commercial outlets that are not necessary for the support of day-to-day needs. If these neighborhood commercial areas are kept small, they will not detract from the downtown area. This will help to reduce land use conflicts as well as traffic conflicts in and around residential areas by reducing the demand to drive downtown each time a small purchase is necessary. This balance between downtown and neighborhood commercial areas is critical and should be addressed in detail in the comprehensive plan.

3. Kodiak should consider the promotion or development of industrial/commercial parks. By concentrating industrial/commercial uses that are not necessary for day-to-day shopping needs or appropriate for the downtown area, both the community and businesses involved can benefit. This type of development will promote better use of land and public facilities, as well as enhance the esthetic qualities of commercial development. It also offers the opportunities for businesses that offer commercial services to other businesses to locate near their clients. This can be accomplished through the zoning ordinance as well as through municipal land leases and/or municipal development corporations.

TRANSPORTATION POLICIES

Transportation is Kodiak's lifeline. Its importance will increase throughout the phases of oil development, both from the standpoint of increased industrial requirements as well as because of population increases. The transportation characteristics of Kodiak are such that a significant rise in the cost of transportation can have a tremendous effect on the cost of living. The transportation system in Kodiak has three primary subcategories. They are (1) external transportation (transportation to and from the island from other points in Alaska and the Lower '48), (2) internal transportation (transportation to the

various parts of the island), and (3) local transportation within the communities. The community with the most obvious need for transportation planning and facilities is the city of Kodiak. The following will be a review of the alternatives available to the Kodiak Island Borough in preparing the transportation system for the impacts of OCS development.

External Transportation

Kodiak's external transportation system is based on the marine and airport facilities. They will have to be maintained and expanded in order to keep pace with future demands. One way to accomplish this difficult and expensive task is through a port or transportation authority. An authority can often deal with the problems of developing and maintaining the port, airports, and harbor facilities more efficiently than local government. This alternative could be accomplished solely by the City or Borough or through a joint authority with the State. At present land for the port facilities in Kodiak is limited, and efficient land use is critical. It will also be necessary in coming years to expand that facility. A significant amount of funds will be necessary for the development of port facilities to keep pace with the demands. One advantage of an authority is its ability to raise funds and obtain financing. It can provide the opportunity to improve the transportation facilities and thus attract transportation oriented businesses to locate on and around the facilities that they utilize.

As indicated in the development scenarios, there could be a large increase in air traffic into the Kodiak area. Passenger and cargo services will be necessary to accommodate the OCS development directly as well as the growing population of Kodiak. In order to accommodate this traffic, it is expected that airport facilities will be expanded. As has been indicated, the oil industry will require land, warehousing space, and maintenance facilities at the airport. The commercial air carriers will undoubtedly need additional space for their operations. Planning for this type of development in conjunction with upgrading airport facilities is not normally part of a community comprehensive plan. Funds for airport master planning are available through the Federal Aviation Administration. Without proper planning, the Kodiak airport could develop into an inefficient community facility with significant land use and safety problems.

The Borough should also encourage the State of Alaska to increase its ferry service to Kodiak. A port or transportation authority could help in this field by providing facilities and funds to upgrade that service.

Internal Transportation

As population pressures increase in Kodiak, recreational demands will also increase. There will be a demand for transportation throughout the Kodiak Island group. As population grows in the outlying villages, either as a result of OCS development or natural growth trends, access to the Kodiak metropolitan area will become more important also. Air

carrier service to the villages will increase; consequently, safety and cost problems could arise. The Borough should investigate the possibility of an Air Systems Study for the Kodiak Islands to insure that the airport facilities around Kodiak Island are adequate to handle projected demands.

In addition, there will be increases in demand for noncommercial access throughout the Borough. Facilities to meet these demands could be accomplished through a system of secondary roads leading to small docks and boat launching ramps at strategic points, at least on the northwestern part of Kodiak Island. This would allow transportation from the relatively nearby communities without the use of commercial carriers. Again this could be handled through a transportation authority or as a capital project administered by the Borough itself.

Local Transportation

Traffic, especially in the City of Kodiak, could be a major problem associated with OCS development. One of the concepts that needs to be considered in addressing these problems is the separation of commercial, industrial and normal vehicular traffic whenever possible. The Borough also needs to develop standards as part of their official streets and highways plan for the various classifications of roads. This can help to create throughways that avoid traffic impediments. The possibility of public transportation should also be addressed in the future. Funds are available through the Federal Department of Transportation and the Department of Housing and Urban Development for demonstration projects and facilities. While the present population will probably not support a public transportation system, by the end of the projected development phase of OCS activity a system may be needed. Also, as traffic increases in Kodiak, the potential for pedestrian/vehicular conflicts will increase. A trail system would help avoid this as well as provide additional recreational opportunities.

Recommendations

The following recommendations are made with respect to all of the subcategories of transportation needs on Kodiak Island.

1. The Borough and/or City should investigate the feasibility of a transportation authority. The authority should be comprehensive, with powers over the port, airports, the OCS transportation facilities, and should operate in close coordination with the Public Works Department of the City of Kodiak. This will allow for a comprehensive approach to transportation on Kodiak. It will open new avenues of funding that may make it possible to upgrade the transportation system consistent with the demands that could be placed upon it in a relatively short time.

2. The recommendation is repeated here that the Kodiak Island Borough develop, adopt and strictly implement and enforce an official streets and highways plan.

3. The State Division of Aviation should be urged to apply to the Federal Aviation Administration for funds to prepare a master plan for the Kodiak Airport in accordance with FAA Advisory Circular A/C 150/5070-6.

4. The community should address the future of the city of Kodiak's general aviation airport near the downtown area. This airport has many advantages but also has the potential for future disadvantages as population increases. FAA funds may be available to study the future growth potentials and/or land use conflicts that could result from dramatically increased air traffic operations at that airport.

COMMUNITY FACILITY, UTILITY AND PUBLIC SERVICE PROGRAMS

In previous sections the capabilities of and projected demands on community facilities, utilities and services have been identified. Also suggestions for provision of those facilities, utilities and services have been offered. Without the guidance provided by adopted goals and objectives as part of a comprehensive plan, this study can go no further. The following section will briefly summarize the problems identified and suggest principal sources of funds available to help the community in finding solutions.

Housing

As indicated above housing is and will be a major problem in Kodiak throughout the OCS development process. To meet the anticipated demand, the existing housing stock is important and must be maintained. New housing development must be encouraged in order to meet the demands that will be placed on the housing market in the future. Because of the rising demand and escalating costs, there will be an inevitable increase in the cost of housing also. In many cases this rising cost of housing will be offset by increased salaries. However, fixed and low income people and families could be severely impacted. Consequently, the maintenance and upgrading of the existing housing is especially important.

Maintenance and Upgrading of Existing Housing Stock

The community should encourage the upgrading and enhancement of neighborhood areas that are deteriorating under current conditions. Continued deterioration in certain areas (see Housing Inventory - Volume II) will remove that housing from the housing market.

Funding for housing maintenance and rehabilitation is available primarily through federal sources. The Housing Community Development Act of 1974 provides funds for neighborhood redevelopment. The City of Kodiak is an entitlement city under that Act and is currently in the process of upgrading the Aleutian Homes area with paved streets and storm drainage

in hopes that some of the poorly maintained houses within that area will be improved. The Kodiak Island Borough has obtained discretionary funds through the Act for the last two years and has been investing them in public facility improvements within the villages. This should help to maintain the housing stock in those areas.

Rehabilitation loans are also available through HUD under Section 312 of the Housing Act of 1964. These are direct federal loans to finance rehabilitation in urban renewal and code enforcement areas which are identified by the local government. By financing rehabilitation to bring the property up to applicable code requirements, the loans prevent unnecessary demolition of basically sound structures. The limit on these loans is $17,400 per dwelling unit. Any property owner in urban renewal or concentrated code enforcement areas is an eligible applicant as long as he can demonstrate that the loan can be repaid. Repayment requirements vary.

Another program through the Department of Housing and Urban Development is entitled Housing in Declining Neighborhoods. It provides mortgage insurance to purchasers to rehabilitate housing in older, declining residential areas. It is designed to provide adequate housing for low and moderate income families. HUD insures lenders against loss on mortgage loans to finance the rehabilitation of older, declining but still viable areas where conditions are such that normal requirements for mortgage insurance cannot be met. The terms of the loans vary according to the HUD/FHA programs under which the mortgage is insured. Any home owner or project owners eligible for FHA mortgage insurance is eligible for these loans.

There are many programs available to assist in the development of new housing. The majority of the federal programs available are administered through the Department of Housing and Urban Development. A review of the significant programs appropriate for Kodiak follows:

HUD Housing Programs

1. Home Mortgage Insurance Program. Through this program HUD insures commercial lenders against loss and encourages lenders to invest capital in the home mortgage market. The Federal Housing Authority insures the loans made by the private financial institutions for up to 97 percent of the property value and for terms of up to thirty years. Any applicant is eligible as long as he can make the cash downpayment and the mortgage payments.

2. Home Ownership Assistance for Low and Moderate Income Families (Revised Section 235). This program enables eligible families to afford new or rehabilitated homes that meet HUD standards. The Federal Housing Administration insures mortgages and makes monthly payments to lenders to reduce interest to as low as five percent. The homeowners must contribute 20 pecent of their adjusted income to monthly mortgage payments and must make a downpayment of 6 percent of the total cost of buying one home. There are dollar limits on the loans and sales prices. In

Alaska the limit is $29,000 ($33,000 for homes for five or more persons). The income limit for initial occupancy is 95 percent of the area median income.

3. Home Ownership for Low and Moderate Income Families. This program insures lenders against loss on mortgage loans to finance the purchase, construction, or rehabilitation of low cost one to four family housing. The maximum insurable loan for an owner-occupant is $29,000 in Kodiak. For a larger family (five or more persons) the limit is $33,000. Higher mortgage limits may apply to two to four family housing. Income level for initial occupancy is 95 percent of the area median income.

4. Condominium Housing. This program insures mortgages made by private lending institutions for the purchase of individual family units and multi-family housing projects. Sponsors may also obtain FHA insured mortgages to finance the construction or rehabilitation of housing projects which they intend to sell as individual condominium units. Any qualified sponsor may apply for a blanket mortgage covering the project, and any credit worthy person may apply for a mortgage on individual units in the project.

5. Mobile Homes (Title 1). The purpose of this program is to facilitate financing of mobile home purchases, thereby providing alternative lower cost housing. The FHA insures mobile home loans made by private lending institutions. Loans may be insured up to $12,500 in twelve years on a single modular unit and for $20,000 over fifteen years on double module units. Any person able to make the cash investment and the mortgage payments is an eligible applicant.

6. Mobile Home Courts. This program helps finance construction or rehabilitation of mobile home courts. FHA insures mortgages made by private lending institutions on the entire site. Mortgages in Kodiak would be limited to $5,850 per individual moble home space within each space. The park must be located in an area approved by FHA in which market conditions show a need for such housing. Eligible applicants include investors, builders, developers and others who meet FHA requirements.

