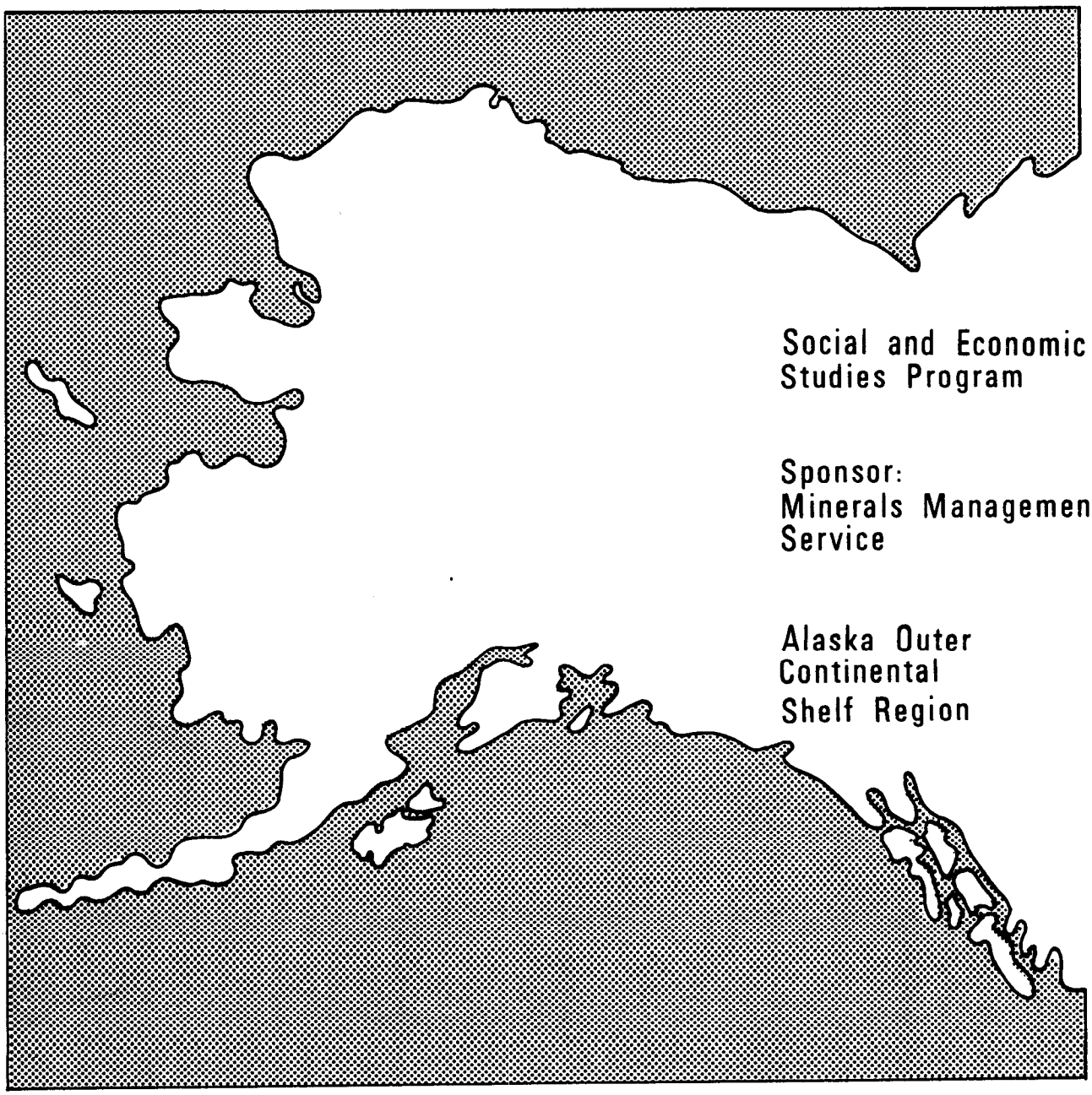
Technical Report
Number 98



Social and Economic
Studies Program

Sponsor:
Minerals Management
Service

Alaska Outer
Continental
Shelf Region

Gulf of Alaska
Economic & Demographic Systems Analysis

GULF OF ALASKA
ECONOMIC AND DEMOGRAPHIC SYSTEMS ANALYSIS

Social and Economic Studies Program
Technical Report Number 98

Prepared for

Minerals Management Service
Alaska OCS Office

Prepared by

Gunnar Knapp, Will Nebesky, Teresa Hull,
Karen White, Brian Reeder, and Judy Zimicki

Institute of Social and Economic Research
707 A Street, Suite 206
Anchorage, Alaska 99501

March, 1984

Prepared Under Contract Number AA851-CT1-30

ACKNOWLEDGEMENTS

This report was prepared between January and September of 1983 by Gunnar Knapp, Will Nebesky, Brian Reeder, and Karen White of the University of Alaska Institute of Social and Economic Research. Gunnar Knapp developed the RAM model, wrote the two sections of the report on Cordova and Seward, and coordinated the remainder of the study. Will Nebesky programmed the RAM model, prepared the model projections, and wrote the sections of the report on Kenai, Kodiak, and Yakutat. Teresa Hull developed the population data and historical descriptions for all of the communities. Karen White wrote the sections of the model on Homer and Sitka. Brian Reeder prepared the computer output tables. Judy Zimicki of Down-to-Earth Science edited the report. Other ISER researchers, including Lee Huskey and Jack Kruse, provided comments on the RAM model. Cathi Dwyer, Darla Siver, and Darelyn Cooper typed the report. We are grateful to Kevin Banks, Jim Sullivan, Fred King, George Allen, and Glenn Yankus of the Minerals Management Service for many helpful suggestions. We are also grateful to David Dengel and Linda Fried for their comments on the sections of the study dealing with Yakutat and Kodiak.

ABSTRACT

This report examines possible impacts of the Gulf of Alaska lease offering, scheduled for October of 1984, upon the population and economics of five communities in southcentral Alaska: Homer, Kenai, Kodiak, Seward, and Yakutat. For each community we provide descriptions of current population and employment. We then use the Rural Alaska Model ("RAM" model) to project a number of economic and demographic variables for these five communities with and without development of the proposed lease sale area. These projections are sensitive to the numerous assumptions required by the model.

In the base case, we project relatively low rates of growth in resident population for Kenai and Kodiak (less than 1.2 percent annually over the period 1981-2010); we project a moderate growth rate for Yakutat (1.9 percent annually over the period, with most growth occurring before 1990); and we project high rates of growth for Homer and Seward (2.3 percent and 3.6 percent) due to increased tourism, fish processing, and shipbuilding.

We project relatively minor impacts from development in the lease sale area upon population and employment in Homer, Kenai, Kodiak, and Seward (generally less than 10 percent at maximum). In contrast, we project more substantial relative impacts upon population and employment in Yakutat (up to 46 percent and 82 percent, respectively). Although absolute impacts are similar in Yakutat to those in the other communities, relative impacts are greater because Yakutat is much smaller.

TABLE OF CONTENTS

LIST OF TABLES

Tables of Rural Alaska Model Projections

The following appendixes contain tables of Rural Alaska Model Projections:

Appendix S	Homer
Appendix T	Kenai
Appendix U	Kodiak
Appendix V	Seward
Appendix W	Yakutat

Within each appendix, tables are arranged as follows:

Tables 1-9: Base Case Projections

1. Resident Population, Nonproject Enclave Population, Project Enclave Population, Military Enclave Population, Total Population Including Enclaves and Military.

2. Resident Population, Native Population, Non-Native Population, Native Male Population, Native Female Population, Non-Native Male Population, Non-Native Female Population.

3. Resident Population, Preschool Age, School Age, Adult, Senior.

4. Resident Population, Change in Resident Population, Natural Increase, Net Migration, Net Migration of Workers, Net Migration of Dependents.

5. Resident Employment, Nonproject Enclave Employment, Project Enclave Employment (Onshore Only), Military Enclave Employment, Total Employment Including Enclaves and Military.

6. Total Resident Employment, Resident Basic Employment, Resident Support Employment, Resident Government Employment, Resident Project Employment.

7. Total Resident Basic Employment, Resident Fishing Employment, Resident Fish Processing Employment, Other Resident Basic Employment.

8. Total Resident Support Employment, Endogenous Resident Support Employment, Government Sponsored Resident Support Employment, Exogenous Resident Support Employment, Enclave Sponsored Resident Support Employment.

9. Total Civilian Government Employment, Endogenous Civilian Government Employment, Exogenous Civilian Government Employment.

Tables 10-22: Impact Projections

10. Resident Population, Nonproject Enclave Population, Project Enclave Population, Military Enclave Population, Total Population Including Enclaves and Military.

11. Resident Population, Native Population, Non-Native Population, Native Male Population, Native Female Population, Non-Native Male Population, Non-Native Female Population.

12. Resident Population, Preschool Age, School Age, Adult, Senior.

13. Resident Population, Change in Resident Population, Natural Increase, Net Migration, Net Migration of Workers, Net Migration of Dependents.

14. Resident Employment, Nonproject Enclave Employment, Project Enclave Employment (Onshore Only), Military Enclave Employment, Total Employment Including Enclaves and Military.

15. Total Resident Employment, Resident Basic Employment, Resident Support Employment, Resident Government Employment, Resident Project Employment.

16. Total Resident Basic Employment, Resident Fishing Employment, Resident Fish Processing Employment, Other Resident Basic Employment.

17. Total Resident Support Employment, Endogenous Resident Support Employment, Government Sponsored Resident Support Employment, Exogenous Resident Support Employment, Enclave Sponsored Resident Support Employment.

18. Total Civilian Government Employment, Endogenous Civilian Government Employment, Exogenous Civilian Government Employment.

19. Onshore Short-term Skilled Project Employment, Onshore Short-term Nonskilled Project Employment, Onshore Long-term Skilled Project Employment, Onshore Long-term Nonskilled Project Employment, Total Onshore Project Employment.

20. Offshore Short-term Skilled Project Employment, Offshore Short-term Nonskilled Project Employment, Offshore Long-term Skilled Project Employment, Offshore Long-term Nonskilled Project Employment, Total Offshore Project Employment.

21. Resident Project Employment, Enclave Project Employment, Commuter Project Employment, Total Project Employment.

LIST OF FIGURES

I. INTRODUCTION

In this study, we examine possible impacts of the Gulf of Alaska lease offering, scheduled for October of 1984, upon the population and economies of five communities in Southcentral Alaska: Homer, Kenai, Kodiak, Seward, and Yakutat. The Gulf of Alaska lease offering was previously referred to by the Minerals Management Service as "OCS Sale 88," and we use both terms to refer to the lease sale in this report.

Model Projections

In order to examine the impacts of offshore oil development in the lease area, we use a model to project a number of economic and demographic variables for these five communities. The model is the Rural Alaska Model, or "RAM" model, which was developed at ISER with the support of the Social and Economic Studies Program for use in projecting impacts of OCS development. Appendixes A through C provide a detailed description and documentation of the RAM model.

We prepared model projections for development in the absence of the lease sales (the base cases) and development with the lease sales (the impact cases). The differences between these cases are the projected impacts of the lease sales.

The RAM model has several hundred equations and is calculated by computer, but it actually uses a relatively simple procedure in projecting various economic and demographic variables. Essentially, we first develop assumptions about basic employment--for each year of the projection period. We also make assumptions about how many local-oriented or "support" jobs are generated by each basic job. Based on these assumptions, the model calculates total employment in the community.

We also make assumptions about population growth rates, labor force participation rates, and the extent to which people move into the community in response to new employment opportunities or leave the community in response to lack of employment opportunities. Based on these assumptions, the model calculates population variables for each year of the projection period.

Finally, in order to project impacts of OCS development, we make assumptions about total OCS-related employment broken down by skill level, duration of employment, and whether or not jobs are located onshore or offshore. These assumptions are provided by the Alaska OCS office. We make additional assumptions about the extent to which local residents could fill OCS jobs and the extent to which new OCS workers would become residents of the community. Based upon all of these assumptions, the model projects total employment and population that would occur with OCS development.

The primary advantage of the RAM model over simple hand calculations is that the model can systematically and rapidly perform a great number of calculations. However, as with any projection of the future, the RAM model's projections are only as good as the underlying assumptions. There are considerable difficulties in developing these assumptions for small communities such as those we study in this report.

For example, we have attempted to base our assumptions upon data which describe current conditions in the communities. However, in many cases data are several years out of date, are available only at higly aggregated levels, or are simply not available at all. Even where data do exist, they may not accurately reflect year-round population and employment conditions, which can vary significantly from season to season.

An even more difficult problem than the lack of data arises from the difficulty of making assumptions about conditions in future years. Even where reliable data are available on current conditions, these conditions are not necessarily a reliable guide to the future. Other difficulties arise with respect to our assumptions about the nature and location of OCS-related employment and the availability of these jobs to local workers. Our projected impacts are for the particular OCS employment levels assumed by the OCS office, which are based on specific oil development scenarios. Obviously, with different oil development scenarios, the impacts might differ. Similarly, mitigating factors such as local hire conditions or enclave-basing conditions which might be imposed on oil development projects could significantly affect the nature of impacts.

Another problem in making impact projections is the choice of study area. If a facility is located within or near a specific community, economic and demographic impacts may occur over a wider region. The relative magnitude of projected impacts will differ depending upon how the study areas were necessarily somewhat arbitrary, based in part on the availability of data. In general, we tried to include not just the area within the political limits of the study communities but also surrounding areas which were economically oriented toward the study communities. We illustrate the study area for each community with a map.

We have illustrated the sensitivity of our impact projections to certain key assumptions in several tables of projections for each community. However, the sensitivity of our overall projections is greater than is indicated by varying these few variables. To sum up, we feel that our RAM model projections can provide a useful indication of the kinds of impacts which OCS development might have upon these communities, but neither the base case nor the impact case projections should be viewed as highly likely predictions of the future. It is simply not possible to be highly accurate in

predicting the future for small Alaska communities, given the many uncertainties that surround their development.

Organization of This Report

In Chapters II-VI, we present descriptions and projections for the communities of Homer, Kenai, Kodiak, Seward, and Yakutat. For each community we begin by providing a brief description of its history, current population, and employment. These descriptions are based upon published sources rather than extensive original research. We have attempted to avoid duplicating the large amount of research on these communities which has been undertaken in recent years, much of which has been funded by the Minerals Management Service's Social and Economic Studies Program. (See the bibliography to each chapter for references to these studies.) Instead, we have concentrated on using the RAM model to project future trends in these communities, in particular, the effects of OCS development.

After our description of the community, we review the major assumptions used for our RAM model projections. We then summarize the results of our base case and impact projections. We present our complete RAM model projections for each community in Appendixes S-W.

In our conclusion in Chapter VII, we briefly summarize and compare our RAM model impact projections for the five communities.

Two sets of Appendixes provide more technical information which we used in developing our community descriptions and RAM model projections. Appendixes D-H provide data on employment and income in each community from several different sources and a discussion of how we used this information in developing our RAM model projections. Appendixes L-P document our RAM model assumptions in detail on worksheets prepared for this purpose.

II. HOMER: DESCRIPTION AND PROJECTIONS

History

Homer is located on the lower end of the Kenai Peninsula on the north side of Kachemak Bay. Early inhabitants of the Kachemak Bay area were Eskimos who were followed by Tanaina Athabascan Indians. Russian explorers visited the region in the eighteenth century, but settlers came only in the 1880s and 1890s. These residents were associated with coal and gold mining activities. In 1896, the settlement of Homer was established on the tip of the Spit, where prospectors took up residence in buildings vacated by members of a coal company.

In 1899, the Cook Inlet Coal Fields Company was incorporated. The next year the company built a dock and seven and one-half miles of railroad along the Spit and to their mines near Coal Creek. Local canneries and passing ships used the coal. The coal company closed in 1902. Since then Homer has seen only brief periods of coal mining.

From 1915 to 1936 most of the activity in Kachemak Bay centered in Seldovia, though some homesteading took place in Homer. The homesteaders depended on subsistence gardening, hunting, and fishing and in summer worked in canneries or fished commercially.

After 1938, Homer became a growing community. World War II created a temporary market for the homesteaders' fresh produce. Kodiak Naval Base used the farmers' surplus potatoes and other vegetables. The more lasting effect of the defense activity was the construction of an airfield in 1942 and its expansion after the war. Another major transportation link occurred in the 1950s with the construction of the Sterling Highway. Homer was now linked by road to Kenai and Anchorage, and more homesteaders and fisher people were attracted to the area.

Fishing had provided the major source of income since gold and coal mining subsided. Few homesteaders were able to make a living from their land, and so they turned to commercial fishing or cannery work. In the 1930s an increasing number of residents acquired their own fishing vessels rather than using cannery boats. More dramatic growth of fisheries in Homer began in the 1950s with improved docking and boating facilities and with the completion of the Sterling Highway. When the 1964 earthquake destroyed Seldovia's waterfront and canneries, Homer became the principal seafood processing community on Kachemak Bay. Today commercial fishing and the processing of salmon, halibut, shellfish and select species of bottomfish are the principal economic activities, followed closely by tourism.

Population

The 1980 Census provides the most detailed information available on current population in Homer. Table II-1 summarizes 1980 population of the city of Homer by age, sex, and race and provides similar figures for 1970 and 1960. Homer had a population of 2,209 in 1980. An additional 931 people were counted in the surrounding communities of Kachemak, Anchor Point, and Fritz Creek (not shown in Table II-1. See Appendix L, footnote for Worksheet 1). A total of 3,140, then, lived in the Homer area in 1980. Figure II-1 outlines the area included in our discussion of Homer.

Ideally, the census would have counted only residents of Homer. However, the census was not necessarily consistent in its treatment of nonresidents, such as seasonal fish processing workers. One estimate of the number of such persons included in the total population count is the number of persons living in group quarters, of which there were 49. In Homer's case, this is an underestimate of seasonal residents; elsewhere it is reported that Homer's population triples in the summer (U.S. Army Corps, p. 1).

As indicated in Table II-1, Homer experienced major growth between 1970 and 1980 after a period of population decline the previous decade. Between 1960 and 1970, the population decreased 13 percent. The average annual rate of decline was one percent. The next ten years saw this trend dramatically reversed. Between 1970 and 1980, Homer's population increased by 104 percent. The average annual growth rate for this period was seven percent.

Young adults (persons aged 20 to 34) made up one third of the total population in 1980. In 1970, this group comprised 13 percent of the population. Thus, Homer appears to have had a younger labor force in 1980 than it did in 1970. In 1960, this age cohort (20 to 34) was not given so we were not able to compare all three target years

TABLE II-1.

HOMER POPULATION

	Age						
	0-4	5-14	15-19	20-34	35-64	65+	Total
1980							
Total	199	377	167	736	626	104	2209
Male	94	190	96	401	338	55	1174
Female	105	187	71	335	288	49	1035
Native	12	12	4	20	16	2	663
Male	5	6	1	7	6	1	26
Female	7	6	3	13	10	1	40
Non-Native	187	365	163	716	610	102	2143
Male	89	184	95	394	332	54	1148
Female	98	181	68	322	278	48	995
1970							
Total	83	233	122	209	381	55	1083
Male	43	132	64	102	204	35	580
Female	40	101	58	107	177	20	503
Native (a)	2	7	9	11	4		33
Male	0	3	4	3	3		13
Female	2	4	5	8	1		20
Non-Native	81	226	322	370	51		1050
Male	43	129	162	201	32		567
Female	38	97	160	169	19		483
1960							
Total	140	347	283	444	33		1247
Male	73	179	148	247	23		670
Female	67	168	135	197	10		577
Native (b)							94
Non-Native							1153

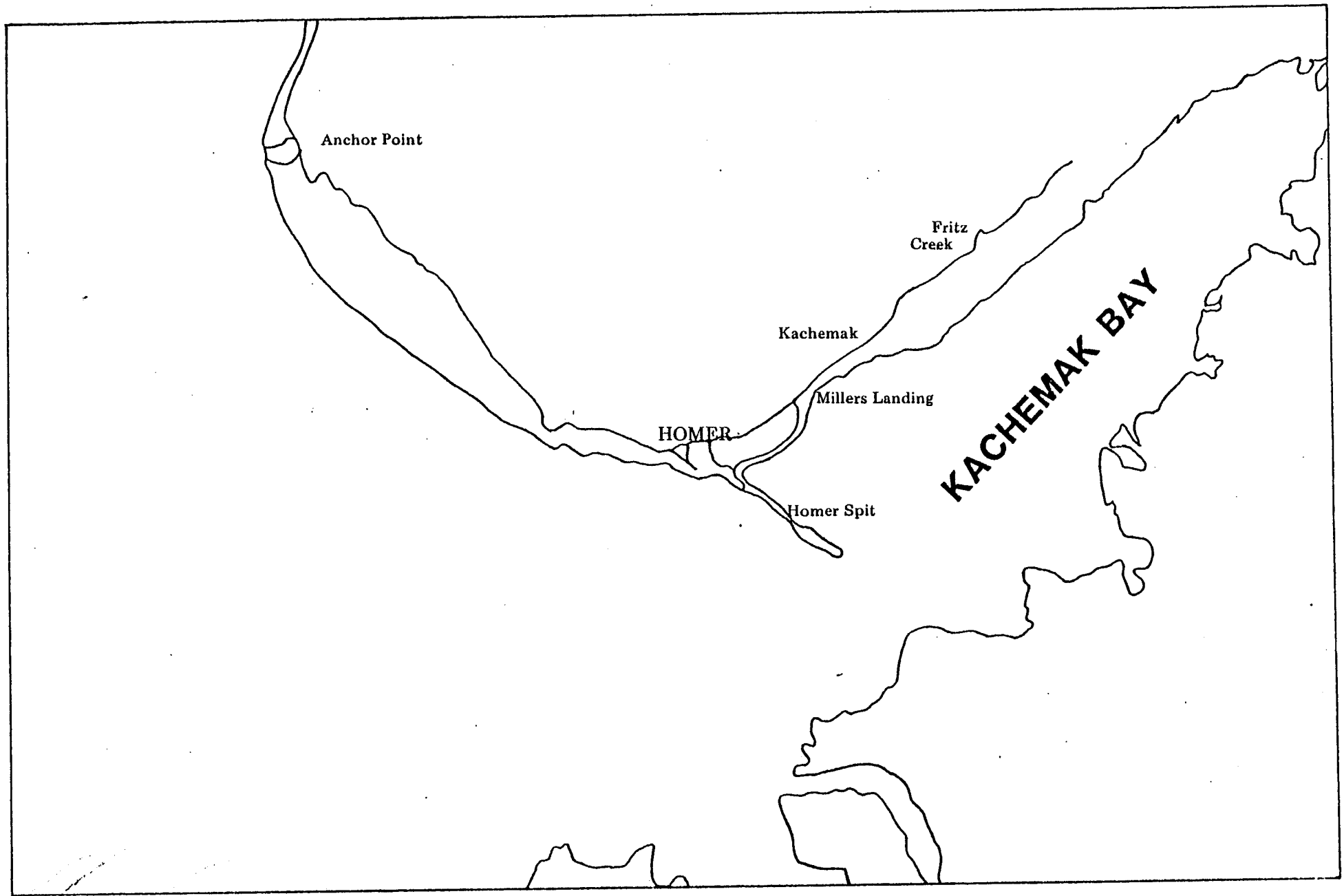
TABLE II-1 NOTES

(a) The 1970 Native age-sex breakdown is an estimate based on two sources: (1) the Census Bureau's age-sex breakdown of "Other Races," excluding the Black and White races; and (2) ISER's Census based publication (Alaska Review of Business and Economic Conditions, September 1973) giving total number of males and females of the Aleut, Eskimo, and Indian races.

(b) The 1960 Census designated three race categories: White, Black, and Other. White and Black are classified as non-Native here. Other is categorized as Native.

Sources: U.S. Census for 1960, 1970, 1980; Institute of Social and Economic Research. "Age and Race by Sex Characteristics of Alaska's Village Population." Alaska Review of Business and Economic Conditions September 1973.

FIGURE II-1. HOMER STUDY AREA



Adapted from AK District Corps of Engineers, March 1983

directly. However, if we consider the group aged 15 to 34, we found this group's percentages increased between 1960 and 1980 also. In 1960, they represented 23 percent of the population; in 1970, 31 percent; and in 1980, 41 percent. The proportion of older adults (34 to 64 year olds) in comparison to the total decreased, particularly between 1970 and 1980. In 1960, this group represented 36 percent of the total population; in 1970, they comprised 35 percent; and 1970, 28 percent. The proportion of elderly (persons 65 and over) increased slightly. In 1960, they accounted for three percent of the population; and in 1970 and 1980, they were five percent of the total. At the other end of the spectrum, children up to 14 years of age comprised 39 percent of the population in 1960. Their proportion of the total decreased to 29 percent in 1970 and to 26 percent in 1980.

A relatively small proportion of Homer's population is Native. In 1970 and 1980, three percent of the population was Native. We estimated that in 1960, eight percent was Native. However, in this census data for 1960, all races other than Black and White were counted as "Other." In our analysis, we have labeled this group "Native." Thus, Natives, as a proportion of the total population may be inflated to the extent that Spanish, Portuguese, or other ethnic groups were present.

Fifty-three percent of Homer's population was male in 1980. In both 1960 and 1970, males comprised 54 percent of the population.

Employment

In this section, we describe employment in Homer in 1980. Our estimates of employment are based on a number of data sources and a variety of different assumptions. We describe how we developed these estimates in Appendix D.

EMPLOYMENT BY SECTOR

Table II-2 provides a breakdown of estimated full-time equivalent employment for Homer and the nearby communities of Kachemak, Fritz Creek, and Anchor Point in 1980. Full-time equivalent (FTE) employment is a measure of total man-years of work. While FTE employment provides the best measure of work done over an entire year, actual employment at any time during the year may vary greatly from FTE employment. As one indication of the range of variation from FTE employment, we have included in Table II-2 an estimate of employment in August 1980, when total employment generally is at a high point.

Our estimates suggest total FTE employment of 2,069 jobs, of which residents accounted for 1,746 jobs and nonresidents accounted for 323 jobs. We may break those jobs down into three sectors: basic, support, and government.

Basic sector jobs are private-sector jobs in the production of raw materials and manufactured goods, including jobs in agriculture, forestry, fisheries, mining, and manufacturing. We estimate that there were 931 FTE basic sector jobs in 1980, of which almost all were in fishing or fish processing.[1] Basic sector jobs account for 45 percent of FTE employment and 58 percent of peak employment.

---

[1] An unknown but small portion of fishing employment actually consists of employment on charter boats for tourists.

TABLE II-2.
ESTIMATED EMPLOYMENT IN HOMER AREA,
BY SECTOR, 1980 (a)

	Full-time Equivalent Employment		August Maximum or Peak Employment (b)	
Total Employment	2069		2782	
Basic Sector	931		1616	
Fishing	714		1239	
Resident		(429)		(709) (c)
Nonresident		(285)		(530)
Fish Processing	185		321	
Resident		(147)		(196) (d)
Nonresident		(38)		(125)
Other	32		56	
Support Sector	783		887	
Construction	132		202	
Transportation, Communication and Public Utilities	162		180	
Trade	269		300	
Finance, Insurance, and Real Estate	68		68	
Services	152		158	
Government	355		279	
Federal Civilian	56		58	
State	67		66	
Local	175		98	
Military	57		57	
Total Resident Employment	1746		2071	
Total Nonresident Employment	323		711	

TABLE II-2 NOTES

(a) See Appendix D for estimation methodology and data sources.

(b) Maximum or peak figures were derived by multiplying FTE employment in each category by the ratio of 1980 August employment to 1980 annual average employment in each category (using Department of Labor figures for the Homer-Cook Inlet Census Division).

(c) Since fishing employment data were not available, the ratio for manufacturing was used to calculate the total August resident and nonresident fishing employment of 1,616. That was apportioned to Homer area residents and nonresidents as follows: First, the total number of residents who fish was calculated according to assumed season lengths for boats permanently moored in the harbor (289 residents) and for transit boats (140 residents). (See note (a) to Table D.3): (289 X 2) + (140 X 12/5) = 914. Second, the equivalent figure for nonresidents was calculated: (285 X 12/5) = 684. The sum (1,598) exceeds the figure for total peak employment because not all boats fish at the same time, so both the resident and nonresident figures were reduced by 1239/1598 = .7753, yielding 709 residents and 530 nonresidents employed in August.

(d) We estimated the resident/nonresident breakdown using the following assumptions: Total peak employment equals 185 X 1.7352 = 321. Of the 147 FTE resident employment, 80 are year-round employees, leaving 67 seasonal FTE jobs. 80 + (67 X 1.7352) = 196 equals peak resident processing employment. The remaining 125 jobs are filled by nonresidents.

Salmon, halibut, shrimp, king and tanner crab, and some bottomfish are harvested by Homer area fishermen and processed in Homer plants. Salmon, halibut, and shrimp are harvested during the summer; king crab are taken in late summer and early fall; and tanner crab are fished in the winter. In 1980, Homer fishermen delivered their catches to two year-round processors and four or five smaller seasonally-operating plants. Homer processors also process fish harvested in Bristol Bay.

Nonfishing basic employment is generally limited to tourism-related activities in Homer. There is also a small amount of logging and agricultural activity.

Support sector jobs are nonbasic private sector jobs. We estimated 1980 FTE employment of 783 in support sector jobs, or 38 percent of total employment; 269 of these jobs were in trade, 152 in services, and 162 in transportation, communications, and public utilities. Construction added 132, and finance, insurance, and real estate accounted for 68 jobs.

We estimated total government employment of 355, of which 175 are local government jobs. There were 57 military jobs (Coast Guard), 56 federal government civilian jobs, and 67 state jobs.

EMPLOYMENT BY MARKET SERVED

Another way to view employment is in terms of the market that it serves. Employment that provides goods or services to markets outside of a community is referred to as "exogenous," while employment that provides goods or services to markets within a community is referred to as "endogenous." This distinction is important for purposes of economic modeling and projections, because exogenous employment is not directly affected by changes in the population or income of the community, whereas endogenous employment

is directly related to population and income. In general, the smaller a community, the larger a share of total employment which may be characterized as exogenous.

Table II-3 provides a breakdown between exogenous and endogenous employment for Homer in 1980. Of total FTE employment, 1,342 jobs, or 65 percent, were exogenous, while 727 jobs, or 35 percent, were endogenous. All 931 basic sector jobs may be considered exogenous. In addition, we estimated that 266 support sector jobs and 145 government jobs are exogenous. Examples of exogenous support jobs are transportation jobs serving the fishing industry or tourists. We considered all federal civilian and military employment and some state employment to be exogenous.

We estimated that there were 517 endogenous support jobs and 210 endogenous government jobs. Of the endogenous support jobs, we assumed that 392, or 75 percent, were generated by private spending, and that the rest were generated by government spending.

TABLE II-3.
ESTIMATED EMPLOYMENT IN HOMER AREA,
BY SOURCE, 1980

Total Employment	2069		
Exogenous Employment (a)	1342		
Basic		931	
Resident			608
Nonresident			323
Support		266	
Government		145	
Endogenous Employment	727		
Basic		0	
Support		517	
Private-sponsored Support			392
Government-sponsored Support			125
Government		210	

(a) Some authors use the term "basic" employment to refer to "exogenous" employment. This can cause confusion. In general, all basic employment is exogenous, but not all exogenous employment is basic (some government and support sector employment may also be characterized as exogenous).

SOURCE: See Appendix D.

Base Case Projections

PROJECTION METHODOLOGY

Based on the estimates of Homer's population and employment presented in the previous two sections, we prepared projections of a number of variables describing the economy and population of the Homer area for the years 1981-2010. We prepared the projections using a model developed at ISER for studying rural Alaskan communities, called the Rural Alaska Model (RAM). We provide a detailed description of the model in Appendixes A-C.

The Rural Alaska Model tracks population in six age cohorts for male and female Natives and non-Natives. It projects births, deaths, and migration for each group to determine total population. Migration is calculated as a function of the difference between the labor force and employment. Future levels of exogenous employment are assumed, while endogenous employment is calculated as a function of income and population.

The model's projections are the direct result of a variety of assumptions. The most important assumptions are summarized in Table II-4. A complete list of the assumptions used and their documentation is provided as a set of worksheets in Appendix L.

PROJECTIONS

Appendix S presents our complete RAM model projections for Homer. Table II-5 presents a summary of our base case projections for Homer.

As shown in Table II-5, population rises steadily throughout the projection period. Total employment fluctuates somewhat but increases gradually to 3,102 in 2010. Full-time equivalent employment as a percentage of the population falls from 54.9 percent to 45.6 percent. A gradual growth in basic employment is assumed,

TABLE II-4.
MAJOR ASSUMPTIONS USED IN HOMER PROJECTIONS

Exogenous Employment	Slight growth is assumed in resident basic employment, from a 1980 total of 608 to 671 in 2010. We assume that resident fishing employment remains constant at 429 until 1986, when slight increases due to bottomfish developments raise fishing employment to 441. We assume resident fish processing employment increases by 25 after 1985 due to the opening of a new plant for processing bottomfish. Nonfishing related basic employment increases at an assumed 2 percent rate across the projection period, rising from 32 in 1980 to 58 in 2010. Nonresident basic employment is assumed to remain at 1980 levels. We assume that exogenous support employment rises from 266 to 878 due to growth in tourism. Government sector exogenous employment remains constant at 145.
Support Endogenous Employment	Endogenous support employment rises by 1 for every $119,000 increase in income. This implies that in 1980 every new basic sector job generates .24 new support jobs, every new support sector job generates .207 new support jobs, and every government job generates .197 new support jobs. We assume that wages rise at roughly 1 percent per year, causing these multipliers to increase.
Endogenous Government Employment	Endogenous government employment rises by 1 for every increase in population of 14.9. Put differently, if population rises by 100, in 1980 government employment would rise by 6.7. However, due to declines in state and local government per capita revenues, by 2010 an increase of 100 in population results in only an increase of 4.4 in government employment.
Migration	If the ratio of working-aged population to available jobs declines by more than 5 percent from its 1980 level, new workers will move to Homer bringing dependents. If this ratio rises by more than 5 percent, some workers will leave taking dependents with them. However, as a share of the population, relatively fewer Natives will leave than non-Natives.

TABLE II-5.
RURAL ALASKA MODEL BASE CASE PROJECTIONS
HOMER

	Population	Total Resident Employment	Resident Basic Employment	Resident Support Employment	Resident Government Employment	Resident Project Employment
1980	3140	1746	608	783	355	0
1981	3238	1782	609	811	362	0
1982	3434	1910	609	896	405	-0
1983	3538	1878	610	864	404	0
1984	3642	1987	611	934	443	0
1985	3747	1969	611	907	451	0
1986	3871	2150	616	1074	460	-0
1987	3979	2152	619	1084	449	0
1988	4114	2281	623	1166	491	-0
1989	4224	2304	627	1189	488	0
1990	4336	2354	631	1229	495	0
1991	4448	2409	636	1270	503	0
1992	4562	2346	640	1245	462	0
1993	4676	2354	642	1261	450	0
1994	4792	2382	645	1288	449	0
1995	4866	2374	647	1297	429	0
1996	4914	2372	650	1310	412	0
1997	4972	2405	653	1342	410	0
1998	5034	2436	656	1374	406	0
1999	5112	2484	658	1417	409	0
2000	5197	2527	661	1457	409	0
2001	5285	2569	662	1498	409	0
2002	5377	2613	662	1541	409	0
2003	5472	2658	663	1585	409	0
2004	5572	2707	664	1633	410	0
2005	5677	2759	665	1682	411	0
2006	5787	2812	667	1733	412	0
2007	5901	2868	668	1787	413	0
2008	6021	2926	669	1843	415	0
2009	6146	2987	670	1901	416	0
2010	6276	3050	671	1961	418	0

SOURCE: VARIABLES EMRETO, EMBA, EMSU, EMGO, AND EMREPJ
DSET HM.BC.MD--CREATED 7/6/83

reaching 671 by 2010. Support employment grows rapidly due to tourism, reaching 1,991 by 2010, while government employment rises to a maximum of 516 in 1991 and then declines to 420 in 1998 before rising slightly to 441 in 2010.

Table S.1 (see Appendix S) is used to show estimates of nonresident population in different categories. We did not estimate values for project enclave and military enclave populations; hence, the values appear as zeroes.

Table S.2 provides breakdowns of population among different groups. The share of Natives in the total population remains at 3 percent.

Table S.4 traces the causes of the changes in population. Population increases steadily due to natural growth prior to 1991. Immigration also contributes to population growth, but after 1995 a steady emigration of workers and dependents occurs.

Table S.7 shows the breakdown of basic employment which we assumed. The gradual increase in basic employment from 608 to 671 is entirely due to assumed small increases in each category of basic employment. Development of the bottomfish industry accounts for the growth in fishing and fish processing. Manufacture of goods for tourists and local residents accounts for the rest.

Table S.8 shows support employment more than doubling by 2010, from 783 in 1981 to 1,961. There are several causes for this increase. First, increasing real wage rates that result in higher real incomes combine with population increases, causing endogenous support employment to increase from 376 to 884. Government-sponsored support employment rises from 125 in 1981 to 262 in 1991, but subsequently falls to 184 due to a decline in state government per

capita capital expenditures. Finally, exogenous support employment was assumed to increase dramatically from 266 to 878 due to tourism.

Table S.9 shows change in government employment. Endogenous government employment rises from 210 in 1981 to 358 in 1991, and then falls to 273 by 2010. This change is due to an assumed decline in per capita state government operating revenues in Alaska after 1991, which is reflected in a decline in local government revenues as well.

Impact Projections

ASSUMPTIONS

The most important assumptions in our impact projections are the direct employment assumptions. We have used figures provided to us by Jim Sullivan of the Minerals Management Service OCS office. He developed these figures using a new manpower model, programmed in-house, based on information in studies done by consultants for the Socioeconomic Studies Program over a number of years.

The direct employment assumptions for Homer are shown in Tables S.19 and S.20. Employment is divided into eight groups:

Onshore Short-term Skilled
Onshore Short-term Nonskilled
Onshore Long-term Skilled
Onshore Long-term Nonskilled
Offshore Short-term Skilled
Offshore Short-term Nonskilled
Offshore Long-term Skilled
Offshore Long-term Nonskilled

Here, "skilled" has a very specific meaning. It refers to those OCS jobs for which specific training or experience is required. Obviously, a precise categorization of all jobs as "skilled" or "nonskilled" is not possible, but a rough breakdown is essential if our model is to be able to capture this key element affecting whether or not local labor is hired for OCS jobs.

Other assumptions required by the model are:

1. The share of jobs of each type which industry always reserves for nonresidents, regardless of local skills.

2. Of those workers brought in to fill those jobs which industry would be willing to fill locally but is unable to fill locally, the share who become residents, as opposed to living in an enclave or merely commuting through the community.

3. Of workers who do not become residents, the share who are only commuters through the community.

4. The number of local residents who are "skilled" (i.e., could fill skilled-type OCS jobs) at the beginning of the projection period.

5. The rate at which local residents are trained to become skilled workers if local skilled labor supply is not equal to demand. Two assumptions are required here: the maximum share of nonskilled workers who are willing to be trained, and the maximum share of skilled worker positions which cannot be filled locally for which industry is willing to train.

Table II-6 shows the assumptions which we have used for this study. This table also shows how we changed these assumptions in order to examine the sensitivity of our impact projections to what we had assumed (see the following section).

PROJECTIONS

Our impact case projections are shown in Tables S.10 through S.22. Tables S.10 through S.18 show the same variables as the base case projection Tables S.1 through S.9. Tables S.19 through S.22 provide additional projections of project employment.

It is easiest to get a feel for the projected impacts using Tables S.23 through S.28. These tables compare the base case projections with the impact case projections, and also show absolute and percentage impacts. Table II-7 summarizes the projected maximum absolute impacts of OCS Sale 88 upon Homer.