7. Multifamily Rental Housing. Through this program, the FHA insures mortgages made by private lending institutions to finance the construction or rehabilitation of multifamily rental housing by private or public developers. The project must contain at least eight dwelling units. FHA requires that the housing financed under this program be able to accommodate families with or without children at reasonable rents. Funds under this program can be applied for by investors, builders, developers and any others who meet the FHA requirements as long as the housing project is located in an area approved by the FHA for rental housing and in which the market conditions show a need for such housing.

8. Existing Multifamily Rental Housing. Through this program FHA insures to purchase or refinance existing multifamily projects originally financed with or without federal mortgage insurance. HUD may insure mortgages on existing multifamily projects with or without requiring substantial rehabilitation. The project must contain eight or more units

and must be at least three years old. Again, investors, builders, developers and any others who meet FHA requirements may apply.

9. Multifamily Rental Housing for Low and Moderate Income Families (Section 221(d)(3) and (4)). This program is designed to help finance construction or substantial rehabilitation of multifamily rental or cooperative housing for low and moderate income or displaced families. Units financed under this program may qualify for assistance under Section 8 of the Housing and Community Development Act of 1974 if occupied by eligible low income families. Eligible applicants include public agencies; non-profit, limited-dividend or cooperative organizations; and private builders or investors who sell completed projects to such organizations. Tenant occupancy is not restricted by income limits except in the case of tenants receiving subsidies under the program.

10. Low Income Public Housing. Through this program local public housing agencies develop and operate low rent public housing projects. They finance them through the sale of bonds and notes. HUD furnishes technical and professional assistance in planning, developing and managing the projects and gives two kinds of financial assistance: preliminary loans for planning; and annual contributions to pay off the bonds and notes, assure low rents and maintain adequate services and reserve funds. Rents are based on the residents ability to pay, contribute to the cost of the managing, and operating the housing. The only eligible applicants for this type of program are public housing agencies established by local governments in accordance with State law.

11. Direct Loans for Housing for the Elderly or Handicapped (Section 202). This program makes long term direct loans to eligible private nonprofit sponsors to finance rental or cooperative housing facilities for elderly or handicapped persons. The current interest rate is based on the average rate paid on federal obligations during the preceding fiscal year. Eligible applicants include private nonprofit sponsors and eligible tenants include households with one or more persons, the head of which is at least sixty-two years old or is handicapped.

12. Indian Housing. Through this program indian housing authorities develop and operate rental and home ownership projects financing them through the sale of bonds and notes. HUD furnishes technical and professional assistance in planning, developing and managing the projects and also gives financial assistance in the form of annual contributions to pay off the bonds and notes. For rental projects the contributions also assure low rents and maintain adequate services and reserve funds. The indian housing authority is responsible for all maintenance costs on these projects. Rents that are based on the residents' ability to pay contribute to the cost of managing and operating the housing.

Water and Sewer Programs

The need for new and expanded water and sewer facilities in Kodiak as a result of OCS development has already been demonstrated in preceding sections. In order to fund the necessary construction of water

and sewer projects, it is obvious that the Kodiak community will need financial assistance. Listed below are several programs administered by both the state and federal government from which funds can be obtained for the needed facilities.

State Programs - The following is a list of state programs.

1. Water and Sewer Aid. This program is administered by the State Department of Environmental Conservation and provides financial assistance to pay the cost of capital improvements for water supply and sewage systems. The program is financed through State bonds which are sold to provide a fund from which grants of one half of the nonfederally funded portion of a project (to a maximum of 50 percent) may be paid to a municipal applicant. Any municipality within the State of Alaska is eligible to apply.

2. Village Safe Water Program. This program is also administered by the Alaska Department of Environmental Conservation. Eligible applicants include any community which has between 25 and 600 people residing within a two mile radius. The purpose of the program is to provide for safe water and hygienic sewage disposal systems and bathing and laundry facilities in remote Alaskan villages. The program is financed through State bonds which are sold to provide a fund which can be used for construction of facilities.

Federal Programs - The following is a list of federal programs.

1. Construction Grants for Waste Water Treatment Works. This program is designed to assist and serve as an incentive in the construction of municipal sewage treatment works which are required to meet the State and federal water quality standards. The program is administered by the Office of Water and Hazardous Materials of the Environmental Protection Agency. The funds can be used for the construction of municipal waste water treatment works with some limitations. Eligible applicants include any municipal, intermunicipal, state, interstate agency or indian tribe having jurisdiction over disposal of wastes.

2. Water Pollution Control - Area-wide Wastewater Treatment Management Planning Grants. This is another grant program administered by the Office of Water and Hazardous Materials of the Environmental Protection Agency. Its objective is to encourage and facilitate the development and implementation of areawide wastewater management plans. In order to apply for the funds, the applicant must be designated by the Governor and by the administrator of the Environmental Protection Agency as the official areawide waste treatment management planning agency for a given area. The applicant must also agree to develop a plan and a continuing planning process for the entire designated area.

3. Mortgage Insurance - Experimental Projects Other than Housing. This program is administered by the Housing Production and Mortgage Credit Division of FHA in the Department of Housing and Urban Development. Its objective is to provide mortgage insurance to help finance the

development of group medical facilities or subdivisions or new communities that incorporate new or untried construction concepts intended to reduce costs, raise living standards and improve neighborhood design. HUD/FHA insures lenders against loss on mortgage loans through this program. These loans may be used to finance the purchase of land and to develop building sites for subdivisions or new communities including water and sewer systems and streets where new technologies are incorporated.

4. Water and Waste Disposal Systems for Rural Communities. This program administered by the Farmers Home Administration of the Department of Agriculture is designed to provide basic human amenities, alleviate health hazards and promote orderly growth of rural areas by meeting the needs for new and improved rural water and waste disposal systems. The funds may be used for the installation, repair, improvement or expansion of a rural water system including distribution lines, wells, pump facilities and costs related thereto. The installation, repair, improvement or expansion of a rural waste disposal system including the collection and treatment of sanitary storm and solid wastes, are all eligible activities. Eligible applicants include municipalities, and in Alaska boroughs, as well as associations, cooperatives and corporations operated on a nonprofit basis and indian tribes on federal and state reservations. The facilities shall primarily serve rural residents. The service area cannot include any area in any city or town having a population in excess of 10,000 inhabitants according to the latest decennial census. Also the applicant must be unable to finance the proposed project from its own resources or through commercial credit at reasonable rates and terms, and they must have the legal authority necessary for constructing, operating and maintaining the proposed facility or service. Funds under this program come in the form of guaranteed loans or project grants.

Recreational Programs

As indicated earlier, the Kodiak Island Borough has recently assumed the areawide parks and recreation power authorized under State statutes. Also the City of Kodiak currently operates a parks and recreation program (see Recreation Facilities Inventory - Volume II). The following is a review of State and federal programs available to assist in the development of additional parks and recreation facilities in the Kodiak area.

State Programs - The following is a list of State programs.

1. Land and Water Conservation Funds (Bureau of Outdoor Recreation Grants). This program is administered by the Division of Parks of the State Department of Natural Resources. Both cities and boroughs may apply for funds under this program. The funds may be utilized to provide assistance in planning, acquisition and development of outdoor recreation areas and facilities. The program is financed utilizing federal funds from the Bureau of Outdoor Recreation on a 50/50 federal-local matching basis.

2. Trails and Footpaths. This program is also administered by the Department of Natural Resources. Its purpose is to provide for the

establishment of public ways for trails and footpaths. Any city or borough within the State can apply. Up to one percent of the total yearly State and federal matching monies combined under the Federal Aid Highways Program may be appropriated annually from the general fund of the Department of Natural Resources in order to fund this program.

Federal Programs - The following is a list of federal programs.

1. Outdoor Recreation Acquisition, Development and Planning. This program is administered by the Bureau of Outdoor Recreation, Federal Department of the Interior. Its purpose is to provide financial assistance to the states and their political subdivisions for the preparation of comprehensive statewide outdoor recreation plans and acquisition and development of outdoor recreation areas and facilities for the general public to meet current and future needs. It may be used for a wide range of outdoor recreation projects such as picnic area, intercity parks, camp grounds, tennis courts, boat launching ramps, bike trails, outdoor swimming pools, and support facilities such as roads, water supply, etc. Facilities must be open to the general public and not limited to special groups. Development of basic rather than elaborate facilities is favored. Priority consideration generally is given to projects serving urban populations and the funds are not available for the operation and maintenance of facilities. As indicated above under State Programs, all applications for these funds must be processed through the State Department of Natural Resources. Eligible applicants include any borough or city within the State of Alaska.

2. Parks and Recreation Technical Assistance. This program is administered by the National Parks Service, Department of the Interior. The objective of the program is to provide technical assistance to State and local agencies in planning, developing and managing their park and recreation areas so as to help meet the park and recreation needs of the nation. The program consists of technical and advisory services on such matters as agency organization, operation and maintenance of park systems, personnel training, historical and archeological programs, and general development planning. Eligible applicants include indian tribes, states, and local units of government.

Port and Harbor Facilities

As has been pointed out, the Kodiak small boat harbor is already overcrowded. In addition, the City of Kodiak cargo dock is currently operating at its capacity. The addition of OCS related cargo demands and vessel activity in the area will severely impact these facilities in case of moderate or large oil strick. Aid for the development of expanded or new facilities is available through the following programs:

1. Boat Harbor Aid - This program is administered by the State of Alaska, Department of Public Works. Its purpose is to aid local governments in the construction of floats, docks, grids, launching ramps and other

related small craft harbor facilities. Any city, borough, or community or interested group desiring harbor facilities may apply. Upon approval of an application, the State of Alaska will construct the public improvements requested. The program does not include direct financial grants or loans. The program is supported through the watercraft fuel tax revenue and utlizes 100 percent State money. The money is distributed project by project and is variable legislature by legislature.

2. Port Facilities Development - This program is also administered by the State Department of Public Works. Its purpose is to aid municipalities in the improvement of municipally owned and operated port facilities. Any municipality desiring port facilities or port facility improvements can apply. In Kodiak the program could pay up to 80 percent of project costs for port improvements. The State funds utilized are appropriated by the legislature and are normally the result of general obligation bond authorizations. The money is distributed project by project and it is variable from year to year.

Public Law Enforcement Programs

The crime rate in Kodiak increased over 100 percent within the last year (see Public Safety Facilities Inventory Volume II). At present public safety facilities are overtaxed. During the process of OCS development in Kodiak it will be necessary to upgrade and expand those facilities. Principle sources of funding for such facilities are described below.

1. Law Enforcement Assistance Comprehensive Planning Grants - This program is administered by the Law Enforcement Assistance Administration (LEAA) of the Department of Justice. Its objective is to provide matching grants to states for the operation of law enforcement and criminal justice planning agencies which develop and administer comprehensive statewide law enforcement and criminal justice improvement plans. States are the only eligible applicants for this program; however, their activities under this program can be of benefit to Kodiak.