TABLE II-6.
ASSUMPTIONS FOR SENSITIVITY ANALYSIS OF IMPACTS

HOMER

		Low Impact Assumptions	Assumptions Used in Study	High Impact Assumptions
Share of Project Jobs Reserved by Industry for Nonresidents (SN-)				
Onshore Short-term Skilled	(PSONSK)	.6	.3	0
Onshore Short-term Nonskilled	(PSONNS)	.6	.1	0
Onshore Long-term Skilled	(PLONSK)	.2	0	0
Onshore Long-term Nonskilled	(PLONNS)	.2	0	0
Offshore Short-term Skilled	(PSOFSK)	1	.7	0
Offshore Short-term Nonskilled	(PSOFNS)	1	.7	0
Offshore Long-term Skilled	(PLOFSK)	.3	.1	0
Offshore Long-term Nonskilled	(PLOFNS)	.3	.1	0
Share of Nonresident Workers Brought in to Fill Excess Demand Who Become Residents (SR-)				
Onshore Short-term Skilled	(PSONSK)	0	.1	.5
Onshore Short-term Nonskilled	(PSONNS)	0	.2	.5
Onshore Long-term Skilled	(PLONSK)	.8	1.0	1
Onshore Long-term Nonskilled	(PLONNS)	.8	1.0	1
Offshore Short-term Skilled	(PSOFSK)	0	0	.5
Offshore Short-term Nonskilled	(PSOFNS)	0	.1	.5
Offshore Long-term Skilled	(PLOFSK)	.5	.8	1
Offshore Long-term Nonskilled	(PLOFNS)	.5	.8	1
Share of Nonresident Workers Who Only Commute Through Community (CP-)				
Onshore Short-term Skilled	(PSONSK)	0	0	0
Onshore Short-term Nonskilled	(PSONNS)	0	0	0
Onshore Long-term Skilled	(PLONSK)	0	0	0
Onshore Long-term Nonskilled	(PLONNS)	0	0	0
Offshore Short-term Skilled	(PSOFSK)	1	1	1
Offshore Short-term Nonskilled	(PSOFNS)	1	1	1
Offshore Long-term Skilled	(PLOFSK)	1	1	1
Offshore Long-term Nonskilled	(PLOFNS)	1	1	1

Table II-6. Assumptions for Sensitivity Analysis of Impacts: Homer (Continued)

	Low Impact Assumptions	Assumptions Used in Study	High Impact Assumptions
Number of Skilled Workers in Year Prior to First Projection Year (LSSK)	40	10	0
Maximum Share of Nonskilled Workers Who Are Trained for Project Jobs in Any Given Year (TNPANS)	.1	.05	0
Maximum Share of Excess Demand For Labor Which is Filled by Training Local Nonskilled Workers (TNPAED)	.1	.05	0

TABLE II-7.
SUMMARY OF PROJECTED IMPACTS OF OCS SALE 88:
HOMER

	Maximum Absolute Impact	% Impact In Year of Maximum Absolute Impact	Year of Maximum Absolute Impact
Total Population (Including Enclaves and Military)	505	8.4	2005
Resident Population	504	8.9	2005
School-age Population	99	8.6	2005
Total Resident Employment	253	9.3	2004
Support Employment	101	6.3	2003
Civilian Government Employment	24	5.8	2004

SOURCE: RAM Model Projections, Tables S.23 through S.28.

SENSITIVITY OF IMPACT PROJECTIONS TO ASSUMPTIONS

Tables S.29 through S.34 examine the sensitivity of our impact projections to selected impact assumptions. The tables compare our impact projections to those which we obtained when we varied the impact assumptions as shown in Table II-6. Table II-8 summarizes the results of this sensitivity analysis.

Our sensitivity analysis is not complete. It examined only the sensitivity of our results to certain assumptions of the model. We have not examined the sensitivity of our results to two other key kinds of assumptions: the direct employment numbers we have used and the structure of our model. Presumably, the projected impacts of OCS Sale 88 might vary considerably if we were to change either of these assumptions.

TABLE II-8.
SUMMARY OF SENSITIVITY ANALYSIS OF IMPACT PROJECTIONS
FOR YEAR OF MAXIMUM PROJECTED IMPACT

	Maximum Projected Impact	Year of Maximum Projected Impact	Impact with Low-Impact Assumptions as Share of Projected Impact	Impact with High-Impact Assumptions as Share of Projected Impact
Total Population (Including Enclaves and Military)	505	2005	.79	.99
Resident Population	504	2005	.78	.99
School-age Population	99	2005	.78	.84
Resident Employment	253	2004	.78	1.08
Support Employment	101	2003	.78	1.07
Civilian Government Employment	24	2004	.79	1.00

SOURCE: RAM Model Projections, Tables S.29 through S.34.

BIBLIOGRAPHY

Homer

Alaska Consultants, Inc. 1976. Lower Cook Inlet Petroleum Development Scenarios: Local Socioeconomic Systems Analysis. Anchorage: Bureau of Land Management. OCS Technical Report No. 46, V. I, March.

Alaska Department of Labor. 1980. Statistical Quarterly. V. I-IV.

_____. 1983. Alaska Planning Information. Juneau: Alaska Department of Labor, January.

Braund, Stephen R. and Steven R. Behnke. 1980. Lower Cook Inlet Petroleum Development Scenarios: Local Socioeconomic Systems Analysis. Anchorage: Bureau of Land Management. OCS Technical Report No. 47, January.

Homer, City of. No date. Chapters 3 of "Human Resources" and 12 of "Economy." Draft Plan.

Institute of Social and Economic Research. 1973. "Age and Race by Sex Characteristics of Alaska's Village Population." Alaska Review of Business and Economic Conditions, September.

Kenai Peninsula Borough. 1982. Situation and Prospects. Soldotna: Kenai Peninsula Borough Resource Development Office, April.

_____. no date. The Kenai Peninsula, Alaska: A Business and Industrial Prospectus. Soldotna: Resource Development Commission.

Knapp, Gunnar. 1983. The Rural Alaska Model (Draft). Anchorage: ISER, March.

U.S. Army Corps of Engineers. 1981. Homer Harbor: Detailed Project Report and Final Environmnetal Impact Statement.

U.S. Bureau of the Census. Census for 1960, 1970, 1980.

III. KENAI DESCRIPTION AND PROJECTIONS

History

Before white explorers and settlers arrived, the Kenai Market Area was inhabited by the Kinnats Athabascan Indians, or as the Russians called them, Kenaitze. As traders, they had contact with the Chugach tribes in the Prince William Sound area, with the Koniag of Kodiak, and with Natives of the Bristol Bay area. Their settlements were concentrated along the peninsula's rivers.

English, Spanish, and Russian explorers visited the region in the late 1700s. In 1791, the Russians established a community at the mouth of the Kenai River which was to become the Kenai townsite. This settlement was named Redoubt St. Nicholas and served as a fort and a trading post in the Russian era. After the purchase of Alaska by the United States, the fort was soon abandoned by the military, but the community continued to function as the trading and commercial center for the northwest Kenai Peninsula.

In the early twentieth century, salmon fishing began to provide a stable economic base for the region. Several canneries were established, and fishermen began operating in Cook Inlet and at the mouth of the Kenai River using drift nets from boats, and set nets at sites along the coast.

After World War II, in August 1947, the Kenai area was opened for homesteading, and many veterans with their families came to settle in the region. Soldotna's first permanent residents were World War II veterans establishing their homesteads. The town had been chosen as the site for the Kenai River bridge and the junction of the Kenai Spur Road and the Sterling Highway. Centrally located, it has become the center of the Kenai Peninsula Borough government.

A major link in the communications network of Alaska was established at Kenai's Wildwood Army Station in 1953. This site, after operations were phased out in 1972, was transferred to the Kenaitze Indians under the Alaska Native Claims Settlement Act. Today it is being considered by the state of Alaska as a possible location for a medium security prison.

Since the late 1950s, the oil and gas industry has been the major economic activity in the Kenai area. Producing oil and gas fields at Swanson River and in Upper Cook Inlet marked a major phase in Alaska's petroleum development. In the 1960s, four oil fields and fourteen gas fields in Upper Cook Inlet were developed. Oil production peaked in 1970. Proven natural gas reserves are predicted to last beyond the year 2000 under existing usage patterns. Extensive processing plants and pipeline facilities were built in the 1960s and 1970s. They are located at Nikiski, north of the city of Kenai, and consist of two refineries, an ammonia-urea plant, a liquified natural gas plant, and crude oil storage and loading facilities.

Tourism and recreation also support the economy of the area. Attractions are: sport fishing, hunting, and camping. In addition, Kenai is a commercial fishing and fish food processing center.

Population

The Kenai Market Area comprises seven census subareas shown in Figure III-1. The boundary of the Kenai Market Area was developed using census data, based on guidelines provided by the Kenai Borough Planning Department.

The Kenai Market Area represents a geographic area linked by regular or repeated patterns of social and economic interaction. Nevertheless, it is not homogenous but encompasses many diverse patterns of settlement and economic activities. The city of Kenai is the market and business center of the region. Most commercial fishing and processing activity in the Market Area is concentrated in Kenai. Oil and gas terminal and primary processing facilities are located north of Kenai in the Nikishka census subarea. Soldotna is situated at the crossroads of two highways and is another center of commercial activity. The Kenai Borough Government, Central Peninsula Hospital, and Kenai Community College are located in Soldotna.

The remaining places in the Kenai Market Area are linked by road and include both residential dwellings and small commercial businesses.

The population figures shown in Table III-1 correspond to the geographic area shown in Figure III-1 and reflect, primarily, persons in the road-connected Kenai Market Area.

In 1980, the census counted 8,547 persons in the remainder of the Kenai/Cook-Inlet Borough. This represents 38 percent of total borough population in 1980 and indicates that a substantial number of people were situated remotely, away from road-connected settlements. It is possible that a portion of those were located near the outskirts of the Market Area boundaries shown in Figure III-1. Limited data did not permit a thorough analysis of this segment of the population.

FIGURE III-1. KENAI MARKET AREA

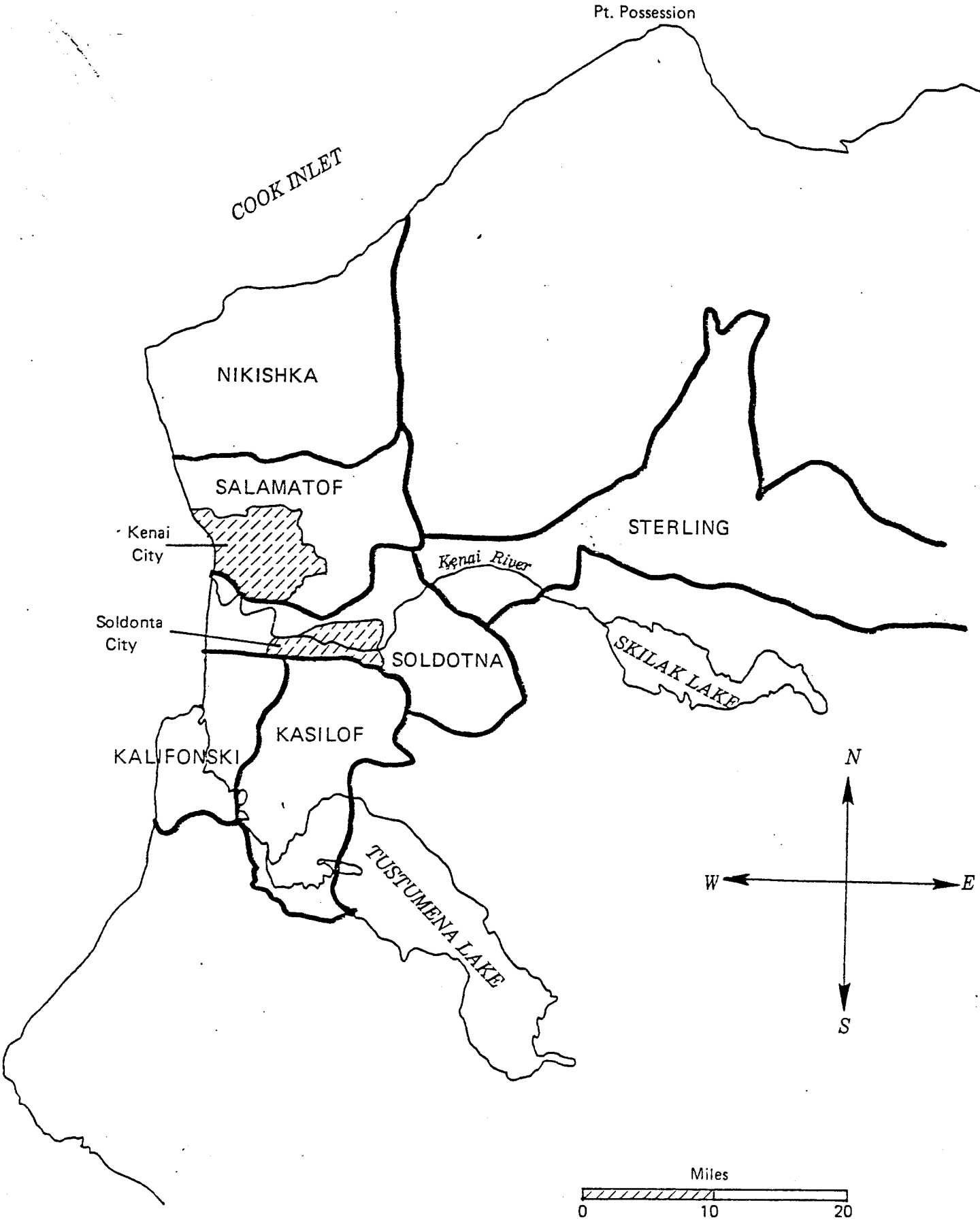


TABLE III-1.
KENAI MARKET AREA POPULATION[a]

	Age						
	0-4	5-14	15-19	20-34	35-64	65+	Total
1980							
Total	892	1760	866	2812	2781	188	9299
Male	465	884	444	1442	1479	94	4808
Female	427	876	422	1370	1302	94	4491
Native	23	122	72	101	113	11	442
Male	10	64	36	55	51	4	220
Female	13	58	36	46	62	7	222
Non-Native	869	1638	794	2711	2668	177	8857
Male	455	820	408	1387	1428	90	4588
Female	414	818	386	1324	1240	87	4269
1970							
Total	529	1296	429	1177	1340	65	4836
Male	292	680	205	565	730	40	2512
Female	237	616	224	612	610	25	2324
Native (b)	21	49	56		29	8	163
Male	16	23	19		15	8	81
Female	5	26	37		14	0	82
Non-Native	508	1247	1550		1311	57	4673
Male	276	657	751		715	32	2431
Female	232	590	799		596	25	2242
1960							
Total (c)							1314

TABLE III-1 NOTES

(a) The Kenai Market Area comprises seven census subareas. They are: Kalifonski, Kasilof, Kenai City, Nikishka, Salamatof, Soldotna City, and Sterling. The 1970 and 1960 figures do not include Kalifonski, Nikishka, and Salamatof. (See Figure III-1.)

(b) The 1970 Native age-sex breakdown is an estimate based on two sources: (1) the Census Bureau's age-sex breakdown of "Other Races," excluding the Black and White races; and (2) ISER's Census based publication (Alaska Review of Business and Economic Conditions, September 1973) giving total number of males and females of the Aleut, Eskimo, and Indian races.

(c) The 1960 Census designated three race categories: White, Black, and Other. White and Black are classified as Non-Native here. Other is categorized as Native.

SOURCES: U.S. Census for 1960, 1970, 1980.

Institute of Social and Economic Research. "Age and Race by Sex Characteristics of Alaska's Village Population." Alaska Review of Business and Economic Conditions (September 1973).

Table III-1 summarizes population in the Kenai Market Area by age, sex, and race for 1970 and 1980. Also shown is total population in 1960. In 1980, 9,299 persons resided in the Kenai Market Area. Of these, over two thirds were situated in the cities of Kenai and Soldotna (not shown in Table III-1). Less than 5 percent of total Market Area population was Native in both 1970 and 1980.

At an average rate of 6.8 percent per year, total population nearly doubled between 1970 and 1980.[1] In part, the reasons for this expansion predate the decade of the 1970s and stem from ongoing oil and gas activity in the local Kenai Peninsula and northern Cook Inlet areas. However, some of that growth was also tied to North Slope oil development, since at the time of the Prudhoe discovery, Kenai probably contained a larger number of oil and gas contractors and skilled labor than did Anchorage. High expectations for further expansion of oil and gas refining capacity, fueled by a strengthening world oil market in the latter 1970s, also contributed to population growth.

Between 1960 and 1970, Kenai Market Area population increased nearly three-fold from 1,314 to 4,836. This represents an average rate of growth of 13.9 percent per year, twice that between 1970 and 1980. This growth was undoubtably fueled by a period of rapid oil and gas development sparked by the 1957 Swanson River oil discovery.

The proportion of the population between the ages of zero and four, remained about 9 to 10 percent over the period 1970 to 1980. In 1980, however, the proportion of children aged five to fourteen was

---

[1]Data for population in Kalifonski, Nikishka, and Salamatof were not available from the census in 1970 and 1960. This omission would imply that our estimate of 1970 population in the Kenai Market Area is understated and resulting in higher growth between 1970 and 1980. In 1980, these places accounted for 17 percent of total population. Although their 1970 levels are not known, we believe their contribution to total population was smaller in earlier years.

considerably less than that in 1970. In 1980, this group made up 18 percent of the population. In 1970, they comprised about one fourth of the population. Young adults aged 20 to 34, as a proportion of total population, increased in 1980 to 31 percent over 25 percent in 1970. This increase is due perhaps more to in-migration than to the endogenous youth progressing into the young adult age group. The proportion of the population that was older adults, those aged 35 to 64, remained relatively constant in 1970 and 1980 at about 28 to 30 percent. The elderly, persons 65 years and older, made up 2 percent of the population in 1980 as compared to 1 percent in 1970.

Native residents of the Kenai Market Area comprised 5 percent of the 1980 population. In 1970, they made up 3 percent of the population. In absolute numbers, they have increased from 163 to 442. This is a 171 percent increase in ten years, or an annual average growth rate of over 10 percent. This growth rate is considerably higher than that of the total population.

The ratio of males to females has remained virtually the same from 1970 to 1980. At about 52 percent of total population, males out-numbered females in both years.

Employment

In this section, we describe 1980 employment in the Kenai Market Area (see Figure III-1). Our estimates of employment are based on a number of data sources and a variety of different assumptions. We describe how we developed these estimates in Appendix E.

EMPLOYMENT BY SECTOR

Table III-2 provides a breakdown of estimated full-time equivalent employment for the Kenai Market Area in 1980. Full-time equivalent (FTE) employment is a measure of total man-years of work. While FTE

TABLE III-2.
ESTIMATED EMPLOYMENT IN THE KENAI MARKET AREA, BY SECTOR, 1980

	Full-time Equivalent Employment	August Maximum or Peak Employment (a)
Total Employment	4270	4658
Basic Sector	1453	1857
Fishing	159	280
Fish Processing	462	814
Resident	(185)	(220)
Nonresident	(277)	(594) (b)
Petroleum Processing	468	429
Other	364	334
Support Sector (c)	2138	2318
Construction	112	171
Transportation, Communication and Public Utilities	100	111
Trade	792	868
Finance, Insurance, and Real Estate	213	213
Services	921	955
Government	679	483
Federal Civilian	89	92
State	210	140
Local	380	251
Military	0	0
Total Resident Employment	3993	4064
Nonresident Employment	277	594

(a) Maximum or peak figures were derived by multiplying FTE employment in each category by the ratio of 1980 August employment to 1980 annual average employment in each category (using Department of Labor figures for the Kenai-Cook Inlet Census Division). Since fishing employment figures were not available, the ratio for manufacturing was used instead.

(b) Nonresidents were assumed to account for 90 percent of the increase in peak employment over FTE employment in manufacturing.

(c) Estimates of nongovernment support employment.

SOURCE: Based on employment data from 1980 U.S. Census Tape STF3A, Tabulations 65, 66, and 67; and Alaska Department of Labor, Statistical Quarterly, 1980. See discussion in Appendix E.

employment provides the best measure of work done over an entire year, actual employment at any time during the year may vary greatly from FTE employment. As one indication of the range of variation from FTE employment, we have included in Table III-2 an estimate of employment in August 1980, when total employment peaked for the year.

Our estimates suggest total FTE employment of 4,270 jobs, of which nearly all were accounted for by residents. We may break those jobs down into three sectors: basic, support, and government.

Basic sector jobs are private sector jobs in the production of raw materials and manufactured goods, including jobs in agriculture, forestry, fisheries, mining, and manufacturing. We estimate that there were 1,453 FTE basic sector jobs in 1980. Over half of these jobs were related to the production and processing of petroleum products. The remaining were tied to the fishing industry. Basic sector jobs account for 34 percent of FTE employment and 40 percent of peak employment in August.

The Kenai Market Area economy has experienced over two decades of rapid expansion from oil and gas development. During this period, the economy evolved from several isolated fishing communities to a regional trade center and focal point for a large cross-section of Alaska's oil and gas service industry. Currently, there are over a dozen offshore oil and gas producing wells in Cook Inlet, with at least as many onshore production wells. The Nikishka area (to the north of the city of Kenai) houses two refineries, a petrochemical plant, and an LNG plant with total year-round employment exceeding 450 workers (Kenai Peninsula Borough, 1981).

Salmon are the mainstay of the Kenai Market Area fishing industry, but dungeness crab, shrimp, halibut, herring, and some bottom-fish

are also harvested.[2] The Kenai Market Area fishing fleet includes about over 300 vessels at the peak of the season, most of which are salmon purse seiners and gill-setters. At present, the Kenai Market Area has 14 major shore-based seafood processors. These plants process crab, shrimp, and salmon from Cook Inlet and Bristol Bay.

Nonpetroleum, nonfishing, basic employment is quite limited in the Kenai Market Area. There is a small amount of logging and mining activity.

Support sector jobs are nonbasic sector, private sector jobs. We estimated 1980 FTE employment of 2,138 in support sector jobs, or 50 percent of total employment. Over one third of these jobs are in trade while almost half are in services. Transportation, communications, and public utilities account for 5 percent. Construction, finance, insurance, and real estate all account for smaller shares.

We estimated total government employment of 679, of which over 50 percent are local government jobs.

EMPLOYMENT BY MARKET SERVED

Another way to view employment is in terms of the market that it serves. Employment that provides goods or services to markets outside of a community is referred to as "exogenous," while employment that provides goods or services to markets within a community is referred to as "endogenous."[3] This distinction is important for purposes of economic modeling and projections because

---

[2]Information in this paragraph is based primarily on special tabulations of Alaska Harvest Employment by Region for 1979.

[3] Some authors use the term "basic" employment to refer to "exogenous" employment. This can cause confusion. In general, all basic employment is exogenous, but not all exogenous employment is basic (some government and support sector employment may also be characterized as exogenous).

exogenous employment is not directly affected by changes in the population or income of the community; whereas, endogenous employment is directly related to population and income. In general, the smaller a community, the larger a share of total employment which may be characterized as exogenous.

Table III-3 provides a breakdown between exogenous and endogenous employment for the Kenai Market Area in 1980. Of total FTE employment, 2,893 jobs, or 68 percent, were exogenous, while 1,377 jobs, or 32 percent, were endogenous. All 1,453 basic sector jobs may be considered exogenous. In addition, we estimated that 1,246 support sector jobs and 194 government jobs are exogenous. Examples of exogenous support jobs are transportation jobs serving the petroleum, fishing, and recreation industries. We considered all federal employment and some state employment to be exogenous.

We estimated that there were 892 endogenous support jobs and 485 endogenous government jobs. Of the endogenous support jobs, we assumed that 669, or 75 percent, were generated by private spending, and that the rest were generated by government spending.

TABLE III-3.
ESTIMATED RESIDENT EMPLOYMENT IN
THE KENAI MARKET AREA, BY SOURCE, 1980

Total Employment	4270		
Exogenous Employment	2893		
Basic		1453	
Resident			1176
Nonresident			277
Support		1246	
Government		194	
Endogenous Employment	1377		
Basic		0	
Support		892	
Private-sponsored Support			669
Government-sponsored Support			223
Government		485	

SOURCE: See Appendix E.

Base Case Projections

PROJECTION METHODOLOGY

Based on our estimates of the Kenai Market Area's population and employment, we prepared projections of a number of variables describing the economy and population of the Kenai Market Area for the years 1981-2010. We prepared the projections using a model developed at ISER for studying rural Alaskan communities, called the Rural Alaska Model (RAM). We provide A detailed description of the model in Appendixes A-C.

The Rural Alaska Model tracks population in six age cohorts for male and female Natives and Non-Natives. It projects births, deaths, and migration for each group to determine total population. Migration is calculated as a function of the difference between the labor force and employment. Future levels of exogenous employment are assumed, while endogenous employment is calculated as a function of income and population.

The model's projections are the direct result of a variety of assumptions. The most important assumptions are summarized in Table III-4. A complete list of the assumptions used and their documentation is provided as a set of worksheets in Appendix M.

PROJECTIONS

Table III-5 presents a summary of our projections for the Kenai Market Area. Appendix C presents the complete set of projections.

As shown in Table III-5, population rises steadily until it reaches a plateau of about 10,600 after 1992. However, total employment increases to a maximum of 4,431 in 1991 and then falls slightly, with little subsequent growth.

TABLE III-4.
MAJOR ASSUMPTIONS USED IN THE
KENAI MARKET AREA PROJECTIONS

Exogenous Employment	The oil and gas processing sector receives some of its feedstocks from North Slope oil production. Thus, in spite of expected steady reductions in oil and gas production from existing local on- and -offshore wells over the next two decades, we assume stable employment conditions will prevail in this segment of the Kenai Market Area economy. In addition, discovery and development of other nearby oil fields is expected to dampen the rate of decline in oil production so that commercial levels will occur throughout the 1990s. Proven reserves of natural gas are expected to sustain current usage beyond the year 2000 (Ford, 1982). Thus, after 2000, we assume a modest decline in petroleum mining employment of one percent per year. Oil and gas processing and fishing industry employment are assumed to remain constant at 1980 levels. Bottomfish expansion is assumed to remain negligible in the Kenai Market Area. We assume that support sector resident exogenous employment remains constant; increases due to tourist expension will be offset by declines in oil and gas support activity. Government sector exogenous employment remains constant at 194.
Support Endogenous Employment	Endogenous support employment rises by 1 for every $159,000 increase in income. This implies that in 1980 every new basic sector job generates .153 new support jobs, every new support sector job generates .155 new support jobs, and every government job generates .154 new support jobs. We assume that wages rise at roughly 1 percent per year, causing these multipliers to increase.
Endogenous Government Employment	Endogenous government employment rises by 1 for every increase in population of 19.7. Put differently, if population rises by 100, in 1980 government employment rises by 5.08. However, due to declines in state and local government per capita revenues, by 2010 an increase of 100 in population results in only an increase of 0.8 in government employment.

Migration

If the ratio of working-aged population to available jobs declines by more than 5 percent from its 1980 level, new workers will move to the Kenai Market Area bringing dependents. If this ratio rises by more than 5 percent, some workers will leave taking dependents with them. However, as a share of the population, relatively fewer Natives will leave than Non-Natives.

TABLE III-5.
RURAL ALASKA MODEL PROJECTIONS
KENAI

	POPULATION	TOTAL EMPLOYMENT	BASIC EMPLOYMENT	SUPPORT EMPLOYMENT	GOVERNMENT EMPLOYMENT
1981	9200	3929	1176	2079	674
1982	9369	4095	1176	2173	746
1983	9457	4001	1176	2092	733
1984	9618	4150	1176	2168	806
1985	9774	4089	1176	2098	815
1986	9928	4307	1176	2307	824
1987	10078	4256	1176	2287	793
1988	10225	4404	1176	2364	865
1989	10368	4384	1176	2358	849
1990	10510	4406	1176	2375	855
1991	10648	4431	1176	2393	863
1992	10738	4268	1176	2318	775
1993	10691	4206	1176	2292	738
1994	10670	4179	1176	2281	722
1995	10557	4100	1176	2250	674
1996	10444	4036	1176	2223	637
1997	10429	4026	1176	2223	627
1998	10432	4013	1176	2222	615
1999	10485	4024	1176	2232	616
2000	10529	4024	1176	2237	611
2001	10560	4019	1173	2241	605
2002	10582	4012	1169	2244	599
2003	10603	4006	1166	2247	593
2004	10625	4002	1162	2252	588
2005	10650	3999	1159	2257	583
2006	10670	3994	1155	2262	578
2007	10693	3992	1152	2267	573
2008	10715	3990	1149	2272	568
2009	10735	3986	1145	2277	563
2010	10755	3984	1142	2283	559

SOURCE: VARIABLES PO, EMTO, EMBA, EMSU, AND EMGO
DSET KENAI--CREATED MAY 11, 1983

Full-time equivalent employment as a percentage of the population falls from 42.7 percent to 37.0 percent over the 30-year projection period. Basic employment remains constant at 1,176 FTE employees until the year 2000, and then falls slowly to 1,142 in 2010. Support employment increases to a peak of 2,393 in 1991 and stablizes at slightly lower levels in later years. Government employment rises to a maximum of 865 in 1988, and then gradually declines to 559 in 2010--a level well below government employment in 1981. By 2010, the relative distribution of employment across industry categories would shift in favor of support employment from 53 percent in 1981 to 57 percent in 2010. This shift would occur at the expense of a relative decline in basic and goverment employment.

Table T.1 (see Appendix T) is used to show estimates of nonresident population in different categories. We did not estimate population for project and military enclave groups; hence, these values appear as zeroes. Nonproject enclave population remains constant.

Table T.2 provides breakdowns of population among different groups. The share of Natives in the total population increases slightly, from 4.9 percent in 1981 to 8.0 percent in 2010.

Table T.3 provides breakdowns of population among different age groups. The proportion of persons under 19 remains constant. Seniors (age 65+) grow from 2 percent of total population in 1980 to 7 percent in 2010.

Table T.4 traces the causes of the changes in population. Population increases steadily due to natural growth and net in-migration prior to 1991. After 1991 a steady emigration of workers and dependents occurs.

Table T.5 shows estimates of nonresident employment. Nonproject enclave employment remains constant at 277; project and military enclave employment stay constant at zero.

Table T.7 shows the breakdown of basic employment which we assumed. The gradual decline in basic employment after the year 2000 is due to steady reductions in petroleum exploration and development activity.

Table T.8 shows a nearly steady increase in support employment until 1991, with slight reductions thereafter. There are several reasons for this pattern. First, increasing real wage rates result in higher real incomes, causing endogenous support employment to increase from 669 to 905 over the 30-year projection period. Government-sponsored support employment rises from 223 in 1981 to 370 in 1991, but subsequently falls below its original levels due to a decline in state government per capita capital expenditures. Finally, exogenous support employment was assumed remain constant at 1,232 FTE employees.

Table T.9 shows a dramatic change in government employment. Endogenous government employment rises from 485 in 1981 to 663 in 1988, and then falls to 333 by 2010. This change is due to an assumed decline in per capita state government operating revenues in Alaska after 1991, which is reflected in a decline in local government revenues as well.

Impact Projections

For a full description of impact assumptions, refer to Knapp, "The Rural Alaska Model: A Description and Documentation."

The most important assumptions in our impact projections are the direct employment assumptions. We have used figures provided to us by Jim Sullivan of the Minerals Management Service OCS office. He developed these figures using a new manpower model, programmed in-house, based on information in studies done by consultants for the Socioeconomic Studies Program over a number of years.

The direct employment assumptions for Kenai are shown in Tables T.19 and T.20. Employment is divided into eight groups:

Onshore Short-term Skilled
Onshore Short-term Nonskilled
Onshore Long-term Skilled
Onshore Long-term Nonskilled
Offshore Short-term Skilled
Offshore Short-term Nonskilled
Offshore Long-term Skilled
Offshore Long-term Nonskilled

Here, "skilled" has a very specific meaning. It refers to those OCS jobs for which specific training or experience is required. Obviously, a precise categorization of all jobs as "skilled" or "nonskilled" is not possible, but a rough breakdown is essential if our model is to be able to capture this key element affecting whether or not local labor is hired for OCS jobs.

Other assumptions required by the model are:

1. The share of jobs of each type which industry always reserves for nonresidents, regardless of local skills.

2. Of those workers brought in to fill those jobs which industry would be willing to fill locally but is unable to fill locally, the share who become residents, as opposed to living in an enclave or merely commuting through the community.

3. Of workers who do not become residents, the share who are only commuters through the community.

4. The number of local residents who are "skilled" (i.e., could fill skilled-type OCS jobs) at the beginning of the projection period.

5. The rate at which local residents are trained to become skilled workers if local skilled labor supply is not equal to demand. Two assumptions are required here: the maximum share of nonskilled workers who are willing to be trained, and the maximum share of skilled worker positions which cannot be filled locally for which industry is willing to train.

Table III-6 shows the assumptions which we have used for this study. This table also shows how we changed these assumptions in order to examine the sensitivity of our impact projections to what we had assumed (see the following section).

PROJECTIONS

Our impact case projections are shown in Tables T.10 through T.22. Tables T.10 through T.18 show the same variables as the base case projection tables T.1 through T.9. Tables T.21 and T.22 provide additional projections of project employment.

It is easiest to get a feel for the projected impacts using Tables T.23 through T.28. These tables compare the base case projections with the impact case projections, and also show absolute and percentage impacts. Table III-7 summarizes the projected maximum absolute impacts of OCS Sale 88 upon Kenai.

TABLE III-6.
ASSUMPTIONS FOR SENSITIVITY ANALYSIS OF IMPACTS
KENAI

		Low Impact Assumptions	Assumptions Used in Study	High Impact Assumptions
Share of Project Jobs Reserved by Industry for Nonresidents (SN-)				
Onshore Short-term Skilled	(PSONSK)	.6	.3	0
Onshore Short-term Nonskilled	(PSONNS)	.6	.1	0
Onshore Long-term Skilled	(PLONSK)	.2	0	0
Onshore Long-term Nonskilled	(PLONNS)	.2	0	0
Offshore Short-term Skilled	(PSOFSK)	1	.7	0
Offshore Short-term Nonskilled	(PSOFNS)	1	.7	0
Offshore Long-term Skilled	(PLOFSK)	.3	.1	0
Offshore Long-term Nonskilled	(PLOFNS)	.3	.1	0
Share of Nonresident Workers Brought in to Fill Excess Demand Who Become Residents (SR-)				
Onshore Short-term Skilled	(PSONSK)	0	.1	1
Onshore Short-term Nonskilled	(PSONNS)	0	.2	1
Onshore Long-term Skilled	(PLONSK)	.8	1.0	1
Onshore Long-term Nonskilled	(PLONNS)	.8	1.0	1
Offshore Short-term Skilled	(PSOFSK)	0	0	.5
Offshore Short-term Nonskilled	(PSOFNS)	0	.1	.5
Offshore Long-term Skilled	(PLOFSK)	.5	.8	1
Offshore Long-term Nonskilled	(PLOFNS)	.5	.8	1
Share of Nonresident Workers Who Only Commute Through Community (CP-)				
Onshore Short-term Skilled	(PSONSK)	0	0	0
Onshore Short-term Nonskilled	(PSONNS)	0	0	0
Onshore Long-term Skilled	(PLONSK)	0	0	0
Onshore Long-term Nonskilled	(PLONNS)	0	0	0
Offshore Short-term Skilled	(PSOFSK)	1	1	1
Offshore Short-term Nonskilled	(PSOFNS)	1	1	1
Offshore Long-term Skilled	(PLOFSK)	1	1	1
Offshore Long-term Nonskilled	(PLOFNS)	1	1	1

Table III-6. Assumptions for Sensitivity Analysis of Impacts: Kenai
(Continued)

	Low Impact Assumptions	Assumptions Used in Study	High Impact Assumptions
Number of Skilled Workers in Year Prior to First Projection Year (LSSK)	500	300	100
Maximum Share of Nonskilled Workers Who Are Trained for Project Jobs in Any Given Year (TNPANS)	.1	.05	0
Maximum Share of Excess Demand For Labor Which is Filled by Training Local Nonskilled Workers (TNPAED)	.1	.05	0

TABLE III-7.
SUMMARY OF PROJECTED IMPACTS OF OCS SALE 88:
KENAI

	Maximum Absolute Impact	% Impact In Year of Maximum Absolute Impact	Year of Maximum Absolute Impact
Total Population (Including Enclaves and Military)	735	7.2	1999
Resident Population	733	7.4	1999
School-age Population	178	7.3	1999
Total Resident Employment	314	7.8	1999
Support Employment	102	4.5	1999
Civilian Government Employment	30	4.9	1996

SOURCE: RAM Model Projections, Tables T.23 through T.28.

SENSITIVITY OF IMPACT PROJECTIONS TO ASSUMPTIONS

Tables T.30 through T.34 examine the sensitivity of our impact projections to selected impact assumptions. The tables compare our impact projections to those which we obtained when we varied the impact assumptions as shown in Table III-6. Table III-8 summarizes the results of this sensitivity analysis.

Our sensitivity analysis is not complete. It examined only the sensitivity of our results to certain assumptions of the model. We have not examined the sensitivity of our results to two other key kinds of assumptions: the direct employment numbers we have used and the structure of our model. Presumably, the projected impacts of OCS Sale 88 might vary considerably if we were to change either of these assumptions.

TABLE III-8.
SUMMARY OF SENSITIVITY ANALYSIS OF IMPACT PROJECTIONS
FOR YEAR OF MAXIMUM PROJECTED IMPACT

	Maximum Projected Impact	Year of Maximum Projected Impact	Impact with Low-Impact Assumptions as Share of Projected Impact	Impact with High-Impact Assumptions as Share of Projected Impact
Total Population (Including Enclaves and Military)	735	1999	.80	.97
Resident Population	733	1999	.79	.97
School-age Population	178	1999	.79	.83
Resident Employment	314	1999	.78	1.07
Support Employment	102	1999	.78	1.05
Civilian Government Employment	30	1996	.79	1.00

SOURCE: RAM Model Projections, Tables T.29 through T.34.

Bibliography

Alaska Consultants, Inc. 1980. Lower Cook Inlet Petroleum Development Scenarios Local Socioeconomic Systems Analysis. Anchorage: Bureau of Land Management, OCS Technical Report No. 46.

Alaska Department of Labor. 1980. Statistical Quarterly. Issues for 1980 I-1980 IV.

_____. 1981. Special Tabulations of Fish Harvesting Employment by Region. (Untitled.)

_____. 1983. Alaska Planning Information. Juneau: Alaska Department of Labor, January.

Braund, Stephen, R. and Behnke, Steven R. 1980. Lower Cook Inlet Petroleum Development Scenarios Local Socioeconomic Systems Analysis. Anchorage: Bureau of Land Management, OCS Technical Report No. 47.

Bureau of Economic Analysis, Special Tabulations of Personal Income by Source by Census Division, 1980.

Ford, George. 1982. "Peninsula Economy, Oil and Gas and the Industry." Kenai Peninsula Borough.

Kenai Peninsula Borough. 1981. "The Kenai Peninsula, Alaska. A Business and Industrial Prospectus." Kenai Peninsula Borough.

Knapp, Gunnar. 1983. The Rural Alaska Model (Draft). Anchorage: ISER, March.

Orth, D. J. 1971. Dictionary of Alaska Place Names. U.S. Department of Interior, Geological Survey Professional Paper 567.

Rogers, G. W.; R. F. Listowski; and D. Meyer. 1980. Measuring Socioeconomic Impacts of Alaska's Fisheries. Juneau: ISER, April.

U.S. Bureau of the Census. Census for 1960, 1970, 1980.

Institute of Social and Economic Research. 1973. "Age and Race by Sex Characteristics of Alaska's Village Population." Alaska Review of Business and Economic Conditions, September 1973.

IV. KODIAK DESCRIPTION AND PROJECTIONS

History

The city of Kodiak is situated on the northeast coast of Kodiak Island, located south of Cook Inlet in the western Gulf of Alaska. Early inhabitants of the islands of the area were Koniags whose way of life centered on the sea.