2. Law Enforcement Assistance - Improving and Strenghening Law Enforcement and Criminal Justice - This is another LEAA program designed to implement the law enforcement and criminal justice programs developed under the LEAA comprehensive planning grants. Through this implementation program, states are allowed to improve and strengthen their criminal justice system through a variety of methods, including construction of new facilities. The type of assistance involved are project and formula grants depending upon the individual program.

The programs described above will help to solve the financial needs of the community generated by OCS development. There are many more State and federal programs available for various public facilities, utilities and services. In order for the community to be aware of all of the financial assistance sources available, the two following publications should be obtained: (1) The Catalog of Federal Domestic Assistance published by the Executive Office of the President, Office of Management and Budget, Washington, D.C., 20503; (2) the Alaska State Aid Catalog published jointly by the Department of Community and Regional Affairs and the Alaska Municipal League.

ESTIMATED LEVEL OF CAPITAL IMPROVEMENT REQUIREMENTS

As indicated in the Impacts Section of this report, substantial public facilities must be constructed and updated throughout the process of OCS development; these include water, sewer, roads, port facilities, educational facilities, parks and recreation facilities and police facilities. One of the most common methods of financing capital improvements by public bodies is through bonding. Both the City of Kodiak and the Kodiak Island Borough have the authority to issue bonds. The majority of the public services provided to the Kodiak metropolitan are provided by the City within the city limits; however, the Borough does have area-wide education and parks and recreation powers that will require facilities in the future.

The Constitution and laws of the State of Alaska permit local governments to issue general obligation bonds only if a bond authorization ordinance is approved by a majority of those voting on the question at a regular or special election. Prior to the election, notice of the total existing bond indebtedness must be published together with information concerning the cost of debt service on current indebtedness and total assessed valuation within the municipality. Unlike many other states, however, there is no constitutional or statutory limit on the permissible amount of general obligation indebtedness in terms of a percentage of total assessed valuation.

The Charters of the City of Kodiak and the Kodiak Island Borough do not impose any additional restrictions upon the issuance of general obligation bonds.

Assuming, therefore, that they would be able to obtain the approval of the voters for the issuance of new bonds, the principal constraint is not legal, but financial. Bonds would not be marketable unless prospective purchasers were able to be convinced that that amount of the existing general obligation indebtedness was not an unduly large proportion of the assessed valuation.

It is somewhat difficult to evaluate the present ability of Kodiak's local governments to attract investors for their general obligation bonds. The City's most recent issue was sold through the Alaska Bond Bank. The issue of the Bond Bank which provided funds to purchase the last general obligation bonds issued by the city was rated "A" by Moody's and Standard and Poors, which is a good rating. The security for the bonds was more than simply the taxing capability of the City of Kodiak, however, since state appropriations provide an additional source of payment for Bond Bank bonds. The Borough has yet to issue bonds through the Bond Bank; however should they do so, it is assumed that they would have a similar rating.(16)

Following a review of projected capital costs required during the period of OCS activity, i.e., until 1992. (See Table 36.) These costs are not intended for budgeting or detailed financial purposes. They do indicate the magnitude of fiscal impacts that OCS development will generate. Without the benefit of an approved set of goals and objectives,

only estimates of which projects will be built and the type of development is possible.

The cost figures shown for water, sewer and roads are based on Hypothetical Example "C". The educational system costs are based on 20 room schools at 20 students per room. Public Safety costs are based on the need for additional jail space and the upgrading of the headquarters building. The port facilities costs are based on the need for additional storage space as well as anticipated improvements to the dock facility itself.

Table 36: Projected Capital Projects & Costs - Kodiak Metro Area*

Case	Water/Sewer Systems(each)	Road System (1)	Public Safety (2)	Port Facil. (3)	Educational Facil. (4)	Total
Case 1	$ 5,881,200	$10,025,400	$ 1,000,000	$ 1,400,000	$25,500,000	$49,687,800
Case 2a	7,351,344	12,670,858	1,000,000	1,400,000	30,200,000	58,973,546
Case 2b	6,111,072	10,524,624	1,000,000	1,400,000	29,500,000	53,646,768
Case 3	10,036,334	17,284,608	1,000,000	1,400,000	33,800,000	72,557,856

*Based on Hypothetical Example "C"

1. Based on average cost of $155/foot.
2. Upgrade and expand City Jail facility and offices.
3. Additional storage and quay area and port upgrading - City.
4. New school facilities at $5,000 per student - KIB.

Source: Simpson Usher Jones, Inc. (Sontag), 1977.

In addition to the projects shown in Table 36 additional monies could be necessary for projects in the outlying villages. At this point, without knowledge of the intent of the community, the Kodiak Island Borough and the various communities towards their future development, it is impossible to predict the cost and timing for the purposes of capital improvements.

ECONOMIC POLICIES

As has been indicated earlier, the economic system in Kodiak will undoubtedly be severely impacted as a result of OCS development. Under normal conditions the economic fuctions of supply and demand without unreasonable government interference will allow a given local economy to maintain a relatively stable balance between cost of living and income. However,

in a "boom" economy situation, as is expected in Kodiak, the capabilities of a local economy are surpassed in terms of keeping pace with the rising demands for goods and services. Consequently, the cost of living can rise dramatically. This will be one of the most important issues facing the local governments on Kodiak Island in the years to come.

A tremendous amount of damage can be done to the base of the local economy if economic growth is not directed in to constructive areas. A basic goal of a local community during the OCS development process should be to strengthen the non-oil related segments of the economic base. In doing so the community can help to keep demand for goods and services from outstripping the capabilities of the local economy. If this can be successfully accomplished, the rate of increase in the cost of living can be controlled.

As indicated, at present the most important basic industry in Kodiak is fishing. During OCS development there will be opportunities to develop additional basic industries, including tourism and construction. The question of tourism is one that will have to be addressed by the community in their comprehensive plan. While it can help broaden the economic base of a community, it can also have adverse effects on the life styles through the addition of large numbers of non-resident people, as well as adding to the cyclical characteristics of the economy.

Tremendous increased demand for transportation facilities, public services, housing and commercial facilities could be forthcoming during OCS development. In order to meet these demands the community must help foster the development of the local businesses providing those goods and services. This can be done by promoting funding sources and improved technical capabilities within the businesses. At the same time, however, it will be necessary to transfer the cost of development, especially in the fields of public services, to the private businesses in order to keep taxes at a reasonable level.

At present, the canneries in Kodiak are the highest taxpayers. Seven of the top ten taxpayers are canneries and in 1975-76 those seven canneries had a combined valuation of over $14,000,000. However, the oil industry will become the highest taxpayer in Kodiak, given a moderate or high oil strike. Depending on the development scenario and the type of facilities developed in Kodiak, over $150,000,000 in facilities will be built during OCS activity. At a tax rate of 5.5 mills, the tax generation on value of that magnitude would be in excess of $1,000,000 per year. However, the additional $1,000,000 per year will not pay for the public services required to accommodate anticipated development. Consequently, additional capabilities and funding sources will be needed.

The community has several options in approaching this problem. It can generate additional taxes from the oil industries through franchises, fees, special taxes and various other means of municipal revenue generation. If this is the only approach, the oil industry could resent it, and lengthy court battles would be easily possible. In the meantime, revenues would not be forthcoming. Another approach is encouraging oil industry involvement in the development of the community. This can be done in

several ways. In order to encourage the growth of local businesses, loan funds could be set up at relatively low interest rates. This could help to provide the financial resources needed for new businesses to be started as well as expansion of existing businesses. This would help those businesses meet the demands for goods and services. The oil industry would be able to recover its costs through the interest rates, and at the same time help to keep the cost of living down within the community.

One effective way to foster the development of required housing is to involve the oil industry in that development process. Through wholly owned subsidiary development corporations, the oil industry could provide the housing and public facilities necessary to serve the population and at the same make a profit on the development. In order to encourage such activity, the community, especially the Borough, could joint venture with the oil industry in promoting residential development. The Borough has large areas of land to the north of Kodiak which are suitable for residential development. Through a joint venture agreement, the Borough could use the land as their investment in the development, and the oil industry could develop the land and/or buildings as the demand increased. The Borough would make a profit in return for their portion of the investment in addition to fostering the provision of the public facilities required. The tax base would also be increased. The oil industry would be aiding the community to provide facilities and housing while at the same time making a profit on the development projects. This type of arrangement also offers the oil industry a public relations advantage. By doing so it would show its responsiveness to the needs of the community at no cost to themselves.

This type of development process would not necessarily result in unfair competition with the local development businesses in the community. The Borough, through its joint venture agreements with the oil industry, could require that local subcontractors and contractors be used to the extent possible. This would serve to help strengthen the construction industry in Kodiak rather than bring in construction companies from outside the area. Consequently, the overall economic base of the community would be strengthened.

In summary, while the oil industry could have some very significant impacts in Kodiak, it can also be a major factor in helping to mitigate those impacts. Cooperation with the industry and utilization of its funds to the mutual benefit of the community and the industry will help combat inflation and provide the public services needed to serve the population growth generated by OCS development. This type of cooperation is encouraged.

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NOTES AND REFERENCES

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Kodiak

Outer Cont.

Shelf Impact

Study

Vol. 2

VOLUME TWO

▪COMMUNITY INVENTORY

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SIMPSON USHER JONES, INC.

ARCHITECTS / PLANNERS

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PLEASE NOTE

THE ORGINAL FILE CONTAINS AN OVERSIZED DOCUMENT THAT IS UNSUITABLE FOR FILMING. PLEASE REFER TO THE ALASKA STATE ARCHIVES TO VIEW THE ORIGINAL.

DESCRIPTION:

THIS VOLUME CONTAINS AN INSERTED MAP. "NATURAL FEATURE MAP" MAP 11 KODIAK ISLAND BOROUGH. PREPARED BY SIMPSON USHER JONES, INC. FOR KODIAK ISLAND BOROUGH.

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INTRODUCTION

An Outer Continental Shelf lease sale of up to 3.2 million acres of land, located on the Kodiak Shelf east of Kodiak Island, has been tentatively scheduled for November, 1977 (Map 1). The oil industry originally nominated 12.8 million acres in this area as having strong potential for developable oil deposits, and it is expected that initial exploration for oil will begin shortly following the lease sale.

Offshore oil development on the Kodiak Shelf will generate substantial onshore development. During the initial exploration stage the onshore facilities will be relatively minor since the oil companies will avoid substantial capital expenditures until the existence of economically viable oil deposits is verified. However, once oil is discovered, developing the oil fields will occur. Consequently, onshore facilities will swell in size and their activities will intensify to the point that their presence will severely impact the surrounding communities. The impacts will involve both air and marine transportation activity; population increases; demands on housing, community facilities and infrastructural services as well as economic impacts and changes in the basic lifestyle of the surrounding residents. Because of Kodiak Island's proximity to this area, it is inevitable that the Kodiak area will thus be affected. The estimated level of oil industry activity and the impacts of that activity are described in Volume I of this study.