Kodiak's recorded history began in 1792 when Alexander Baranof, manager of the Russian American Company, established a settlement there. With the fur trade diminishing due to overharvesting by the Russians and Americans, Kodiak's commercial fishing industry emerged with the opening of a cannery in 1882 on the Karluk Spit. In the early 1900s, the U.S. Department of Agriculture established an experimental station for cattle at Kodiak. This station was the forerunner of Kodiak's cattle industry. But in 1912 these new industries and the slowly growing community had a setback when Mt. Novarupta, 100 miles away on the mainland of Alaska, erupted and spread 18 inches of ash over the area. In time, the land and the waters were restored and agriculture and fishing revived.

In 1939, the United States, concerned about Japanese attacks on the Aleutian Islands, began military preparations in Alaska. That year, a Coast Guard station was constructed in Kodiak. A year later, the Army arrived. Kodiak's population grew from 864 in 1939 to 3,500 in 1941, and the construction industry boomed. After the war the military presence declined and, temporarily, so did Kodiak's population.

In the late 1940s, the Kodiak Island king crab fishery emerged and helped diversify the fishing and fish processing industries, which until that time relied on salmon and halibut. The king crab commercial catch peaked in 1966 at 94 million pounds.

Seawaves caused by the 1964 earthquake inundated Kodiak's downtown district and destroyed canneries, businesses, and homes along the waterfront, but by 1970 the town was almost entirely rebuilt.

Today Kodiak is the home of the largest commercial fleet in Alaska with approximately 400 vessels. Diversification of the fishing and fish processing industry continues as shellfish and bottomfish are harvested in addition to the traditional salmon, halibut, and herring.

Population

The study area used in this chapter encompasses the nonmilitary areas adjacent to the city of Kodiak and linked to Kodiak by roads. Table IV-3, provided at the end of this chapter, gives the 1980 population figures we used in our projections for the Kodiak study area. However, in order for us to do an analysis of population trends over the past two decades (Table IV-1), we limited our discussion to the city of Kodiak proper because comparable data for the road-connected areas were not available from the 1960 and 1970 censuses (Figure IV-1).[1]

In 1980, the civilian population of Kodiak was 4,756. This figure excludes 1,370 active duty personnel plus their dependents residing at the nearby Kodiak Coast Guard station in 1980. In 1970, Kodiak civilian population was 3,798. By comparison, active duty personnel plus their dependents totaled 3,052 in 1970. Thus, military population in the vicinity of Kodiak City has declined significantly over the past decade. The following discussion is confined to characteristics of civilian population. (See Appendix F for further discussion of military activity on Kodiak Island.)

Table IV-1 summarizes the city of Kodiak's 1980 civilian population by age, sex, and race, and provides similar figures for 1970 and 1960. The following analysis of population trends is based on these figures.

Population growth over the past two decades averaged 3 percent per year. A more dramatic increase occurred between 1960 and 1970 when the population increased from 2,628 to 3,798. The average annual

---

[1]Table IV-2 provides our estimates of the 1980 population of the road-connected areas adjacent to Kodiak. We combined the data for 1970 from Tables IV-1 and IV-2 to construct Table IV-3.

TABLE IV-1.
KODIAK CITY POPULATION

	Age						
	0-4	5-14	15-19	20-34	35-64	65+	Total
1980							
Total	412	701	406	1700	1377	160	4756
Male	205	353	210	937	780	83	2568
Female	207	348	196	763	597	77	2188
Native	51	132	87	157	201	38	666
Male	22	67	42	84	107	13	335
Female	29	65	45	73	94	25	331
Non-Native	361	569	319	1543	1176	122	4090
Male	183	286	168	853	673	70	2233
Female	178	283	151	690	503	52	1857
1970							
Total	398	818	316	1050	1110	106	3798
Male	210	427	160	549	644	65	2055
Female	188	391	156	501	466	41	1743
Native	66	160	169		133	35	563
Male (c)	34	82	87		69	18	290
Female (c)	32	78	82		64	17	273
Non-Native	332	658	1197		977	71	3235
Male	176	345	622		575	47	1765
Female	156	313	575		402	24	1470
1960							
Total	453	537	157	748	674	59	2628
Male	242	257	69	392	356	38	1354
Female	211	280	88	356	318	21	1274
Native							353 (b)
Non-Native							2275 (b)

TABLE IV-1 NOTES

(a) The 1970 Native age/sex breakdown is an estimate based on two sources: (1) the Census Bureau's age/sex breakdown of "Other Races," excluding the Black and White races; and (2) ISER's census based publication (Alaska Review of Business and Economic Conditions, September 1973) giving total number of males and females of the Aleut, Eskimo, and Indian races.

(b) The 1960 Census designated three race categories: White, Black, and Other. White and Black are classified as Non-Native here. Other is categorized as Native.

SOURCES: U.S. Census for 1960, 1970, 1980; Institute of Social and Economic Research. "Age and Race by Sex Characteristics of Alaska's Village Population." Alaska Review of Business and Economic Conditions (September 1973).

growth rate for this period was 3.8 percent. Between 1970 and 1980, the average annual growth rate of population fell to 2.3 percent per year.

The age composition of Kodiak has changed somewhat between 1960 and 1980. In 1960, there were 990 children fourteen years of age and younger who comprised 38 percent of the population. In 1970, the number of children increased to 1,216, but declined to 32 percent of total population. By 1980, their proportion declined to 23 percent. The proportion of youth 15 to 19 years old remained relatively stable. They accounted for 6 percent of the population in 1960, 8 percent in 1970, and 9 percent in 1980. The age group showing significant proportional growth over the past ten years was the young labor force. Young adults aged 20 to 34 made up approximately 29 percent of the population in 1960 and in 1970, while their proportion increased to 36 percent in 1980. The proportion of the total population that was older adults, 35 to 64 years of age, remained relatively constant over the two decades. In 1960, they composed 26 percent of the population, and in 1970 and 1980, 29 percent. The elderly persons 65 and over also were a stable portion of the population. In 1960, they were 2 percent of the population, and in 1970 and 1980, they were 3 percent.

The ethnic composition of Kodiak in terms of Native and Non-Native categories has been relatively stable over the past twenty years. In 1960, we estimated 13 percent of the population was Native. The proportion of Natives in total population increased to 16 percent in 1970 and then declined to 14 percent in 1980.

The proportion of Kodiak's population that was male was the same in 1970 and 1980, 54 percent. This changed slightly from 1960 when the proportion was 52 percent.

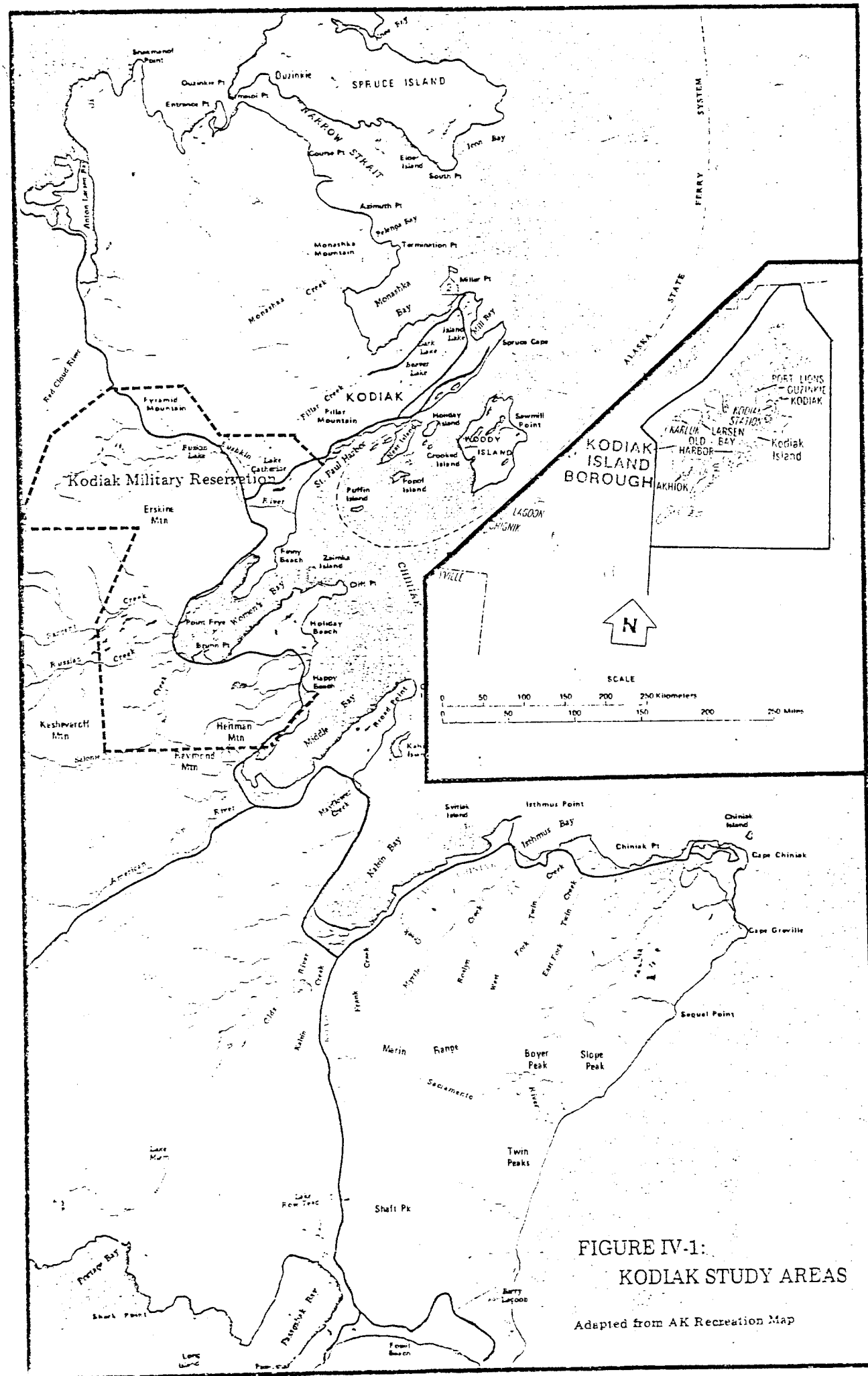


FIGURE IV-1:
KODIAK STUDY AREAS

Adapted from AK Recreation Map

TABLE IV-2.
POPULATION OF ROAD-CONNECTED AREAS ADJACENT TO KODIAK CITY

1980	Age						
	0-4	5-14	15-19	20-34	35-64	65+	Total
Total	265	434	227	1035	705	50	2716
Male	146	216	125	574	426	23	1510
Female	119	218	102	461	279	27	1206
Native (a)	35	38	20	92	62	10	257
Male	16	18	10	49	36	5	134
Female	19	20	10	43	26	5	123
Non-Native	230	396	207	943	643	40	2459
Male	130	198	115	525	390	18	1376
Female	100	198	92	418	253	22	1083

[a]Age distribution is based on the age distribution of this population group. Sex distribution for each age cohort is based on the sex distribution of Natives in each age cohort for the entire Kodiak Island Borough census.

SOURCE: U.S. Census for 1980.

TABLE IV-3.
POPULATION OF CITY OF KODIAK
AND ROAD-CONNECTED AREA

1980	Age						
	0-4	5-14	15-19	20-34	35-64	65+	Total
Total	677	1135	633	2735	2082	210	7472
Male	351	569	335	1511	1206	106	4078
Female	326	566	298	1224	876	104	3394
Native	86	170	107	249	263	48	923
Male	38	85	52	133	143	18	469
Female	48	85	55	116	120	30	454
Non-Native	591	965	526	2486	1819	162	6549
Male	313	484	283	1378	1063	88	3609
Female	278	481	243	1108	756	74	2940

SOURCE: Table IV-1 and Table IV-2.

Employment

In this section we describe employment in the Kodiak road-connected area in 1980. Our estimates of employment are based on a number of data sources and a variety of different assumptions. Most important is our assumption to exclude active duty and civilian employment of military dependents from Kodiak Coast Guard Station. The reasons for this, as well as other assumptions, are discussed in greater detail in Appendix F. The following description pertains to civilian resident employment in the road-connected area of Kodiak city.

EMPLOYMENT BY SECTOR

Table IV-4 provides a breakdown of estimated full-time equivalent employment for the Kodiak road-connected area in 1980. Full-time equivalent (FTE) employment is a measure of total person-years of work. While FTE employment provides the best measure of work done over an entire year, actual employment at any time during the year may vary greatly from FTE employment. As one indication of the range of variation from FTE employment, we have included in Table IV-4 an estimate of employment in August 1980, when total employment peaked for the year.

Our estimates suggest total FTE employment of 4,492 jobs, of which residents accounted for 3,995 jobs and nonresidents accounted for 497 civilian jobs. We may break those jobs down into three sectors: basic, support, and government.

Basic sector jobs are private sector jobs in the production of raw materials and manufactured goods, including jobs in agriculture, forestry, fisheries, mining, and manufacturing. We estimate that there were 2,015 FTE basic sector jobs in 1980, of which almost all were in fishing or fish processing. Basic sector jobs account for

TABLE IV-4.
ESTIMATED EMPLOYMENT IN KODIAK,
BY SECTOR, 1980

	Full-time Equivalent Employment		August Maximum or Peak Employment (a)	
Total Employment	4492		5712	
Basic Sector	2015		3350	
Fishing	518		870	
Fish Processing	1390		2335	
Resident		(893)		(988)
Nonresident		(497)		(1347)(b)
Other	107		145	
Support Sector (c)	1479		1576	
Construction	108		104	
Transportation, Communication and Public Utilities	302		318	
Trade	539		551	
Finance, Insurance, and Real Estate	55		54	
Services	475		549	
Government	998		786	
Federal Civilian	293		301	
State	284		185	
Local	347		226	
Military (d)	74		74	
Total Resident Employment	3995		4365	
Nonresident Civilian Employment	497		1347	

(a) Maximum or peak figures were derived by multiplying FTE employment in each category by the ratio of 1980 August employment to 1980 annual average employment in each category (using Department of Labor figures for the Kodiak Census Division). Since fishing employment figures were not available, the ratio for manufacturing was used instead.

(b) Nonresidents were assumed to account for 90 percent of the increase in peak employment over FTE employment in manufacturing.

(c) Estimates of nongovernment support sector employment.

(d) Excludes 591 Kodiak Coast Guard Station active-duty personnel.

SOURCE: Based on employment data from 1980 U.S. Census Tape STF3A, Tabulations 65, 66, and 67; and Alaska Department of Labor, Statistical Quarterly, 1980. See discussion in Appendix A.

45 percent of FTE employment and 59 percent of peak employment in August.

Salmon are the mainstay of the Kodiak fishing industry, but tanner crab, king crab, dungeness crab, shrimp, halibut, herring, and razor clams are also harvested.[1] The Kodiak fishing fleet includes about 1,500 vessels at the peak of the season, most of which are salmon purse seiners, gill net-setters, and crab pot vessels. These vessels deliver most of their catch to 15 to 20 shore-based processing plants. The plants have high-speed canning lines for common sizes of canned salmon, as well as crab processing lines. Several plants have recently installed lines for bottomfish processing. Kodiak also is a transshipment point for seafood processed in other locations. Kodiak processing plants also process fish harvested in other areas of Alaska, including the Bering Sea and Bristol Bay.

The tanner crab fishery is most active during the winter. Salmon are harvested and processed from May through September. King crab and shrimp fishing takes place in the fall.

Nonfishing basic employment is quite limited in Kodiak. There is a small amount of lumber, wood products, printing, and publishing activity.

Support sector jobs are nonbasic private sector jobs. We estimated 1980 FTE employment of 1,479 in support sector jobs, or 33 percent of total employment. Of these, 539 jobs are in trade, 475 are in services, and 302 are in transportation, communications, and public utilities. Construction, finance, insurance, and real estate all account for smaller shares.

---

[1]Information in this paragraph is based primarily on Terry, J. M., et al. (1980), p. 149, Table IV-3.44.

We estimated total government employment of 998, of which 74 were military jobs connected with the Kodiak Coast Guard Station. At 347, local government jobs accounted for the largest share of civilian government employment. State and federal government accounted for roughly equal shares of the remaining civilian government employment.

EMPLOYMENT BY MARKET SERVED

Another way to view employment is in terms of the market that it serves. Employment that provides goods or services to markets outside of a community is referred to as "exogenous," while employment that provides goods or services to markets within a community is referred to as "endogenous."[2] This distinction is important for purposes of economic modeling and projections, because exogenous employment is not directly affected by changes in the population or income of the community; whereas endogenous employment is directly related to population and income.

Table IV-5 provides a breakdown between exogenous and endogenous employment for Kodiak in 1980. Of total FTE employment, 3,286 jobs, or 73 percent, were exogenous, while 1,206 jobs, or 27 percent, were endogenous. In this case, the high proportions of exogenous employment are explained by a large naval station and by the fish-processing industry. All 2,015 basic sector jobs may be considered exogenous. In addition, we estimated that 756 support sector jobs and 515 government jobs are exogenous. Examples of exogenous support jobs are transportation jobs serving the fishing industry or tourists. We considered all federal civilian and military employment (residing off-base in the city of Kodiak) and some state employment to be exogenous.

---

[2]Some authors use the term "basic" employment to refer to "exogenous" employment. This can cause confusion. In general, all basic employment is exogenous, but not all exogenous employment is basic (some government and support sector employment may also be characterized as exogenous).

We estimated that there were 723 endogenous support jobs and 483 endogenous government jobs. Of the endogenous support jobs, we assumed that 549, or 75 percent, were generated by private spending and that the rest were generated by government spending.

TABLE IV-5.
ESTIMATED RESIDENT EMPLOYMENT IN KODIAK,
BY SOURCE, 1980

Total Employment	4492		
Exogenous Employment	3286		
Basic		2015	
Resident			1518
Nonresident			497
Support		756	
Government		515	
Endogenous Employment	1206		
Basic		0	
Support		723	
Private-sponsored Support			549
Government-sponsored Support			174
Government		483	

SOURCE: See Appendix F, Table F.5.

Base Case Projections

PROJECTION METHODOLOGY

Based on our estimates of Kodiak's population and employment, we prepared projections of a number of variables describing the economy and population of Kodiak for the years 1981-2010. We prepared the projections using a model developed at ISER for studying rural Alaskan communities, called the Rural Alaska Model (RAM). We provide a detailed description of the model in Appendixes A-C.

The Rural Alaska Model tracks population in six age cohorts for male and female Natives and non-Natives. It projects births, deaths, and migration for each group to determine total population. Migration is calculated as a function of the difference between the labor force and employment. Future levels of exogenous employment are assumed, while endogenous employment is calculated as a function of income and population.

The model's projections are the direct result of a variety of assumptions. The most important assumptions are summarized in Table IV-6. A complete list of the assumptions used and their documentation is provided as a set of worksheets in Appendix N.

PROJECTIONS

Table IV-7 presents a summary of all projections for Kodiak. Appendix C presents the complete set of projections.

As shown in Table IV-7, population rises steadily throughout the projection period. However, total employment increases to 5,850 in 1991 and then falls slightly before increasing to a maximum of 5,887 in 2010.

TABLE IV-6.
MAJOR ASSUMPTIONS USED IN KODIAK PROJECTIONS

Exogenous Employment	With the exception of modest expansion of shore-based bottomfish processing capacity and fleet, we assume that no major developments take place in basic employment. Basic sector resident exogenous employment rises from 1,518 in 1980 to 1,717 in 2010 because of a gradual increase in domestic participation in bottomfish harvesting (40 vessels by 2010) and processing (two plants by 2010). We assume that support sector resident exogenous employment rises from 756 to 1,019 due to growth in tourism. Government sector exogenous employment remains constant at 515. This figure includes a constant number of 74 active-duty military personnel that live off-base in Kodiak city.
Support Endogenous Employment	Endogenous support employment rises by 1 for every $162,000 increase in income. This implies that in 1980 every new basic sector job generates .119 new support jobs, every new support sector job generates .108 new support jobs, and every government job generates .141 new support jobs. We assume that wages rise at roughly 1 percent per year, causing these multipliers to increase.
Endogenous Government Employment	Endogenous government employment rises by 1 for every increase in population of 65.1. Put differently, if population rises by 100, in 1980 government employment rises by 1.5. However, due to declines in state and local government per capita revenues, by 2010 an increase of 100 in population results in only an increase of 1.0 in government employment.
Migration	If the ratio of working-aged population to available jobs declines by more than 5 percent from its 1980 level, new workers will move to Kodiak bringing dependents. If this ratio rises by more than 5 percent, some workers will leave taking dependents with them. However, as a share of the population, relatively fewer Natives will leave than Non-Natives.