For years Kodiak has been a relatively self-sufficient community. As the largest city on the island, it has functioned as a regional economic and cultural center as well as a base for the fishing industry. Both the City and Island of Kodiak have experienced a steady trend of growth and anticipate a continuation of growth in the foreseeable future. Now, with the advent of oil exploration and possible production, the Kodiak area is faced with the possibility of major changes. The importance of planning for these changes is emphasized by the following quote from the Draft Environmental Impact Statement for the OCS Lease Sale in the northern Gulf of Alaska.

> "As the development of offshore oil and gas proceeds from the initial exploratory phase through drilling, production, and transport, substantial onshore activity will be generated, from which both positive and negative impacts can be expected.
>
> "The degree to which . . . these effects are positive is related to the ability of public officals to plan for and direct the onshore development that is integral to OCS development and to plan for the growth that onshore facilities generate throughtout the region. OCS operations will result in massive development in areas where there is little or no experience in land use planning or regulatory activities Unless this capability is quickly devleoped in such areas, the result could be permanent degradation of the environment and unnecessary disruption of traditional values and lifestyles for those living there now." (CEQ 1974)

In order to gauge the impact OCS oil will have on Kodiak, it is necessary to have an overall perspecitve of the community as it exists prior to OCS development. The following Community Inventory, compiled primarily from existing sources, provides a summary of facilities, utilities and services.

The Community Inventory consists of seven sections: Community Facilities, Utilities and Services; Village Inventory; Housing Inventory; Economic Inventory; Demographic Inventory; Land Status/Capability; and Summary Profile. Information is presented concerning which of these community components will be directly and/or indirectly impacted by potential OCS development.

In addition to providing a background for gauging the impact of OCS development, the Community Inventory may be suitable for other uses. Care has been taken to present the information in a format compatible for use by governmental agencies for comprehensive community planning, economic planning and projections. It may also serve local businesses and individual residents of the Borough.

WESTERN GULF OF ALASKA
OIL LEASE SALE AREAS

0 50 100 MILES

Prepared by Simpson Usher Jones Inc. for Kodiak Island Borough

OIL LEASE SALE LOCATION MAP

MAP 1

COMMUNITY FACILITIES, UTILITIES, AND SERVICES

The infrastructure of a community consists primarily of its basic utilities (water, sewer, electricity and telephone) as well as its basic transportation system. A community's growth and development patterns are determined to a great extent by its infrastructure. For instance, expansion of the infrastructure in a community will facilitate population growth and allow greater density in development. On the other hand, limiting the infrastructure can be used to deter population growth, restrict the density of development, and determine which areas of town will grow and which will not. Infrastructure limitations may cause serious problems however, if the population grows regardless of a restricted infrastructure.

The infrastructure is essential to a community's growth capability; therefore, it is important for policy makers to know the condition and capacity of their community facilities, utilities, and services. The following inventory is provided to assist in considering Kodiak's potential for growth. Since the impacts of OCS oil development will be more intensely felt in the largest population center; the facilities, utilities, and services that serve the urban area around the City of Kodiak and those that are provided area-wide throughout the Borough are described separately from those serving the individual outlying villages (See Village Inventory).

POWER AND UTILITY SERVICES

WATER SYSTEM

The largest public water system within the Borough is operated by the City of Kodiak. The area within which water is provided through this system is primarily the city limits of Kodiak; however, there is an eight inch transmission line that extends out to the end of Mill Bay Road. It also serves the Loran Station on Spruce Cape. Water service also goes out to the southwest of downtown Kodiak as far as Gibson Cove.

Currently the water system is being utilized to its practical capacity and any substantial population growth within the Kodiak area will require expansion of the water system facilities. According to engineering studies, expansion of the water facilities would require construction of a dam at Monashka Creek. Engineering has been completed for this project and a 24-inch transmission line has been installed. However, the Ouzinkie Village Native Corporation has claimed the Monashka Creek drainage area and until the question of property ownership can be resolved, a dam and reservoir cannot be constructed.

Assuming the land ownership problems are solved and construction can begin on the Monashka Creek dam, this first phase of the expansion would increase the storage capacity by over ten times the current amount and would make the total capacity of the water system over 500 million gallons. In addition, the dam could later be expanded to store up to seven billion gallons of water depending on the growth of the Kodiak area.

At the present time, the Kodiak water system does not have the capacity to handle additional large consumers. As demand increases, water lines are being excavated and replaced with larger lines to increase service capacity of the system, and this practice will continue until the storage capacity and supply system is increased. The downtown area is most seriously affected by the inadequate water system. This is because most of the canneries are located in the downtown area and they are all major water users. A 20-inch line from the water tank, as shown on Map 2, to the upper reservoir will eventually provide interim relief for getting water from the reservoir to the downtown area. Eventually, the City will have to provide more transmission lines in order to cope with anticipated growth at the present rate.

If growth were to occur on an accelerated basis, the present water system would be totally inadequate. OCS development and an ensuing population increase would completely over-tax the system to the point of causing some potential water shortages as well as a great deal of expense to the community in trying to upgrade an already over-taxed system.(1)

SEWER SYSTEM

The sewer system for the Kodiak urban area is also operated by the City of Kodiak. The area serviced by the sewer system is shown on Map 3. As can be seen, the sewer system is primarily within the city limits of Kodiak with the exception of a small area along Mission Road to the northeast of Potatoe Patch Lake. The capacity of the system at the present time is adequate, and a new 2.3 million gallons per day sewage treatment plant is currently nearing completion. All interceptor lines have been completed for the service area and there should be no problem in providing service to the rest of the community under the normal growth pattern.

If there is an increase in population and housing construction within the area, it will be necessary to provide additional sewer lines in order to serve those areas. It may also be necessary to increase the size of the line in some portions of the downstream end of the system.

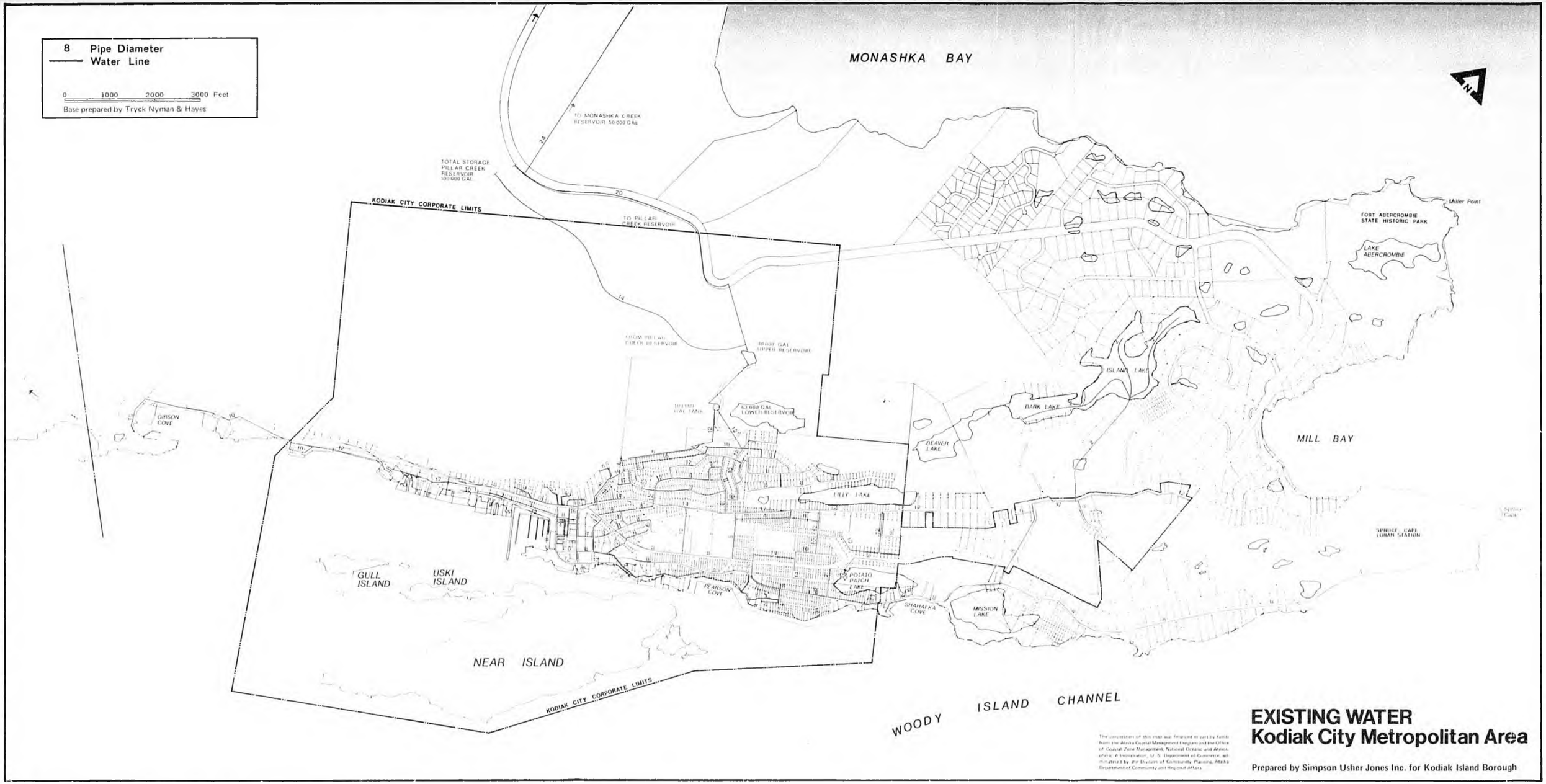
A sewage expansion feasibility study is currently being prepared for the Island Lakes area to the north and northeast of the city. This area is considered the most likely available property for residential development should a rapid expansion of the economy occur. Some low density residential development has begun in this area. Since public sewer service is not available, residents are building on-site disposal systems. As a result, some environmental problems are now occurring in the lakes. Additional building in that area has been stopped until the full extent of the environmental problems have been determined. Should additional building pressure be placed on this area, it would be necessary to serve it with public sewer.

In summary, with the exception of the Island Lakes area, the sewer system is adequate to handle the existing situation. The system has capacity for substantial expansion based on the new sewer treatment plant capabilities.(2)

ELECTRICAL SERVICE

Electrical energy is provided to the Kodiak area by the Kodiak Electrical Association. KEA is a cooperative corporation organized under the laws of the State of Alaska to provide electrical energy to a service area covering the City of Kodiak, its environs and the Port Lions area. Members of KEA receive their electrical energy needs from KEA and participate in the management of the organization through voting privileges on basic association issues and in the election of the board of directors which is nominated from the membership. KEA is a non-profit organization as defined by the Rural Electrification Association of the federal government. As of January 1, 1976, there were 2,382 members in the association.(3)

KEA's distribution facilities extend throughout the Kodiak area as well as to the outlying road system. New generating facilities have recently been completed in Kodiak which make the KEA plant the largest diesel-



The preparation of this map was financed in part by funds from the Alaska Coastal Management Program and the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration, U. S. Department of Commerce, administered by the Division of Community Planning, Alaska Department of Community and Regional Affairs.

EXISTING WATER
Kodiak City Metropolitan Area

Prepared by Simpson Usher Jones Inc. for Kodiak Island Borough

MAP 2

powered electrification plant in the State of Alaska. The new plant consists of two 5,270 KW diesel generators and one 2,500 KW diesel generator, which adds a total of 13,040 kilowatts of power to KEA's existing capacity of 11,878 kilowatts for a total generating capacity of 24,918 kilowatts. It is estimated that this capacity will be adequate to meet Kodiak's power requirements through the early 1980's.(4)

Further expansion of the diesel generating capacity over the designed expansion capacity now available is currently in question. Fuel costs for the diesel generators has increased dramatically in the last few years and additional increases are anticipated (in June 1973 diesel fuel cost 14.09 cents per gallon, and in 1976 it cost 35.2 cents per gallon). These increases in fuel costs have made diesel-generated power extremely expensive and have made other types of power, such as hydro-electric sources, more attractive.

KEA is currently investigating the feasibility of a hydro-electric generating facility at Terror Lake, located 25 miles southwest of Kodiak. The site was originally considered for such a facility during World War II by the Army Corps of Engineers. KEA became interested in the early 1960's. At present, the Terror Lake project is projected to produce approximately 30,000 kilowatts and 175 million kilowatt hours annually. KEA has filed permit applications with the Federal Power Commission to investigate the feasibility of developing the project. If the Terror Lake facility is approved, financed and constructed, KEA will be able to provide a relatively inexpensive power source to the entire Kodiak Island for the foreseeable future.(5)

COMMUNICATION FACILITIES

The Kodiak area is served by a relatively wide range of communication facilities in both the public and private fields. There are services available and under construction that are, for the most part, adequate to handle communication needs.

TELEPHONE SERVICE

Telephone service is provided to the City of Kodiak and surrounding metropolitan areas by the Glacier State Telephone Company. This service also extends along the road system and to Port Lions. Telephone rates for the Kodiak area are found in Figure 1.

A total of 3,804 telephone numbers are currently in use in Kodiak, excluding extensions. Of those 1,591 are residential phones and 2,213 are commercial or business phones. The telephone subscription rate has shown a steady rate of growth over the past few years. The 1976 rate for instance, is between four and five percent higher than in 1975. In order to meet demand projections for 1979/80, Glacier State Telephone is currently expanding its facilities in Kodiak. When completed, it should then have the capacity to meet the currently projected needs of the community until 1980. A dramatic increase in population growth during this period would necessitate further expansion of the Kodiak facilities.(6)

Fig. 1: Telephone Service & Costs*

Type	Monthly Rate	Installation
Residential:		
Private Line	$ 13.35	$ 30.00
Two-Party Line	10.00	30.00
Extensions	3.00/ea.	17.00
Commercial:		
Per Line	$ 30.00	$ 60.00
Extensions	4.50/ea.	27.00
Also available:	3-, 6-, and 12-line phone systems, hold buttons, intercom, PABX switchboard equipment, radio and other lease lines.	

* The above rates are charged within the City Limits of Kodiak. Outside the City Limits there is an additional monthly charge of $1.00 per 1/4 air mile for a private line; and $.80 per 1/4 air mile for a party-line. These rates are for September, 1976.

LONG DISTANCE COMMUNICIATIONS

RCA Alascom provides long distance communications to the City of Kodiak through the White Alice Communications System (WACS). The White Alice System is an extensive and elaborate system of troposcatter and microwave facilities serving the military and the public. WACS is owned by the Air Force but is leased and operated by RCA Alascom.

Long distance calls from Kodiak travel on a microwave system to Pillar Mountain directly behind the city. The White Alice System then transmits them to Diamond Ridge on the Kenai Peninsula. From there, calls travel over another microwave system into Anchorage for switching. RCA Alascom plans to replace many of the White Alice facilities with major earth stations. Kodiak is scheduled to receive a major earth station in the next few years. Long distance calls will then travel via satellite.

RCA Alascom, in cooperation with the State of Alaska, has embarked on a plan to provide rural areas with improved communications through the network of smaller earth stations. Under this project the villages involved will initially receive one telephone for normal long distance communications and one for emergency medical communications. On Kodiak Island, earth stations have been constructed in Larsen Bay, Old Harbor, Ahkiok, and Karluk. Health aides in these villages have also been supplied with special medical telephones which will be linked via satellite to the Kodiak Island Hospital in Kodiak. Health aides are able to use these special telephones 24 hours a day to obtain diagnostic assistance and to order supplies.

The bush earth stations and medical systems on Kodiak Island are expected to be operational by the end of 1976. In addition, Old Harbor and Larsen Bay have been selected to receive live color television under a television demonstration project funded by the State. Under this experimental program, television signals will travel via the RCA satellite and will be received by the village earth stations. About 42 hours of programming will be shown in the villages each week. This project is scheduled to be operational in early 1977.(7)

RADIO AND TELEVISION STATIONS

There are two private radio stations in Kodiak. KVOK, an AM station, is located at 560 on the AM dial, and broadcasts with a power of 1000 watts. They estimate their range to be between 800 and 1000 miles. An FM station, KMXT, is located at 100.1 on the FM dial, and broadcasts with the power of approximately 3000 watts. Its range is approximately 30 miles.

The only television service available to Kodiak at the present time is cable television. Provided by KOTV, Inc., this station provides two program channels to the City of Kodiak. Channel 2 operates from approximately 10 a.m. to 2 a.m., and Channel 4 operates from approximately 4 p.m. to 2 a.m. KOTV is not a network station and can choose the programs

they want to air from all three networks. In addition, KOTV, Inc. operates two advertising channels which show local advertising on printed cards. Cable TV in Kodiak costs $17 per month for cable service.

With the upgraded long distance facilities that are currently planned, Kodiak's communication system can adequately handle any increase in population resulting from OCS development as well as meet the specialized needs of the oil industry for their communication purposes. It may be necessary, if OCS development occurs rapidly, to accelerate the RCA satellite program to help provide additional long distance capabilities within the next year.

TRANSPORTATION FACILITIES

A community's transportation system is important to its vitality and livability. The fact that Kodiak is an island makes its transportation facilities doubly important. Kodiak's transportation facilities include marine services, general and commercial air carrier facilities, and state and local roads and highways. This portion of the study will briefly discuss these transportation facilities.

HIGHWAYS - STATE DEPARTMENT OF HIGHWAYS

The State Department of Highways has two maintenance facilities in the Kodiak area. The main shop facility is located near downtown Kodiak, and a small maintenance facility is at Kalsin Bay.

Personnel within the Kodiak area include two equipment operators at the Kalsin Bay facility, seven equipment operators at the Kodiak maintenance facility, one secretary and one foreman.

There is a total of 120 miles of roads under state jurisdiction in the Kodiak Borough -- 12 miles of which are paved. The roads within the Kodiak metropolitan area that are maintained by the Highway Department are shown on Map 4. The remainder of the state maintained roads are shown on Map 9. The State Department of Highways performs the general maintenance on these roads. This includes patching, snow removal, cleaning ditches and grading unpaved roads. According to the personnel at the Kodiak maintenance facility, the equipment utilized in these functions is in good working order and is adequate to handle the maintenance functions in Kodiak.

All new road construction in the Kodiak area is handled by the Southcentral office of the Department of Highways in Anchorage. This office handles the design and construction of new roads with little or no involvement of the Kodiak office.

An increase in traffic on the Kodiak highways resulting from OCS development would require some upgrading of roads. If the road to Chiniak were utilized by heavy industrial traffic, it would be necessary to widen the road to at least 28 feet and straighten the roadway in some areas. The Department of Highways does not feel it would be necessary to pave the road, but it would have to be maintained at a level consistent with the increase of traffic generated. No estimates can be given as to percent increase without detailed information on vehicular traffic increase.(8)

HIGHWAYS - CITY OF KODIAK PUBLIC WORKS DEPARTMENT

The City Public Works Department is responsible for street construction and maintenance within the city limits. (See Map 4.) At the present time, they are in the process of a major paving project in the Aleutian Homes area. This paving project is being financed through a five-year grant program of HUD entitlement funds authorized under the Housing and Community Development Act of 1974.

The majority of the streets within the City of Kodiak are unpaved, and the City maintains them as either gravel or seal-coated roadways.

In most cases, the streets maintained by the City of Kodiak are designed to carry low-volume traffic. Should there be a sudden and rapid increase in population due to OCS development, it would be extremely difficult for the City to maintain the streets adequately due to increased traffic loads.

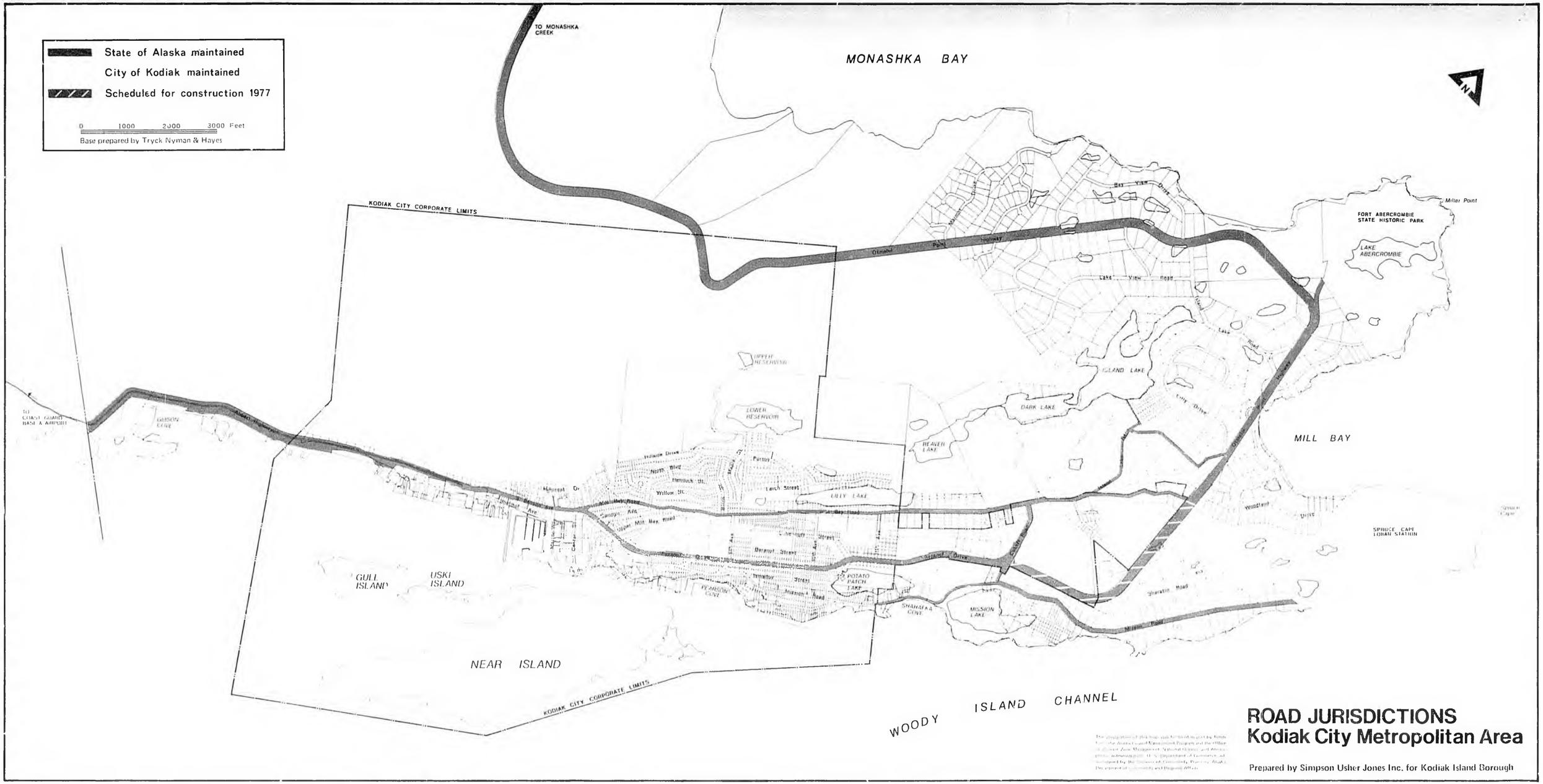
Roads within the metropolitan area that are not within the city limits and that are not part of the state road system are maintained privately. These roads have been constructed to varying standards and in many cases are designed to provide access to only a few property owners. A significant increase in traffic brought on by OCS development would seriously impact these areas. In preparing for OCS development, assessment of the local road situation is critical in order to plan for and alleviate any potential access problems that could be expected to arise.(9)