TABLE IV-7.
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KODIAK

	Population	Total Employment	Basic Employment	Support Employment	Government Employment
1981	7605	5149	1526	1501	1006
1982	7730	5316	1536	1584	1080
1983	7849	5268	1546	1536	1069
1984	7975	5424	1556	1608	1144
1985	8082	5399	1566	1565	1151
1986	8437	5621	1577	1750	1178
1987	8539	5592	1587	1744	1144
1988	8804	5770	1597	1827	1230
1989	8901	5769	1608	1833	1212
1990	9006	5809	1618	1858	1217
1991	9140	5850	1623	1885	1226
1992	9227	5714	1628	1836	1133
1993	9311	5683	1632	1832	1102
1994	9392	5683	1637	1840	1091
1995	9471	5639	1642	1832	1049
1996	9548	5607	1647	1828	1017
1997	9624	5621	1652	1843	1010
1998	9699	5628	1656	1856	1000
1999	9773	5658	1661	1878	1002
2000	9846	5676	1666	1896	998
2001	9919	5694	1671	1914	993
2002	9991	5714	1677	1932	989
2003	10063	5733	1682	1951	984
2004	10136	5754	1687	1970	980
2005	10208	5775	1692	1990	977
2006	10281	5797	1697	2010	973
2007	10354	5819	1702	2031	970
2008	10428	5841	1707	2052	966
2009	10502	5864	1712	2073	963
2010	10577	5887	1717	2095	959

SOURCE: VARIABLES PO, EMTO, EMBA, EMSU, AND EMGO
DSET KD.BC.MD--CREATED 7/12/83

full-time equivalent employment as a percentage of the population falls from 67.7 percent to 55.7 percent over the 30-year projection interval. Basic employment increases gradually to a peak of 1,717 in 2010. Support employment increases to a temporary peak of 1,885 in 1991 and then peaks again in 2010. Government employment rises to a maximum of 1,230 in 1988 and then declines to 959 by 2010, a level comparable to government employment in 1981. By 2010, the relative distribution employment across industry categories would shift in favor of support employment from 29 percent in 1981 to 36 percent in 2010. This shift would occur at the expense of a relative decline in basic employment from 30 percent in 1981 to 29 percent in 2010. As a percent of total employment, government employment would decline from 20 percent in 1981 to 16 percent in 2010.

Table U.1 (see Appendix U) is used to show estimates of nonresident population in different categories. We assume that active-duty personnel from Kodiak Coast Guard Station plus their dependents remain constant at the level counted in the 1980 census.

Table U.2 provides breakdowns of population among different groups. The share of Natives in the total population increases slightly, from 12.5 percent in 1981 to 16.9 percent in 2010.

Table U.3 provides breakdowns of population among different age groups. the percentage of persons under 19 remains relatively constant. Seniors (aged 65+) grow as a percentage of total population from 3 percent to 8 percent.

Table U.4 traces the causes of the changes in population. Population increases steadily due to natural growth prior to 1991. Immigration also contributes to population growth during that period. After 1991, migration stabilizes and natural increase becomes the only source of population growth.

Table U.5 shows estimates of nonresident employment. We assume all 1980 levels of employment remain constant throughout the projection period.

Table U.7 shows the breakdown of basic employment that we assumed. The gradual increase in basic employment from 1,526 to 1,717 is entirely due to an assumed small increase in non- traditional bottomfish processing and harvesting employment.

Table U.8 shows changing patterns in support employment growth. Government-sponsored support employment rises from 177 in 1981 to 316 in 1988, but subsequently falls almost to its original levels due to a decline in state government per capita capital expenditures. Increasing real wage rates result in higher real incomes, causing endogenous support employment to increase from 535 to 869. Finally, exogenous support employment was assumed to increase from 764 to 1019.

Table U.9 shows a dramatic change in government employment. Endogenous government employment rises from 491 in 1981 to 715 in 1988, and then falls to 444 by 2010. This change is due to an assumed decline in per capita state government operating revenues in Alaska after 1991, which is reflected in a decline in local government revenues as well.

Impact Projections

ASSUMPTIONS

The most important assumptions in our impact projections are the direct employment assumptions. We have used figures provided to us by Jim Sullivan of the Minerals Management Service OCS office. He developed these figures using a new manpower model, programmed in-house, based on information in studies done by consultants for the Socioeconomic Studies Program over a number of years.

The direct employment assumptions for Kodiak are shown in Tables U.19 and U.20. Employment is divided into eight groups:

Onshore Short-term Skilled
Onshore Short-term Nonskilled
Onshore Long-term Skilled
Onshore Long-term Nonskilled
Offshore Short-term Skilled
Offshore Short-term Nonskilled
Offshore Long-term Skilled
Offshore Long-term Nonskilled

Here, "skilled" has a very specific meaning. It refers to those OCS jobs for which specific training or experience is required. Obviously, a precise categorization of all jobs as "skilled" or "nonskilled" is not possible, but a rough breakdown is essential if our model is to be able to capture this key element affecting whether or not local labor is hired for OCS jobs.

Other assumptions required by the model are:

1. The share of jobs of each type which industry always reserves for nonresidents, regardless of local skills.

2. Of those workers brought in to fill those jobs which industry would be willing to fill locally but is unable to fill locally, the share who become residents, as opposed to

living in an enclave or merely commuting through the community.

3. Of workers who do not become residents, the share who are only commuters through the community.

4. The number of local residents who are "skilled" (i.e., could fill skilled-type OCS jobs) at the beginning of the projection period.

5. The rate at which local residents are trained to become skilled workers if local skilled labor supply is not equal to demand. Two assumptions are required here: the maximum share of nonskilled workers who are willing to be trained, and the maximum share of skilled worker positions which cannot be filled locally for which industry is willing to train.

Table IV-8 shows the assumptions which we have used for this study. This table also shows how we changed these assumptions in order to examine the sensitivity of our impact projections to what we had assumed (see the following section).

PROJECTIONS

Our impact case projections are shown in Tables U.10 through U.22. Tables U.10 through U.18 show the same variables as the base case projection tables U.1 through U.9. Tables U.21 and U.22 provide additional projections of project employment.

It is easiest to get a feel for the projected impacts using Tables U.23 through U.28. these tables compare the base case projections with the impact case projections, and also show absolute and percentage impacts. Table IV-9 summarizes the projected maximum absolute impacts of OCS Sale 88 upon Kodiak.

TABLE IV-8.
ASSUMPTIONS FOR SENSITIVITY ANALYSIS OF IMPACTS

KODIAK

		Low Impact Assumptions	Assumptions Used in Study	High Impact Assumptions
Share of Project Jobs Reserved by Industry for Nonresidents (SN-)				
Onshore Short-term Skilled	(PSONSK)	.6	.3	0
Onshore Short-term Nonskilled	(PSONNS)	.6	.1	0
Onshore Long-term Skilled	(PLONSK)	.2	0	0
Onshore Long-term Nonskilled	(PLONNS)	.2	0	0
Offshore Short-term Skilled	(PSOFSK)	1	.7	0
Offshore Short-term Nonskilled	(PSOFNS)	1	.7	0
Offshore Long-term Skilled	(PLOFSK)	.3	.1	0
Offshore Long-term Nonskilled	(PLOFNS)	.3	.1	0
Share of Nonresident Workers Brought in to Fill Excess Demand Who Become Residents (SR-)				
Onshore Short-term Skilled	(PSONSK)	0	0	.1
Onshore Short-term Nonskilled	(PSONNS)	0	.1	.2
Onshore Long-term Skilled	(PLONSK)	.2	.8	1
Onshore Long-term Nonskilled	(PLONNS)	.4	1	1
Offshore Short-term Skilled	(PSOFSK)	0	0	.1
Offshore Short-term Nonskilled	(PSOFNS)	0	0	.2
Offshore Long-term Skilled	(PLOFSK)	.1	.5	1
Offshore Long-term Nonskilled	(PLOFNS)	.2	.5	1
Share of Nonresident Workers Who Only Commute Through Community (CP-)				
Onshore Short-term Skilled	(PSONSK)	0	0	0
Onshore Short-term Nonskilled	(PSONNS)	0	0	0
Onshore Long-term Skilled	(PLONSK)	0	0	0
Onshore Long-term Nonskilled	(PLONNS)	0	0	0
Offshore Short-term Skilled	(PSOFSK)	1	1	1
Offshore Short-term Nonskilled	(PSOFNS)	1	1	1
Offshore Long-term Skilled	(PLOFSK)	1	1	1
Offshore Long-term Nonskilled	(PLOFNS)	1	1	1

Table IV-8. Assumptions for Sensitivity Analysis of Impacts: Kodiak (Continued)

	Low Impact Assumptions	Assumptions Used in Study	High Impact Assumptions
Number of Skilled Workers in Year Prior to First Projection Year (LSSK)	40	10	0
Maximum Share of Nonskilled Workers Who Are Trained for Project Jobs in Any Given Year (TNPANS)	.1	.05	0
Maximum Share of Excess Demand For Labor Which is Filled by Training Local Nonskilled Workers (TNPAED)	.1	.05	0

TABLE IV-9.
SUMMARY OF PROJECTED IMPACTS OF OCS SALE 88:
KODIAK

	Maximum Absolute Impact	% Impact In Year of Maximum Absolute Impact	Year of Maximum Absolute Impact
Total Population (Including Enclaves and Military)	69	0.6	1990
Resident Population	67	0.6	2007
School-age Population	15	0.6	2009
Total Resident Employment	137	3.0	2003
Support Employment	4	0.2	1988
Civilian Government Employment	5	0.4	1991

SOURCE: RAM Model Projections, Tables U.23 through U.28.

SENSITIVITY OF IMPACT PROJECTIONS TO ASSUMPTIONS

Tables U.29 through U.34 examine the sensitivity of our impact projections to selected impact assumptions. The tables compare our impact projections to those which we obtained when we varied the impact assumptions as shown in Table IV-8. Table IV-10 summarizes the results of this sensitivity analysis.

Our sensitivity analysis is not complete. It examined only the sensitivity of our results to certain assumptions of the model. We have not examined the sensitivity of our results to two other key kinds of assumptions: the direct employment numbers we have used and the structure of our model. Presumably, the projected impacts of OCS Sale 88 might vary considerably if we were to change either of these assumptions.

TABLE IV-10.
SUMMARY OF SENSITIVITY ANALYSIS OF IMPACT PROJECTIONS
FOR YEAR OF MAXIMUM PROJECTED IMPACT

	Maximum Projected Impact	Year of Maximum Projected Impact	Impact with Low-Impact Assumptions as Share of Projected Impact	Impact with High-Impact Assumptions as Share of Projected Impact
Total Population (Including Enclaves and Military)	69	1990	.36	3.45
Resident Population	67	2007	0	3.97
School-age Population	15	2009	0	3.87
Resident Employment	137	2003	72	1.23
Support Employment	4	1988	0	3.33
Civilian Government Employment	5	1991	0	3.60

SOURCE: RAM Model Projections, Tables U.29 through U.34.

Bibliography

Alaska Consultants, Inc. 1979. Northern and Western Gulf of Alaska Local Socioeconomic Baseline. Anchorage: Bureau of Land Management. OCS Technical Report No. 32

Alaska Department of Labor. 1980. Statistical Quarterly. Issues for 1980 I-1980 IV.

_____. 1981. Alaska 1980 Population A Preliminary Look. Juneau, January.

_____. 1983. Alaska Planning Information. Juneau: Alaska Department of Labor, January.

Institute of Social and Economic Research. 1973. "Age and Race by Sex Characteristics of Alaska's Village Population." Alaska Review of Business and Economic Conditions, September 1973.

Knapp, Gunnar. 1983. The Rural Alaska Model (Draft). Anchorage: ISER, March.

Orth, D. J. 1971. Dictionary of Alaska Place Names. U.S. Department of Interior, Geological Survey Professional Paper 567.

Peratrovich & Nottingham, Inc.; Kramer, Chin, & Mayo, Inc.; Williams-Juebelbeck & Associates, Inc.; and Roy Ecklund. 1982. Port of Kodiak Development Plan. Anchorage: City of Kodiak.

Terry, J. M. et al; R. S. Johnston and F. J. Smith; and F. L. Orth and P. W. Rogers. 1980. Northern and Western Gulf of Alaska Petroleum Development Scenarios: Commercial Fishing Industry Analysis. Anchorage: Bureau of Land Management, OCS Technical Report No. 30.

U.S. Bureau of the Census. Census for 1960, 1970, 1980.

Woodward-Clyde Consultants, 1981. Kodiak Island Borough Coastal Management Program. Anchorage: Alaska Coastal Management Program, June.

V. SEWARD: DESCRIPTION AND PROJECTIONS

History

The seaport of Seward is situated at the head of Resurrection Bay on the gulf coast of the Kenai Peninsula. Early inhabitants of the area were Chugach Eskimos who, under Russian domination, were required to hunt sea otters for the Russian fur trade. Ship building was an early, short-lived activity on Resurrection Bay. In 1794, the first ocean-going vessel built in Alaska, the Phoenix, was launched from the Bay. It sailed between Siberia and Russian America until it was lost in a storm in 1799.

In the early twentieth century during the Gold Rush era, Seward served as a gateway to the gold mining activities in Sunrise, Hope, and Nome. In 1908, the Alaska Road Commission began surveying a trail to follow the dog trails leading from Seward to Hope and Nome. This 1,000-mile trail, known as the Iditarod Trail, was marked and cleared in 1910-11. Seward's role as the major transportation center serving interior Alaska was the dream of John Ballaine and the settlers who established the community in 1903. Ballaine began constructing the Alaska Central Railway in 1904, but after 50 miles of track were laid, the venture ran into difficulties. In 1915, the U.S. Government took over the existing line and completed the railroad to Fairbanks in 1923. For the next two decades, Seward was the principal port serving Southcentral and Interior Alaska.

With World War II and the growth of Anchorage, Seward's significance as the central port declined. The economy was somewhat sustained by the construction of the Seward to Anchorage highway in 1952 and other construction projects in the area. Also, Seward became a sport and recreation center for the military and later for Anchorage residents.

The 1964 earthquake destroyed Seward's docks, cannery, and boat harbor as well as 86 houses. The city rebuilt, but the trend for traffic to flow into Anchorage and Whittier rather than Seward continued.

Today the city of Seward, with state support, is constructing the Seward Marine Industrial Park at Fourth of July Creek. The $45 million project, when completed, is planned to be self-supporting. Through this endeavor, the community hopes to change the seasonal economy of Seward to a more diverse economy with year-round stability.

Population

The 1980 Census provides the most detailed information currently available on current population in Seward. Table V-1 gives census information for Seward. According to the census, the city of Seward had a population of 1,843 in 1980. The areas adjacent to the city of Seward included in the Seward census subarea had an additional population of 650, most of whom lived along the Seward Highway south of Kenai Lake. Thus, the Seward census subarea had a total population of 2,493.

Our discussion of population in this chapter refers only to the city of Seward. However, our subsequent discussion of employment is for the entire Seward census subarea because the economy of this area is linked to that of the city of Seward (Figure V-1).

The population of the city of Seward was 1,891 in 1960. It decreased by 16 percent by 1970, to 1,587. Between 1970 and 1980, it increased by 16 percent, to just below the 1960 level. The average annual rate of decline between 1960 and 1970 was 2 percent, and the average annual growth rate between 1970 and 1980 was 2 percent.

In comparing the age composition of Seward for the three target years, we found that the young adults, those aged 20 to 34, comprised 34 percent of the population in 1980, while in 1970 they made up only 18 percent of the population. The 1960 census data did not have the same age cohort so that we could compare all three target years directly. However, when we expanded the group to include persons aged 15 to 34, this same trend was evident. In 1960, persons aged 15 to 34 accounted for 23 percent of the population; in 1970, they made up 28 percent of the population, and in 1980, a dramatic 43 percent. Thus, Seward appears to have had a younger labor force in 1980 than it had in 1960. The older adults,

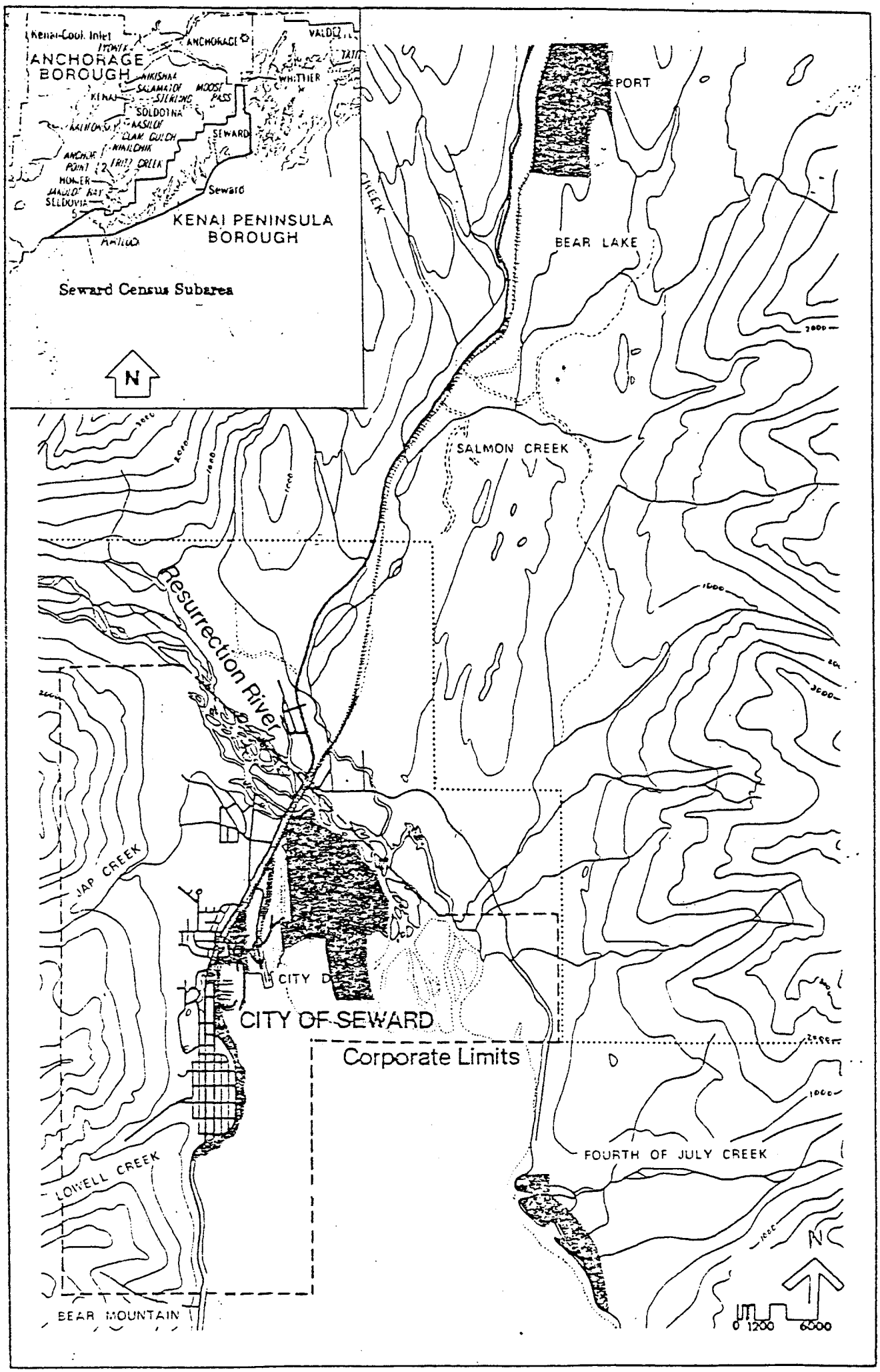


FIGURE V-1: SEWARD STUDY AREAS

those aged 35 to 64, comprised 40 percent of the population in 1960, 36 percent in 1970, and 30 percent in 1980. Another group whose proportion of the total population declined over the past 20 years was children up to age 14. In 1960, they made up 32 percent of the population; in 1970, they comprised 29 percent, and in 1980, 19 percent. The proportion of elderly (65 years and older) increased slightly. In 1960, 5 percent was in this group; in 1970, 7 percent; and in 1980, 8 percent of the population was elderly.