AIRPORTS AND AIR CARRIERS

Kodiak's major airport is located on the Coast Guard Base and is owned and operated by the State of Alaska, Division of Aviation. The civilian runway is 7500 feet long and paved with asphaltic compound. It is served by terminal facilities, owned by Wien Air Alaska, that include ticket counters, security waiting area, car rental agencies, indoor baggage facilities, and aircraft fueling facilities. (See Map 5.) There is no food service at the airport at the present time other than a number of vending machines; however, there is space available within the terminal facility to accommodate a snack bar or restaurant as soon as the demand warrants.(10)

The airport is used primarily by two major commercial air carriers. Wien Air Alaska operates the busiest schedule in and out of Kodiak's airport. In the winter, Wien makes two flights per day between Anchorage and Kodiak on Monday through Friday, and one flight daily on Saturday and Sunday. During the summer months (June 1, through September 15), they conduct two flights daily seven days a week between Anchorage and Kodiak. Wien generally flies Boeing 737 fan-jet aircraft between Anchorage and Kodiak, although, it also uses Fairchild F27 prop-jet aircraft on a limited basis.

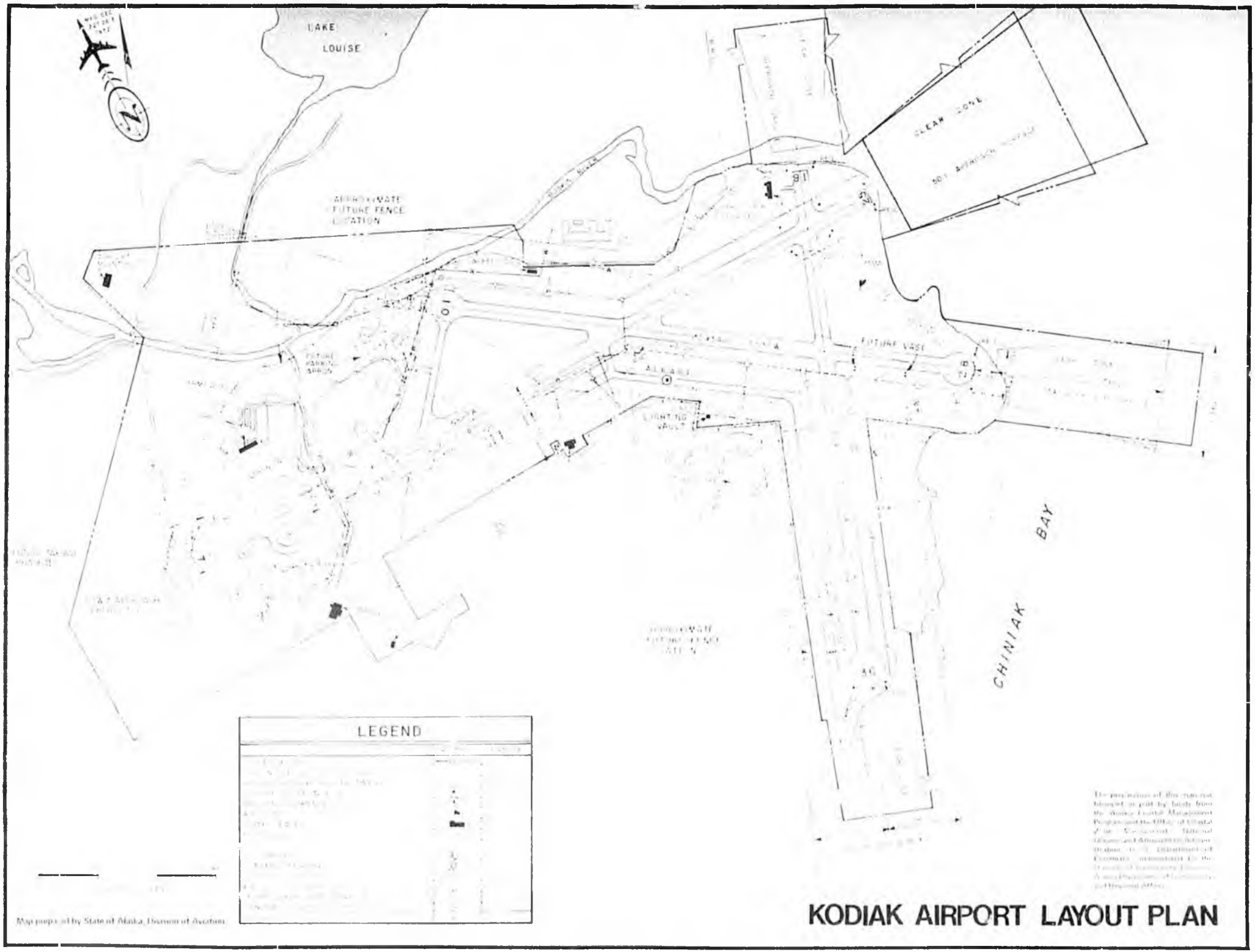
Western Airlines provides jet service between Kodiak and Seattle during the summer months (April through October). During the summer of 1976,



ROAD JURISDICTIONS
Kodiak City Metropolitan Area

Prepared by Simpson Usher Jones Inc. for Kodiak Island Borough

MAP 4



Map prepared by State of Alaska, Division of Aviation

KODIAK AIRPORT LAYOUT PLAN

MAP 5

Western offered this flight two times per week. It is anticipated that Western will provide Kodiak/Seattle service again in 1977, althougr the new schedule has not yet been determined. The Western flights utilize Boeing 720B fan-jets exclusively.

Air transportation is also available through Kodiak Western Alaska Airlines, Inc. This local flight service provides transportation to all of the nearby villages on a regularly scheduled basis from the downtown area. An example of its winter and summer schedule is shown in Figure 2.

Fig. 2: Schedule - Kodiak Western Alaska Airlines, Inc. - Winter 1976/77

Winter Schedule

Location	Mon	Tues	Weds	Thurs	Fri	Sat	Sun
Akhiok		X		X			
Alitak		X					
Amook					X		
Karluk	X		X		X		
Kitoi Bay		X					
Larsen Bay	X		X		X		
Moser Bay				X			
Old Harbor	X	X	X	X	X		
Olga Bay				X			
Ouzinkie	XX	X	XX	X	XX		
Parks	X						
Port Bailey		X					
Port Lions	XX	X	XX	X	XX		
Port Williams		X					
Sitkinak	X			X			
Terror Bay			X				
Uganik					X		
West Point			X				
Zachar Bay	X						

Summer Schedule

Mon	Tues	Weds	Thurs	Fri	Sat	Sun
	X		X		X	
	X		X		X	
X						
X		X		X		
			X		X	
X		X		X		
	X		X		X	
XX	XX	XX	XX	XX	XX	
	X					
XX	XX	XX	XX	XX	XX	
X		X		X		
X	X	X	X	X	X	
XX	XX	XX	XX	XX	XX	
			X		X	
X		X		X		
X		X		X		
X		X		X		
X						
X						

This schedule may be revised from season to season. In addition to the flights shown, Kodiak Western Alaska Airlines, Inc. also services Bristol Bay in the summer with flights coordinated with Western's jet service to and from Seattle.

In addition to these scheduled commercial airlines, Kodiak is also served by a number of smaller air charter operations. The air charter operations provide on-call transportation services to all parts of the Kodiak Island area throughout the year. These air charter services are also utilized for hunting and fishing guide services.

In spite of what is often considered a high incidence of inclement weather, the Kodiak Airport has a relatively good record of dependability. As an example, over the last three years Wien Air Alaska has completed 94.7% of its scheduled flights to and from Kodiak. The 5.3% that were not able to be flown includes both mechanical and weather cancellation. Consequently, it is assumed that closure of the airport due to weather affected less than 5% of those flights.(11)

The City of Kodiak operates a small general aviation airport within the city limits. It is located on the northwest side of Mill Bay road at

the end of Lilly Lake. The runway is oriented in a NE/SW direction and is gravel-surfaced. Its length is 2,750 feet and it is 100 feet wide. There is no formal city-maintained apron area, however several private entities have developed adjacent gravel, aircraft parking areas. The southwest end of the runway ends immediately at the northeast end of Lilly Lake, which is utilized for float planes.

There are no air or ground traffic control activities associated with this airport, however the FAA does offer an air traffic advisory service from their tower on the Coast Guard Base. No records are kept concerning the number of operations at the City Airport.

Recent population growth and residential development have taken place near the airport. This has reduced the future potential capacity of that facility, although it is impossible to quantify that reduction of capacity without historical records on operations.

MARINE TRANSPORTATION SERVICES

Marine transportation service is essential to the viability of Kodiak since it is the only mode of surface transportation from the mainland possible. The City Dock operated by the City of Kodiak is the center of shipping activity. See Map 6. Its facilities include a 21,600 square foot warehouse and two piers, one of which is 360 feet long and one which is 350 feet long. During the past year, 165 vessels utilized the City Dock facilities and 205,000 tons of freight were moved across the dock in and out of Kodiak. Reports indicate that this year's activity will greatly surpass last year's. At present there is very little dock storage space available; however, the City of Kodiak is attempting to negotiate for additional space from the Coast Guard.(12)

Sea-Land Service Company is the major freight supplier to Kodiak. The City of Kodiak provides dock faciltiies to Sea-Land under a contractual agreement. This contract, which extends another 16 years, provides that Sea-Land is allowed 104 berthings per year. Goods are delivered to the Kodiak area on container ships. Because of the lack of storage area, the vans are then loaded on trucks and delivered to the destined business location where they are left until the ship arrives on its return trip.

If OCS development were to occur, the increased demand for goods and industrial equipment likely to accompany such development would place a significant increase in demand on dock facilities. Should this situation occur it would be necessary to increase the capacity and storage spaces of these facilities significantly. This will be discussed in more detail in Phase II of this study.

STATE OF ALASKA FERRY SYSTEM

Kodiak is served on a seasonal basis by the Tustumena, a 269 foot long ferry operated by the State of Alaska Division of Marine Transportation.

The Tustumena serves Kodiak twice a week during the winter (January 10 through April 30) on a loop going from Seward to Kodiak, from Kodiak to Homer, from Homer to Kodiak, and from Kodiak to Seward. During the summer (May 1 through mid-October) the ferry makes three trips to Kodiak per week following the same route as the winter schedule, with the addition of a Valdez/Seward run on the weekends. Between October 14 and January 9 each year, the Tustumena undergoes its annual repairs in accordance with Coast Guard regulations, and during this period there is no ferry service available to Kodiak. The State Ferry Terminal is located in downtown Kodiak (see Map 6).

Costs for ferry service are as follows:

	Winter Rates	
Seward to Kodiak	$16/passenger	$54/vehicle
Kodiak to Homer	$14/passenger	$42/vehicle

Summer rates for the 1977 season have not yet been determined; however, it is anticipated that these will be 20 to 25 percent higher than the winter rates.

The Tustumena can carry 200 passengers and 45 cars (figured at 8' x 20' space per car). Vans of 40 feet maximum length can be transported on this vessel. There are 26 staterooms available, two of which are four-bed units and the others are two-bed units.

The Tustumena uses an elevator system to load vehicles. Two cars or one van at a time are lowered into the Tustumena onto a roundtable which turns to position the vehicle for placement in the ferry.(23)

As population pressures increase in Kodiak, either through normal growth or through OCS development, it may be necessary to increase the frequency and consistancy of ferry service to the Kodiak area both in winter and summer. The ferry is the only vehicular link between Kodiak Island and the mainland, and thus will be important to people who must travel between Kodiak and other areas in Alaska by vehicle.

PUBLIC SAFETY FACILITIES

This section will discuss the public safety facilities available in Kodiak. These services include law enforcement, fire protection and emergency services. In addition, the court system and Division of Corrections facilities will be described here since they relate closely to law enforcement.

DEPARTMENT OF PUBLIC SAFETY, DIVISION OF ALASKA STATE TROOPERS

Kodiak is the headquarters for the "E" Detachment of the Alaska State Troopers. The "E" Detachement covers an area including Kodiak, Dillingham, Naknek, Sand Point, Saint Paul and most of the Aleutian Chain. The Detachment employs 18 people, eight of whom are stationed in Kodiak. Kodiak personnel include five troopers, two clerks and one pilot who works for both the Division of Alaska State Troopers and the Division of Fish and Wildlife Protection.

The State Troopers are charged with enforcing the laws of the State of Alaska. This entails a variety of tasks, the most time consuming of which are criminal investigations, search and rescue functions, crash site investigations, and driver's license administration and testing. In addition, the Troopers assist the Fish and Wildlife Protection Division on an as-needed basis.

Offenses reported to the State Troopers in Kodiak increased in the early 1970's but have decreased since 1974. While available statistics summarize enforcement activities throughout the "E" Detachment jurisdiction, general trends determined by this information are directly applicable to the Kodiak area. For example, Figure 3 lists a breakdown of offenses reported within the "E" Detachment from 1969 to 1975. Troopers in the Kodiak area have carried a work load proportionate to the figures shown.

At present, the State Troopers in Kodiak have a staff level that is barely able to handle the case load. According to estimates made by "E" Detachment Headquarters, it takes a minimum of five men to provide a 24-hour shift for Kodiak Island. This does not include man-days required for travel, vacation, administration, and court duties. In order to adequately handle a 24-hour shift and all the ancillary duties assigned to the the Trooper detachment, a minimum of eight troopers and two supervisors should be provided according to the Division representative in Kodiak.

In addition, the State Troopers and the Fish and Wildlife Protection Division need another airplane. At present, the only plane available for use by both the divisions is a Grumman Goose. While the Goose is adequate for certain types of aerial work, it does not meet the full

range of needs for the two divisions. It is recommended that another, more modern aircraft be added to the divisions so that travel time can be reduced and larger areas can be covered in search and rescue functions. It is also felt that the Troopers need a boat approximately 40 feet in length to provide better coverage in search and rescue missions.(14)

If full OCS development were to occur, the case load of the Troopers would be expected to increase substantially. A rapid increase in population would be accompanied by an increase in criminal and misdemeanor offenses in a rate higher than expected. This is because boom-type economies create social pressures resulting in social and economic problems not normally found in stable communities. The State Troopers, therefore, anticipate a need for a larger work force in "E" Detachment to handle an increase in population due to OCS development.

Fig. 3: Offenses Reported - Alaska State Troopers

Offenses	1969	1970	1971	1972	1973	1974	1975
Homicide	5	4	2	2	7	4	5
Rape	1	1	--	1	6	2	--
Robbery	1	1	2	1	1	--	--
Assault with Deadly Weapon	8	6	13	25	23	22	15
Burglary	14	12	15	37	40	36	19
Larceny	8	14	19	45	83	53	27
Auto Theft	3	4	5	7	15	17	6
Assault	21	21	16	22	38	35	16
Narcotics	--	3	20	13	7	10	12
Liquor Laws	9	9	25	8	16	5	6
Drunkenness	41	34	36	15	2	2	--
Disorderly Conduct	23	27	29	10	20	8	5
Driving While Intoxicated	6	9	17	15	16	16	11
Other	20	42	53	60	143	67	11
TOTAL	160	187	252	261	417	277	133

Source: Alaska Department of Public Safety

CITY OF KODIAK POLICE DEPARTMENT

The City of Kodiak Police Department provides police services within the City Limits. The Police Department headquarters are located near downtown Kodiak on Mill Bay Road. (See Map 6.)

The Department is organized in three divisions. The Administrative Division consists of the Chief of Police and one secretary. The Patrol Division consists of one Sargent of Police and nine police officers. The Service Division consists of one sargent, five desk officers, one cook, and one humane officer. The Service Division provides support services to the Department including clerical, dispatching and record maintanence. The humane officer is responsible for animal control.

The Police Department maintains four radio-equipped patrol cars, one four-wheel drive vehicle, one pickup truck with canopy (humane truck) and one 1-1/2 ton van.

The City of Kodiak's jail facility is also located in the Police Department headquarters. At present that facility will detain 20 prisoners. It does not, however, have cells separated for the detention of women and juveniles, and the City is not allowed to detain prisoners for more than 120 days after sentencing because of the limited jail space. As indicated in the Social Services Section of this report, the Police Department is also responsible for administering the Alcoholic Sleep-Off Center which is located behind the jail.

A study of the historical crime rate in Kodiak reveals some extraordinary findings that give a relatively accurate indication of the effects that OCS development on criminal activity in Kodiak. Figure 4 shows the number of persons charged with Part I and Part II offenses from 1970 through 1976, and the percentage of increase or decrease in criminal acts that occurred during this period. The information utilized for this figure is condensed from reports sent to the Federal Bureau of Investigation by the City of Kodiak Police Department. A description of the offenses included in Part I and Part II categories is also found in Figure 4.

There has, in recent years, been a fluctuation in criminal activity in Kodiak. This is probably due to flucuations in the economy. Such economic flucuations can cause changes in the crime rate due to social tensions, economic hardships of individuals and increases in the number of transient workers.

The most significant statistic within Figure 4 is the increase in the crime rate shown between 1975 and 1976. The major portion of that increase in 1976 occurred in Part I offenses, which are considered far more serious than the Part II offenses. This is primarily because Part I offenses normally represent a criminal act that is eminently dangerous to the life and/or physical well being of the victim.

Fig. 4: Criminal Offenses City Of Kodiak

Year	Part I Offenses[1]	% ±	Part II Offenses[2]	% ±	TOTAL	TOTAL % ±
1970	4	---	501	---	505	---
1971[3]	1	---	352	---	353	---
1972	47	+ 15%	504	+ .05%	551	+ 2.0%
1973	40	- 15%	229	- 55%	269	- 39%
1974	50	+ 25%	503	+ 120%	553	+ 63%
1975	53	+ 6%	450	- 10.5%	503	- 10%
1976	91	+ 72%	551	+ 22%	642	+ 28%

1. Part I Offenses: Criminal Homicide (Murder & Nonnegligent Manslaughter) Forcible Rape, Robbery, Aggravated Assault, Burglary, Larceny, Motor Vehicle Theft.

2. Part II Offenses: Other Assaults, Arson, Forgery & Counterfeiting, Fraud, Embezzlement, Stolen Property, Vandalism, Weapons, Prostitution & Commercialized Vice, Other Sex Offenses, Narcotic Drug Laws, Gambling, Offenses Against Family and Children, Driving Under the Influence, Liquor Laws, Drunkenness, Disorderly Conduct, Vagrancy, All other Offenses (except traffic).

3. Incomplete data for 1971.

Source: City of Kodiak Police Department information reported to FBI. Simpson Usher Jones, Inc. (1976).

Often times an increase such as this is not representative of the actual increase in crimes, but rather is reflective of an increase in efficiency of reporting or an increased level of service on the part of the agency involved. However, this not the case of the Kodiak Police Department. There have been no significant changes in the reporting requirements or standards, and the level of service of the department in terms of its personnel and equipment, was not appreciably changed between 1975 and 1976. Thus there is no reason to believe that the statistics shown in the table are influenced by external factors.

The increase in Part I offenses within the last year could be explained by any one, or all, of a number of changes that are occurring in Kodiak. Most of these changes are directly or indirectly related to economics. In recent years, the processing industry has been expanding rapidly and has encountered shortages in the available work force. Consequently, there has been a high degree of reliance on imported laborers that are either

migrant and/or transient. The majority of these workers are from cultural backgrounds different than the residents of Kodiak and have no hereditary roots within the community. According to the Police Department, a relatively high percentage of the criminal offenders reported in Figure 4 come from this group. Also, Kodiak is experiencing a much higher than normal incidence of unemployed transients from other major cities within Alaska. Again, according to the Police Department, there has been a high incidence of criminal offenses by transient persons from Anchorage, Fairbanks and Valdez within the last year. This would correspond with the completion of the Trans Alaska Pipeline project and the desire of the persons who were employed on that project to either seek new employment in other towns or simply explore other parts of the state. For the most part, the people within these groups are law abiding and have no intention of becoming involved with illicit activities. However, statistically there is a higher incidence of criminal offenders in these groups than is found in the indigenous population. A relatively high percentage of offenders in Kodiak tend not to have any type of cultural or economic attachment to the community.