The ethnic composition of Seward has remained relatively constant. Twelve percent of the population was Native in 1960, and 13 percent in both 1970 and 1980.

The percentage of Seward's population that was male has fluctuated over the 20-year period. In 1960, 54 percent was male; in 1970, 52 percent, and in 1980, 55 percent was male.

TABLE V-1.
SEWARD POPULATION

	Age						
	0-4	5-14	15-19	20-34	35-64	65+	Total
1980							
Total	128	231	160	626	554	144	1843
Male	68	130	79	364	300	72	1013
Female	60	101	81	262	254	72	830
Native	9	34	32	80	71	12	238
Male	6	19	16	48	32	4	125
Female	3	15	16	32	39	8	113
Non-Native	119	197	128	546	483	132	1605
Male	62	111	63	316	268	68	888
Female	57	86	65	230	215	64	717
1970							
Total	133	334	155	284	576	105	1587
Male	66	169	82	142	310	57	826
Female	67	165	73	142	266	48	761
Native(a)	22	52	55		68	5	202
Male	12	26	34		37	2	111
Female	10	26	21		31	3	91
Non-Native	111	282	384		508	100	1385
Male	54	143	190		273	55	715
Female	57	139	194		235	45	670
1960							
Total	215	393	443		754	86	1891
Male	106	189	228		451	49	1023
Female	109	204	215		303	37	868
Native(b)							227
Non-Native							1664

TABLE V-1 NOTES

(a) The 1970 Native age-sex breakdown is an estimate based on two sources: (1) the Census Bureau's age-sex breakdown of "Other Races," excluding the Black and White races; and (2) ISER's Census based publication (Alaska Review of Business and Economic Conditions, September 1973) giving total number of males and females of the Aleut, Eskimo and Indian races.

(b) The 1960 Census designated three race categories: White, Black, and Other. White and Black are classified as Non-Native here. Other is categorized as Native.

SOURCES: U.S. Census for 1960, 1970, 1980.

Institute of Social and Economic Research. "Age and Race by Sex Characteristics of Alaska's Village Population." Alaska Review of Business and Economic Conditions September 1973.

Employment

In this section, we describe employment in Seward in 1980. We had relatively few data on which to base our estimates of employment, and we had to make a number of assumptions in developing them. We describe how we developed these estimates in Appendix G.

EMPLOYMENT BY SECTOR

Table V-2 provides a breakdown of estimated full-time equivalent resident employment for the Seward census subarea in 1980. Full-time equivalent (FTE) employment is a measure of total man-years of work. While FTE employment provides the best measure of work done over an entire year, actual employment at any time during the year may vary greatly from FTE employment. However, we did not have data with which to estimate the seasonal variation in employment. We also did not attempt to estimate seasonal nonresident employment.

Our estimates suggest total FTE employment of 1,149 jobs. We may break these jobs down into three sectors: basic, support, and government.

Basic sector jobs are private-sector jobs in the production of raw materials and manufactured goods, including jobs in agriculture, forestry, fisheries, mining, and manufacturing. We estimate that there were 265 FTE basic sector jobs in 1980, most of which were in fishing or fish processing. The primary species harvested by Seward area fishermen and processed in Seward are salmon, halibut, herring, and tanner crab. The Kenai Lumber Company accounted for some additional basic sector jobs in production of lumber, cants, and chips. In total, basic sector jobs account for 23 percent of FTE employment.

TABLE V-2.
ESTIMATED RESIDENT EMPLOYMENT IN SEWARD AREA,
BY SECTOR, 1980

	Full-time Equivalent Employment
Total Resident Employment	1149
Basic Sector	265
Fishing	120
Fish Processing	114
Other	31
Support Sector	582 (a)
Construction	12
Transportation, Communication and Public Utilities	76
Trade	256
Finance, Insurance, and Real Estate	27
Services	213
Government	302
Federal Civilian	45
State	85
Local	155
Military	17

(a) Breakdown of support employment based on breakdown of 440 support jobs in estimates by Alaska Consultants for 1978 (see Table G.1).

SOURCE: Appendix G, Table G.4.

Support sector jobs are nonbasic private sector jobs. We estimated 1980 FTE employment of 582 in support sector jobs, or 51 percent of total employment. The majority of these jobs were in trade (256), services (213), and transportation, communication, and public utilities. We estimated total government employment of 302, or 26 percent of total employment.

Base Case Projections

PROJECTION METHODOLOGY

Based on the estimates of Seward's population and employment presented in the previous two chapters, we prepared projections of a number of variables describing the economy and population of the Seward area for the years 1981-2010. We prepared the projections using a model developed at ISER for studying rural Alaskan communities called the Rural Alaska Model (RAM). We provide a detailed description of the model in Appendixes A-C.

The Rural Alaska Model tracks population in six age cohorts for male and female Natives and Non-Natives. It projects births, deaths, and migration for each group to determine total population. Migration is calculated as a function of the difference between the labor force and employment. Future levels of exogenous employment are assumed, while endogenous employment is calculated as a function of income and population.

The model's projections are the direct result of a variety of assumptions. Table V-3 summarizes the most important assumptions. A complete list of the assumptions used and their documentation is provided as a set of worksheets in Appendix O.

PROJECTIONS

Table V-4 presents a summary of our projections for Seward. Appendix V presents the complete set of projections.

As shown in Table V-4, population rises steadily throughout the projection period. Total employment fluctuates somewhat but increases gradually to 3,245 in 2010. A gradual growth in basic employment is assumed, reaching 446 by 2010. Support employment grows rapidly to a level of 2,165 in 2010 due to growth in exogenous support employment (tourism and transportation in particular) and

TABLE V-3.
MAJOR ASSUMPTIONS USED IN SEWARD PROJECTIONS

Fishing and Fish Processing Employment	Employment expands at one percent per year due to gradual expansion of shore-based bottomfish activity.
Other Basic Employment	We assume growth in employment of 20 per year over the period 1983-1987 in ship building and maintenance at the Fourth of July Creek Industrial Park.
Exogenous Support Employment	We assume significant growth in exogenous support employment due to growth in tourism, export facilities, expanded port activity, and ship maintenance. These factors cause exogenous support employment to expand by five percent per year.
Exogenous Government Employment	Exogenous government employment expands by 10 jobs per year over the period 1980-1995 due to expansion of the Seward Skills Center, the University's Institute of Marine Sciences, facilities of Kenai Fjords National Park, and possibly a state prison.
Government Sponsored Support Employment	Government-sponsored support employment rises by one for every increase in population of 36.7. Put differently, if population rises by 100, in 1980 government-sponsored support employment increases by 2.7. This multiplier declines over time as government revenues decline.
Endogenous Support Employment	Endogenous support employment rises by one for every $143,000 increase in income. This implies that in 1980 every new basic sector job generates .175 new support jobs, every new support sector job generates .092 new support jobs, and every government job generates .189 new support jobs. We assume that wages rise at roughly one percent per year, causing these multipliers to increase.
Endogenous Government Employment	Endogenous government employment rises by one for every increase in population of 11.4. Put differently, if population rises by 100, in 1980 government employment rises by 8.8. However, due to declines in state and local government per capita revenues, by 2010 an increase of 100 in population results in only an increase of 5.7 in government employment.

Migration

If the ratio of working-aged population to available jobs declines by more than 5 percent from its 1980 level, new workers will move to Seward bringing dependents. If this ratio rises by more than 5 percent, some workers will leave taking dependents with them. However, as a share of the population, relatively fewer Natives will leave than Non-Natives. We assumed that 5 percent of Non-Natives over 65 leave Seward every year to retire elsewhere.

TABLE V-4.
RURAL ALASKA MODEL BASE CASE
PROJECTIONS: SEWARD

	POPULATION	TOTAL EMPLOYMENT	BASIC EMPLOYMENT	SUPPORT EMPLOYMENT	GOVERNMENT EMPLOYMENT
1980	2493	1149	265	582	302
1981	2525	1192	267	609	315
1982	2729	1318	270	674	374
1983	2821	1355	292	679	384
1984	3107	1524	315	753	456
1985	3240	1581	337	764	480
1986	3581	1780	359	894	526
1987	3716	1831	382	923	525
1988	4024	2002	384	1010	608
1989	4152	2045	387	1043	615
1990	4323	2122	389	1092	641
1991	4507	2205	392	1144	670
1992	4551	2150	395	1137	618
1993	4593	2165	397	1161	607
1994	4675	2210	400	1197	613
1995	4744	2223	403	1224	597
1996	4805	2232	405	1251	576
1997	4924	2282	408	1297	577
1998	5040	2329	411	1342	576
1999	5188	2397	414	1399	585
2000	5326	2458	417	1453	588
2001	5468	2521	419	1510	592
2002	5613	2586	422	1569	595
2003	5763	2655	425	1631	598
2004	5922	2728	428	1697	603
2005	6087	2805	431	1767	608
2006	6258	2885	434	1839	612
2007	6436	2969	437	1915	617
2008	6622	3057	440	1994	623
2009	6816	3149	443	2078	628
2010	7018	3245	446	2165	634

SOURCE: VARIABLES PO, EMRETO, EMBA, EMSU, AND EMGO
DSET SW.BC.MD--CREATED 7/7/83.

growth in endogenous support employment as the local economy expands. Government employment rises to a maximum of 670 in 1991 and then declines to 576 in 1998 before rising slightly to 634 in 2010.

Table V.1 (see Appendix V) is used to show estimates of nonresident population in different categories. We did not estimate population for these groups; hence, the values appear as zeroes.

Table V.2 provides breakdowns of population among different groups. The share of Natives in the total population falls from 13.1 percent in 1981 to 8 percent in 2010.

Table V.3 shows the age distribution of resident population. As a proportion of total population, the adult population (aged 19-64) decreases from 66 percent to 61 percent while other categories gain 1 to 2 percentage points.

Table V.4 traces the causes of the changes in population. Population increases steadily due to natural growth prior to 1991. With the exception of a short period of zero migration in the early 1900s, immigration also contributes to ongoing population growth.

Table V.7 shows the breakdown of basic employment which we assumed. The steady increase in basic employment from 265 to 446 is due to assumed increases in each category of basic employment. Development of the bottomfish industry accounts for the growth in fishing and fish processing. Growth in ship-building and ship maintenance employment accounts for the growth in other resident basic employment.

Table V.8 shows support employment more than tripling by 2010, from 582 in 1980 to 2,165 in 2010. There are several causes for this increase: first, increasing real wage rates that result in higher real incomes combine with population increases causing endogenous support employment to increase from 206 to 693. Government-sponsored support employment rises from 68 in 1980 to 175 in 1991, but subsequently falls to 124 due to a decline in state government per capita capital expenditures. Finally, exogenous support employment was assumed to increase dramatically from 308 to 1,331 due to tourism and port expansion.

Table V.9 shows change in government employment. Endogenous government employment rises from 219 in 1980 to 477 in 1991, and then falls to 401 by 2010. This change is due to an assumed decline in per capita state government operating revenues in Alaska after 1991, which is reflected in a decline in local government revenues as well.

Impact Projections

ASSUMPTIONS

The most important assumptions in our impact projections are the direct employment assumptions. We have used figures provided to us by Jim Sullivan of the Minerals Management Service OCS Office. He developed these figures using a new manpower model, programmed in-house, based on information in studies done by consultants for the Socioeconomic Studies Program over a number of years.

The direct employment assumptions for Seward are shown in Tables V.19 and V.20. Employment is divided into eight groups.

Onshore Short-term Skilled
Onshore Short-term Nonskilled
Onshore Long-term Skilled
Onshore Long-term Nonskilled
Offshore Short-term Skilled
Offshore Short-term Nonskilled
Offshore Long-term Skilled
Offshore Long-term Nonskilled

Here, "skilled" has a very specific meaning. It refers to those OCS jobs for which specific training or experience is required. Obviously, a precise categorization of all jobs as "skilled" or "nonskilled" is not possible, but a rough breakdown is essential if our model is to be able to capture this key element affecting whether or not local labor is hired for OCS jobs.

Other assumptions required by the model are:

1. The share of jobs of each type which industry always reserves for nonresidents, regardless of local skills.

2. Of those workers brought in to fill those jobs which industry would be willing to fill locally but is unable to fill locally, the share who become residents

as opposed to living in an enclave or merely commuting through the community.

3. Of workers who do not become residents, the share who are only commuters through the community.

4. The number of local residents who are "skilled" (i.e., could fill skilled-type OCS jobs) at the beginning of the projection period.

5. The rate at which local residents are trained to become skilled workers if local skilled labor supply is not equal to demand. Two assumptions are required here: the maximum share of nonskilled workers who are willing to be trained, and the maximum share of skilled worker positions which cannot be filled locally for which industry is willing to train.

Table V-5 shows the assumptions which we have used for this study. This table also shows how we changed these assumptions in order to examine the sensitivity of our impact projections to what we had assumed (see the following section).

PROJECTIONS

Our impact case projections are shown in Tables V.10 through V.28. Tables V.10 through V.18 show the same variables as the base case projection Tables V.1 through V.9. Tables V.21 and V.22 provide additional projections of project employment.

It is easiest to get a feel for the projected impacts using Tables V.23 through V.28. These tables compare the base case projections with the impact case projections, and also show absolute and percentage impacts. Table V-6 summarizes the projected maximum absolute impacts of OCS Sale 88 upon Seward.

TABLE V-6.
ASSUMPTIONS FOR SENSITIVITY ANALYSIS OF IMPACTS

SEWARD

		Low Impact Assumptions	Assumptions Used in Study	High Impact Assumptions
Share of Project Jobs Reserved by Industry for Nonresidents (SN-)				
Onshore Short-term Skilled	(PSONSK)	.6	.3	0
Onshore Short-term Nonskilled	(PSONNS)	.6	.1	0
Onshore Long-term Skilled	(PLONSK)	.2	0	0
Onshore Long-term Nonskilled	(PLONNS)	.2	0	0
Offshore Short-term Skilled	(PSOFSK)	1	.7	0
Offshore Short-term Nonskilled	(PSOFNS)	1	.7	0
Offshore Long-term Skilled	(PLOFSK)	.3	.1	0
Offshore Long-term Nonskilled	(PLOFNS)	.3	.1	0
Share of Nonresident Workers Brought in to Fill Excess Demand Who Become Residents (SR-)				
Onshore Short-term Skilled	(PSONSK)	0	.1	.5
Onshore Short-term Nonskilled	(PSONNS)	0	.2	.5
Onshore Long-term Skilled	(PLONSK)	.8	1.0	1
Onshore Long-term Nonskilled	(PLONNS)	.8	1.0	1
Offshore Short-term Skilled	(PSOFSK)	0	0	.5
Offshore Short-term Nonskilled	(PSOFNS)	0	.1	.5
Offshore Long-term Skilled	(PLOFSK)	.5	.8	1
Offshore Long-term Nonskilled	(PLOFNS)	.5	.8	1
Share of Nonresident Workers Who Only Commute Through Community (CP-)				
Onshore Short-term Skilled	(PSONSK)	0	0	0
Onshore Short-term Nonskilled	(PSONNS)	0	0	0
Onshore Long-term Skilled	(PLONSK)	0	0	0
Onshore Long-term Nonskilled	(PLONNS)	0	0	0
Offshore Short-term Skilled	(PSOFSK)	1	1	1
Offshore Short-term Nonskilled	(PSOFNS)	1	1	1
Offshore Long-term Skilled	(PLOFSK)	1	1	1
Offshore Long-term Nonskilled	(PLOFNS)	1	1	1

Table V-6. Assumptions for Sensitivity Analysis of Impacts: Seward

	Low Impact Assumptions	Assumptions Used in Study	High Impact Assumptions
Number of Skilled Workers in Year Prior to First Projection Year (LSSK)	20	5	0
Maximum Share of Nonskilled Workers Who Are Trained for Project Jobs in Any Given Year (TNPANS)	.1	.05	0
Maximum Share of Excess Demand For Labor Which is Filled by Training Local Nonskilled Workers (TNPAED)	.1	.05	0

TABLE V-7.
SUMMARY OF PROJECTED IMPACTS OF OCS SALE 88:
SEWARD

	Maximum Absolute Impact	% Impact In Year of Maximum Absolute Impact	Year of Maximum Absolute Impact
Total Population (Including Enclaves and Military)	675	11.7	2003
Resident Population	672	11.7	2003
School-age Population	121	10.3	2003
Total Resident Employment	361	16.2	1995
Support Employment	120	9.8	1995
Civilian Government Employment	45	7.5	1995

SOURCE: RAM Model Projections, Tables V.23 through V.28.

SENSITIVITY OF IMPACT PROJECTIONS TO ASSUMPTIONS

Tables V.29 through V.34 examine the sensitivity of our impact projections to selected impact assumptions. The tables compare our impact projections to those which we obtained when we varied the impact assumptions as shown in Table V-6. Table V-8 summarizes the results of this sensitivity analysis.

Our sensitivity analysis is not complete. It examined only the sensitivity of our results to certain assumptions of the model. We have not examined the sensitivity of our results to two other key kinds of assumptions: the direct employment numbers we have used and the structure of our model. Presumably, the projected impacts of OCS Sale 88 might vary considerably if we were to change either of these assumptions.

TABLE V-8.
SUMMARY OF SENSITIVITY ANALYSIS OF IMPACT PROJECTIONS
FOR YEAR OF MAXIMUM PROJECTED IMPACT

	Maximum Projected Impact	Year of Maximum Projected Impact	Impact with Low-Impact Assumptions as Share of Projected Impact	Impact with High-Impact Assumptions as Share of Projected Impact
Total Population (Including Enclaves and Military)	675	2003	.78	1.34
Resident Population	672	2003	.76	1.35
School-age Population	121	2003	.73	1.75
Resident Employment	361	1995	.72	1.32
Support Employment	120	1995	.72	1.49
Civilian Government Employment	45	1995	.69	2.44

SOURCE: RAM Model Projections, Tables V.29 through V.34.

Bibliography

Alaska Consultants, Inc. 1979. Northern and Western Gulf of Alaska Local Socioeconomic Baseline, Technical Report No. 32 (Anchorage Bureau of Land Management, Alaska OCS Office, May).

Alaska Department of Labor. 1980. Statistical Quarterly. V. I-IV.

_____. 1983. Alaska Planning Information. Juneau: Alaska Department of Labor, January.

Bureau of Economic Analysis, Personal Income by Major Sources, 1975-80, Computer Printouts of the Regional Economics Information System, Stored at ISER (April, 1982).

Institute of Social and Economic Research. 1973. "Age and Race by Sex Characteristics of Alaska's Village Population." Alaska Review of Business and Economic Conditions, September.

Knapp, Gunnar. 1983. The Rural Alaska Model (Draft). Anchorage: ISER, March.

U.S. Bureau of the Census. Census for 1960, 1970, 1980.

VI. YAKUTAT: DESCRIPTION AND PROJECTIONS

History

Yakutat is located on the eastern shore of the Gulf of Alaska, and is the major community between Southeast Alaska's Alexander Archipelago and Southcentral Alaska's Prince William Sound. Figure VI-1 shows the location of Yakutat. Eyak Indians, Inland Tlingit, Athabascan Indians, and Coastal Tlingit were early inhabitants of this region. Today the predominant culture of the Natives of Yakutat is Tlingit, representing the northern reaches of the Northwest Coast culture.