There is an obvious correlation between this recent increase in criminal activity and the potential effects of rapid industrialization due to OCS development. A large portion of the labor force involved in oil development in Kodiak will have to be imported because the lack of required skills that are available in Kodiak as well as the general lack of work force available. Also, as industrialization occurs, Kodiak will experience an influx of "camp followers". These people have traditionally followed economic booms in hopes of either finding high paying jobs or establishing illicit operations, such as gambling and prostitution, to "cash in" on the boom. In most cases the jobs are not available and, unfortunately, there is normally a market for the illicit operations.

In order to cope with this situation, police services within the City of Kodiak will have to be increased. In discussions with the Police Department, a number of needs were identified that would help reduce these adverse impacts. One unfortunate, however necessary, priority would be an increase in the size of the jail facility. Since the city jail is the only detention facility on Kodiak Island it is already operating at or above its capacity. A continued increase in crime will make its expansion or the construction of a new facility imperative.

An increase in criminal activity will obviously require an increase in police departmental activity. A dramatic increase will require additional personnel. An increase in personnel will require an increase in the size of the Police Department facility. Currently, the department estimates that there is a need for additional personnel in the jail to handle bookings and releases on the work-release program, as well as to administer the Sleep-Off Center. The department is also in need of a juvenile officer to work with delinquent, dependent and neglected children. It is estimated that by the addition of this officer, 75% of the children that are now sentenced could be kept out of court. In addition, the department is in need of two more positions for traffic control. An increase in the criminal rate will require a much higher percentage of

individual police officer's time to be spent in the handling of criminal cases. Consequently, traffic control would be one of the first areas of police work that would receive less attention.

The present needs of the Department, based on the increased crime rate in 1976, would require the addition of five people to the department along with appropriate equipment and vehicles. If the crime continues to increase as can be expected during OCS development, the City of Kodiak should be prepared to expand the department even further.

THE ALASKA STATE COURT SYSTEM

The court system is housed in the state court building in downtown Kodiak. (See Map 6.) In addition to the administrative offices this building includes a law library with an inventory of approximately 5,000 legal books and documents. The law library is open to the public during the normal hours of operation of the state office.

At the present time court personnel include one Superior Court judge who presides over both the Superior and District Courts; one in-court deputy clerk who also functions as the judge's secretary; one magistrate who handles the administration of the court system and the small claims and arraignment function; a clerk of the court/acting magistrate; and a recording clerk, for a total of five employees.

The court's workload in Kodiak has shown a fluctuating increase over the past few years (Figure 5). The following charts provide a summary of Kodiak Superior Court's case load indicating the number of cases filed, the number of dispositions made, and the number of cases still pending during the years 1973, 1974 and 1975. Figure 6 provides an indication of the number and types of felony and misdemeanor charges filed in Kodiak during 1975.

Fig. 5: Kodiak Superior Court Total Caseload

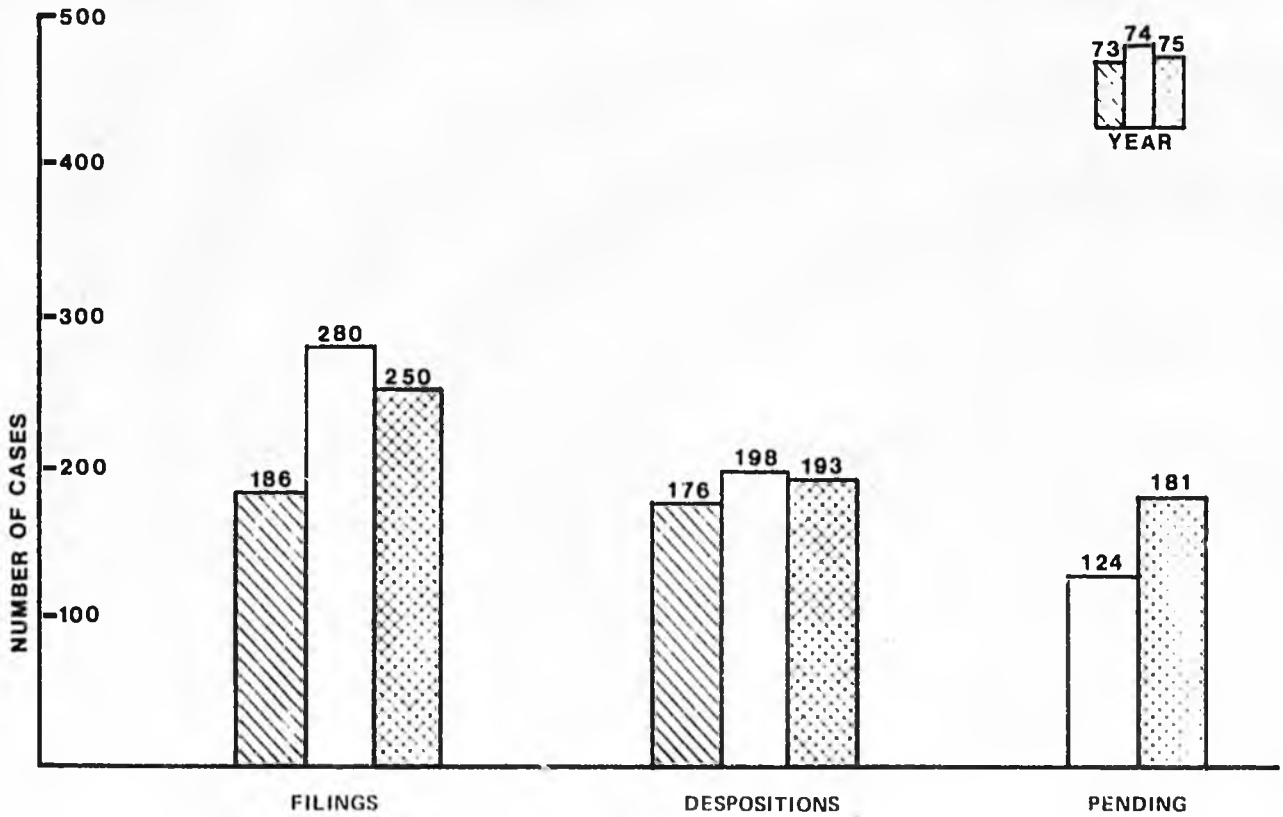


Fig. 6: 1975 Filings -- Kodiak

Felony	
Violence	41
Property	49
Travel	10
Drugs	13
Resisting the Law	0
Other	0
TOTAL	119

Misdemeanor	
Violence	66
Theft/Travel	82
Environmental	127
Nuisance	110
Alcohol/Drugs	70
Vice	3
Resisting the Law	15
Traffic	193
Other	19
TOTAL	685

Source: State of Alaska Court System

The first year Kodiak had both a Superior Court Judge and Public Defender was 1976. (See "Health and Social Services" for information regarding the Public Defender.) Consequently, the workload of the court system has increased dramatically. It is estimated that two additional personnel are needed to adequately handle the existing court administration workload. In addition, a law clerk is needed to assist the Superior Court Judge.

If full OCS development were to occur, it is anticipated that felony and misdemeanor offenses will increase significantly. Consequently, the court system's case load will also increase. Since the current staff level is overtaxed by its present workload, it is felt that the court system could not handle the additional burden brought on by OCS development without increasing its personnel.

STATE DEPARTMENT OF LAW

The District Attorney's office is the only representative of the State Department of Law in Kodiak. This office employs one attorney and one secretary. The function of the District Attorney's office is to prosecute all violations of state law within its service area which includes Kodiak, the Alaska Penninsula, the Aleutian Chain, and portions of Southwestern Alaska.

A full-time District Attorney has been employed in Kodiak since the fall of 1975. Prior to that, those functions were served by an Assistant District Attorney from the Anchorage office on a part-time basis.

In addition to the normal case load, the Kodiak District Attorney is responsible for prosecuting violations of fishing and hunting regulations for the Division of Fish and Wildlife. These cases include everything from illegal commercial fishing to complaints against sport fishermen for snagging salmon. Fish and Wildlife Protection cases account for approximately 25 percent of the District Attorney's time.

The District Attorney also handles divorce and paternity-related non-support complaints from other states through cooperative agreements. This is done on a time-available basis.

As previously mentioned, the District Attorney's office is responsible for the Kodiak area, the Aleutian Chain and the Alaska Penninsula. The greatest proportion of its time (approximately 70 to 75 percent) however, is spent on Kodiak cases. The District Attorney's office estimates that at least one additional attorney and one secretary are needed to adequately handle the present case load. The advent of OCS development would necessitate an even larger staff because of the problems anticipated to accompany population growth.(15)

DIVISION OF CORRECTIONS (Department of Social Services)

The Division of Corrections Office in Kodiak is also located in the state court building. It is staffed by two corrections officers and one secretary. The Division of Corrections is primarily in charge of correctional institutions and field services. However, since there is no state jail in the Kodiak area, the Kodiak office is totally involved in field services. The programs administered are as follows:

Juvenile Intake - Under this program the Division of Corrections reviews juvenile offenders to determine if they should be taken to court or handled in some other manner. This is a discretionary decision rendered by the corrections officer in Kodiak.

Convicted Offenders - Reports are required on convicted juvenile and adult offenders. In the case of adults, presentencing reports are prepared for the court on convicted felony offenders. These reports are reviewed by the court in the process of sentencing adult felons.

Predisposition reports are required by the court on juvenile offenders. These reports include complete background studies of the juvenile offenders. The court uses these reports to determine the disposition of the juvenile offender after sentencing.

Probation Supervision - This program directs the counseling and supervision of persons who have been convicted of crimes and placed on probation. It is the duty of the corrections officer to see that the terms and conditions of probations are met by the offenders.

Parole Supervision - This program administers probation supervision to previously convicted persons who are now on parole. Parole is also normally granted with attached conditions or terms, and it is the duty of the corrections officer to insure that those conditions are met by the parolee.

Interstate Compact - Under this program the Division of Corrections assumes courtesy supervision of parolees from other states. While it is required that correction officers must be notified by the state of origin when a parolee requests permission to move into his district, this procedure is seldom followed. Frequently parolees simply appear before the correction officer and request parole supervision.

Approximately 95 percent of the correction officer's case load in Kodiak involves probation supervision. Of that, 60 percent relates to adult offenders and 40 percent with juveniles. The remaining 5 percent of the time is spent preparing reports for both the department and the court.

The Division of Corrections handles a heavy work load and additional personnel could currently be justified according to the Division repre-