The first recorded contacts with European culture occurred in the 1780s when Russian and Spanish explorers and traders visited the area. In 1795, a Russian post was established, but by 1805 it was overrun by Natives angered over their mistreatment by the Russians. For the next half century, few Europeans ventured onshore in the Yakutat area. A major smallpox epidemic occurred at Yakutat between 1836 and 1839, but was largely unnoticed by the outside world.

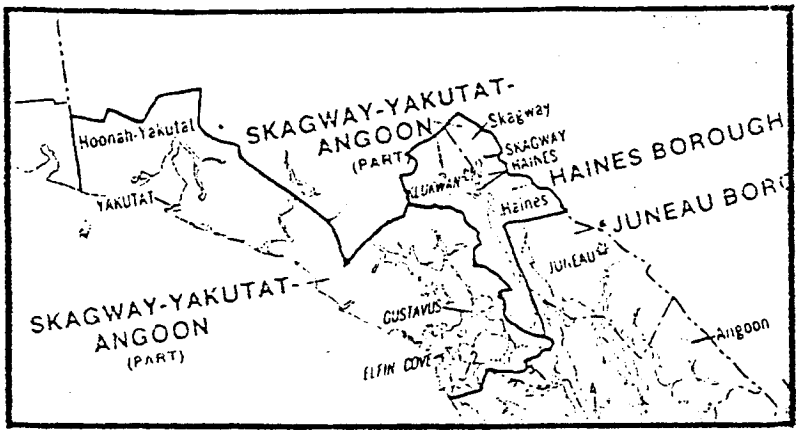
In 1887, missionaries of the Swedish Free Mission Church arrived and the next year opened a school and set up a sawmill. Residents who lived scattered along the coast began to consolidate at the mission, the "Old Village" site of Yakutat.

At the turn of the century, a sawmill, a salmon cannery, and a railroad were built by a Seattle businessman at a new location on Monti Bay. By 1919, most families had moved to be near the cannery. This area has become the central district of Yakutat today.

Few major changes occurred in Yakutat until World War II. In 1940, the United States built a base and airfield at Yakutat as part of the military defense against Japanese expansion. It is reported

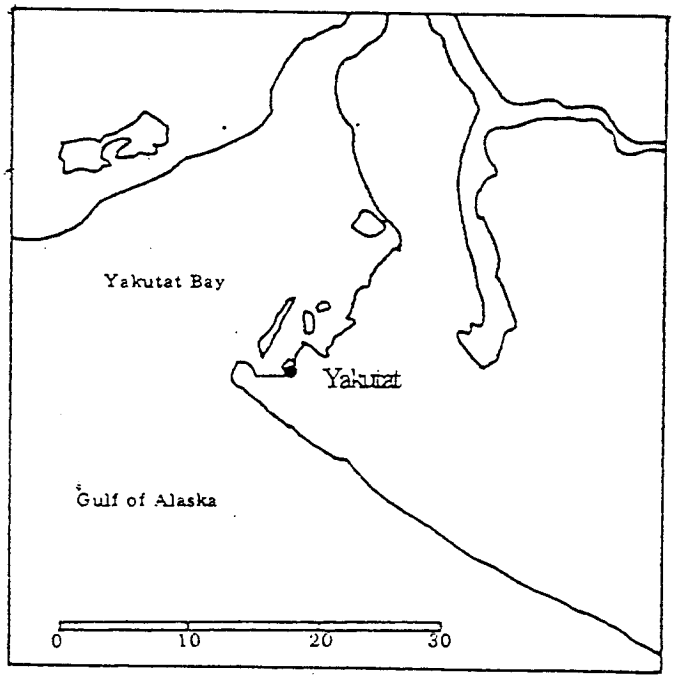
FIGURE VI-1

YAKUTAT STUDY AREAS



Source: U.S. Bureau of the Census

A. Skagway - Yakutat - Angoon Census Area



Adapted from AEIDC AK Regional Profiles

B. City of Yakutat

Note: The study area for our descriptions and projections is the area connected by road to the community of Yakutat. Most people live within five miles of the community.

that 10,000 men were stationed at the base at its peak. After the war, the base was closed but the airport remained, serving as a major transportation facility and reducing the community's isolation.

In the 1950s, Yakutat experienced a major economic decline with the depletion of the fisheries resources and the subsequent out-migration of young people in search of opportunities elsewhere. In the 1970s, though, this trend was reversed. Former residents were attracted back as the local fishing and fish processing industry was re-established, as the Native claims were settled, and as new housing and community facilities were built. New residents anticipated economic opportunities in fishing and fish processing, and in oil and gas development of the Outer Continental Shelf of the Gulf of Alaska.

Population

In twenty years, Yakutat has experienced a major population decline followed by a dramatic increase (Table VI-1). Between 1960 and 1970, Yakutat's population decreased from 230 to 190, a 17 percent reduction. This translates into an average annual rate of decline of 2 percent. After 1970, population grew at an average rate of 9 percent per year, reaching 449 persons in 1980.

The most significant change in the age composition of Yakutat between 1970 and 1980 occurred in the young adult category, i.e., persons 20 to 34 years old. Having 40 persons, this group comprised 21 percent of the population in 1970, while in 1980, the group increased to 142 persons, representing 32 percent of the population. This change appears to be due more to the in-migration of newcomers attracted to Yakutat and the return of former residents than to indigenous youth progressing into the young adult category. Youth aged 15 to 19 accounted for 12 percent of the population in 1970. In 1980, they made up 7 percent of the population. Children up to age 14 comprised 34 percent of the population in 1970, and 32 percent in 1980. Older adults, those aged 35 to 64, accounted for 27 percent of the population in 1970, while in 1980, they were 23 percent of the total. The proportion of the population that was elderly (aged 65 or older) was at 6 percent in 1970 and in 1980.

The ethnic composition of Yakutat changed significantly between 1970 and 1980. In 1970, 82 percent of the population was Native. This proportion fell to 62 percent in 1980. Between 1970 and 1980, Non-Natives increased by 400 percent. This is an average annual growth rate of 17 percent, almost twice the average annual growth rate of the total population, which was 9 percent.

The percentage of the population of Yakutat that was male remained the same in 1970 and 1980, at 52 percent.

TABLE VI-1.
YAKUTAT POPULATION

	Age						
	0-4	5-14	15-19	20-34	35-64	65+	Total
1980							
Total	49	94	33	142	105	26	449
Male	26	46	15	77	62	9	235
Female	23	48	18	65	43	17	214
Native	35	67	24	78	55	20	279
Male	22	33	12	33	30	6	136
Female	13	34	12	45	25	14	143
Non-Native	14	27	9	64	50	6	170
Male	4	13	3	44	32	3	99
Female	10	14	6	20	18	3	71
1970							
Total	24	40	23	40	51	12	190
Male	11	15	14	20	32	7	99
Female	13	25	9	20	19	5	91
Native (a)	20	36	47		41	12	156
Male	7	15	27		26	7	82
Female	13	21	20		15	5	74
Non-Native	4	4	16		10	0	34
Male	4	0	7		6	0	17
Female	0	4	9		4	0	17
1960							
Total							230
Male							
Female							

TABLE VI-1 NOTES

(a) The 1970 Native age-sex breakdown is an estimate based on two sources: (1) the Census Bureau's age-sex breakdown of "Other Races," excluding the Black and White races; and (2) ISER's Census based publication (Alaska Review of Business and Economic Conditions, September 1973) giving total number of males and females of the Aleut, Eskimo, and Indian races.

(b) The 1960 Census designated three race categories: White, Black, and Other. White and Black are classified as Non-Native here. Other is categorized as Native.

SOURCES: U.S. Census for 1960, 1970, 1980.

Institute of Social and Economic Research. "Age and Race by Sex Characteristics of Alaska's Village Population." Alaska Review of Business and Economic Conditions, September 1973.

Employment

In this section, we describe employment in Yakutat in 1980. Our estimates of employment are based on a number of data sources and a variety of different assumptions. We describe how we developed these estimates in Appendix H.

EMPLOYMENT BY SECTOR

Table VI-2 provides a breakdown of estimated full-time equivalent employment for Yakutat in 1980. Full-time equivalent (FTE) employment is a measure of total person-years of work. While FTE employment provides the best measure of work done over an entire year, actual employment at any time during the year may vary greatly from FTE employment. As one indication of the range of variation from FTE employment, we have included in Table VI-2 an estimate of employment in August 1980, when total employment peaked for the year.

Our estimates suggest total FTE employment of 189 jobs, of which nearly all were accounted for by residents. We may break those jobs down into three sectors: basic, support, and government.

Basic sector jobs are private sector jobs in the production of raw materials and manufactured goods, including jobs in agriculture, forestry, fisheries, mining, and manufacturing. We estimate that there were 76 FTE basic sector jobs in 1980, of which almost all were in fishing or fish processing. Basic sector jobs account for 40 percent of FTE employment and 56 percent of peak employment in August.

Salmon are the mainstay of the Yakutat fishing industry, but dungeness crab, shrimp, halibut, herring, and some bottom-fish are also harvested.[1] The Yakutat fishing fleet includes about 180

---

[1]Information in this paragraph is based primarily on Terry, J. M., et al. (1980), p. 336, Table 3.178.

TABLE VI-2.
ESTIMATED EMPLOYMENT IN YAKUTAT,
BY SECTOR, 1980

	Full-time Equivalent Employment	August Maximum or Peak Employment (a)
Total Employment	189	256
Basic Sector	76	143
Fishing	38	72
Fish Processing	33	62
Resident	(32)	(36)
Nonresident	(1)	(26)(b)
Other	5	9
Support Sector (c)	46	62
Construction	1	1
Transportation, Communication and Public Utilities	20	24
Trade	10	12
Finance, Insurance, and Real Estate	3	3
Services	12	22
Government	67	51
Federal Civilian	11	13
State	6	4
Local	50	34
Military	0	0
Total Resident Employment	188	230
Total Nonresident Employment	1	26

(a) Maximum or peak figures were derived by multiplying FTE employment in each category by the ratio of 1980 August employment to 1980 annual average employment in each category (using Department of Labor figures for the Skagway-Yakutat Census Division). Since fishing employment figures were not available, the ratio for manufacturing was used instead.

(b) Nonresidents were assumed to account for 90 percent of the increase in peak employment over FTE employment in manufacturing.

(c) Estimates of nongovernment support employment.

SOURCE: Based on employment data from 1980 U.S. Census Tape STF3A, Tabulations 65, 66, and 67; and Alaska Department of Labor, Statistical Quarterly, 1980. See discussion in Appendix H.

vessels at the peak of the season, most of which are salmon purse seiners and gill-setters. At present, Yakutat has one major shore-based seafood processor. This plant processes crab, shrimp, and salmon.

Nonfishing basic employment is quite limited in Yakutat. There is a small amount of logging and mining activity.

Support sector jobs are nonbasic sector private sector jobs. We estimated 1980 FTE employment of 46 in support sector jobs, or 24 percent of total employment. Ten of these jobs are in trade, 12 are in services, and 20 are in transportation, communications, and public utilities. Construction, finance, insurance, and real estate all account for smaller shares.

We estimated total government employment of 67, of which 50 are local government jobs.

EMPLOYMENT BY MARKET SERVED

Another way to view employment is in terms of the market that it serves. Employment that provides goods or services to markets outside of a community is referred to as "exogenous," while employment that provides goods or services to markets within a community is referred to as "endogenous."[2] This distinction is important for purposes of economic modeling and projections, because exogenous employment is not directly affected by changes in the population or income of the community, whereas endogenous employment is directly related to population and income. In general, the smaller a community, the larger a share of total employment which may be characterized as exogenous.

---

[2]Some authors use the term "basic" employment to refer to "exogenous" employment. This can cause confusion. In general, all basic employment is exogenous, but not all exogenous employment is basic (some government and support sector employment may also be characterized as exogenous).

Table VI-3 provides a breakdown between exogenous and endogenous employment for Yakutat in 1980. Of total FTE employment, 109 jobs, or 58 percent, were exogenous, while 80 jobs, or 42 percent, were endogenous. All 76 basic sector jobs may be considered exogenous. In addition, we estimated that 20 support sector jobs and 13 government jobs are exogenous. Examples of exogenous support jobs are transportation jobs serving the fishing industry or tourists. We considered all federal civilian and military employment and some state employment to be exogenous.

We estimated that there were 26 endogenous support jobs and 54 endogenous government jobs. Of the endogenous support jobs, we assumed that 20, or 77 percent, were generated by private spending and that the rest were generated by government spending.

TABLE VI-3.
ESTIMATED RESIDENT EMPLOYMENT IN YAKUTAT,
BY SOURCE, 1980

Total Employment	189		
Exogenous Employment	109		
Basic		76	
Resident			75
Nonresident			1
Support		20	
Government		13	
Endogenous Employment	80		
Basic		0	
Support		26	
Private-sponsored Support			20
Government-sponsored Support			6
Government		54	

SOURCE: See Appendix H.

Base Case Projections

PROJECTION METHODOLOGY

Based on the estimates of Yakutat's population and employment presented in the previous two chapters, we prepared projections of a number of variables describing the economy and population of Yakutat for the years 1981-2010. We prepared the projections using a model developed at ISER for studying rural Alaskan communities, called the Rural Alaska Model (RAM). We provide a detailed description of the model in Appendixes A-C.

The Rural Alaska Model tracks population in six age cohorts for male and female Natives and Non-Natives. It projects births, deaths, and migration for each group to determine total population. Migration is calculated as a function of the difference between the labor force and employment. Future levels of exogenous employment are assumed, while endogenous employment is calculated as a function of income and population.

The model's projections are the direct result of a variety of assumptions. The most important assumptions are summarized in Table VI-4. A complete list of the assumptions used and their documentation is provided as a set of worksheets in Appendix P.

PROJECTIONS

Table VI-5 presents a summary of all projections for Yakutat. Appendix W presents the complete set of projections.

As shown in Table VI-5, population rises steadily throughout the projection period. However, total employment increases to a maximum of 283 in 1991 and then falls slightly, with little subsequent growth.

TABLE VI-4.
MAJOR ASSUMPTIONS USED IN YAKUTAT PROJECTIONS

Exogenous Employment	With the exception of offshore exploratory drilling that began in 1983, about 40 miles southeast of Yakutat, we assume that no major developments take place in basic employment. The offshore exploratory drilling operations currently underway are expected to continue for five years. No further oil and gas development is assumed in this forecast. Specific assumptions regarding drilling employment affecting Yakutat are contained in the notes to Table A.4 in Appendix A. Basic sector resident exogenous employment rises from 76 in 1980 to 101 in 2010. We assume that support sector resident exogenous employment rises from 20 to 27 due to growth in tourism. Government sector exogenous employment remains constant at 13.
Support Endogenous Employment	Endogenous support employment rises by 1 for every $190,000 increase in income. This implies that in 1980 every new basic sector job generates .130 new support jobs, every new support sector job generates .080 new support jobs, and every government job generates .090 new support jobs. We assume that wages rise at roughly 1 percent per year, causing these multipliers to increase.
Endogenous Government Employment	Endogenous government employment rises by 1 for every increase in population of 35.0. Put differently, if population rises by 100, in 1980 government employment rises by 2.9. However, due to declines in state and local government per capita revenues, by 2010 an increase of 100 in population results in only an increase of 1.8 in government employment.
Migration	If the ratio of working-aged population to available jobs declines by more than 5 percent from its 1980 level, new workers will move to Yakutat bringing dependents. If this ratio rises by more than 5 percent, some workers will leave taking dependents with them. However, as a share of the population, relatively fewer Natives will leave than Non-Natives.

TABLE VI-5.
RURAL ALASKA MODEL BASE CASE PROJECTIONS
YAKUTAT

	Population	Total Employment	Basic Employment	Support Employment	Government Employment
1981	464	190	75	46	69
1982	496	205	75	50	80
1983	522	217	84	51	82
1984	559	235	85	55	95
1985	571	237	87	54	97
1986	604	253	90	61	101
1987	616	252	93	61	97
1988	648	270	93	66	111
1989	661	268	93	66	109
1990	683	280	100	68	112
1991	697	283	100	69	114
1992	710	269	100	67	102
1993	723	264	100	67	98
1994	735	264	100	67	97
1995	738	256	100	65	90
1996	734	249	100	64	85
1997	735	249	100	65	83
1998	737	247	100	65	82
1999	742	248	100	66	82
2000	747	247	100	66	81
2001	753	248	100	68	81
2002	759	248	100	68	80
2003	764	248	100	68	79
2004	768	247	100	69	79
2005	774	248	100	70	78
2006	780	248	100	71	78
2007	784	248	100	71	77
2008	789	248	100	71	77
2009	794	249	100	73	76
2010	799	249	100	73	75

SOURCE: VARIABLES PO, EMTO, EMBA, EMSU, AND EMGO
DSET YAKUTAT--CREATED APRIL 14, 1983

Full-time equivalent employment as a percentage of the population falls from 40.9 percent to 31.2 percent. A slight growth in basic employment is assumed, to a plateau of 100 by 1990. Support employment grows fairly steadily to reach 73 by 2010, while government employment rises to a maximum of 114 in 1991 and then declines to 75 by 2010.

Table W.1 (see Appendix W) is used to show estimates of nonresident population in different categories. We did not estimate population for these groups; hence, the values appear as zeroes.

Table W.2 provides breakdowns of population among different groups. The share of Natives in the total population increases slightly, from 62.1 percent in 1981 to 66.5 percent in 2010.

Table W.3 shows the breakdown of population among different age groups. The largest share of population is aged 19-64. Over the projection period, seniors (aged 65+) increase relative to other groups.

Table W.4 traces the causes of the changes in population. Population increases steadily due to natural growth and net in-migration prior to 1991. Immigration also contributes to population growth, but after 1995 a steady emigration of workers and dependents occurs.

Table W.5 shows estimates of enclave employment. Military and onshore enclave employment are assumed to remain zero throughout the projection period.

Table W.7 shows the breakdown of basic employment which we assumed. The gradual increase in basic employment from 75 to 100 is due to a small increase in nonfishing basic employment and temporary petroleum exploration activity from 1983 to 1988.

Table W.8 shows a nearly steady increase in support employment, from 46 in 1981 to 73 in 2010. There are several causes for this increase. First, increasing real wage rates result in higher real incomes, causing endogenous support employment to increase from 20 to 38. Government-sponsored support employment rises from 6 in 1981 to 14 in 1991, but subsequently falls almost to its original levels due to a decline in state government per capita capital expenditures. Finally, exogenous support employment was assumed to increase from 20 to 27.

Table W.9 shows a dramatic change in government employment. Endogenous government employment rises from 56 in 1981 to 101 in 1991, and then falls to 62 by 2010. This change is due to an assumed decline in per capita state government operating revenues in Alaska after 1991, which is reflected in a decline in local government revenues as well.

Impact Projections

ASSUMPTIONS

The most important assumptions in our impact projections are the direct employment assumptions. We have used figures provided to us by Jim Sullivan of the Minerals Management Service OCS office. He developed these figures using a new manpower model, programmed in-house, based on information in studies done by consultants for the Socioeconomic Studies Program over a number of years.

The direct employment assumptions for Yakutat are shown in Tables W.19 and W.20. Employment is divided into eight groups:

Onshore Short-term Skilled
Onshore Short-term Nonskilled
Onshore Long-term Skilled
Onshore Long-term Nonskilled
Offshore Short-term Skilled
Offshore Short-term Nonskilled
Offshore Long-term Skilled
Offshore Long-term Nonskilled

Here, "skilled" has a very specific meaning. It refers to those OCS jobs for which specific training or experience is required. Obviously, a precise categorization of all jobs as "skilled" or "nonskilled" is not possible, but a rough breakdown is essential if our model is to be able to capture this key element affecting whether or not local labor is hired for OCS jobs.

Other assumptions required by the model are:

1. The share of jobs of each type which industry always reserves for nonresidents, regardless of local skills.

2. Of those workers brought in to fill those jobs which industry would be willing to fill locally but is unable to fill locally, the share who become residents, as opposed to living in an enclave or merely commuting through the community.

3. Of workers who do not become residents, the share who are only commuters through the community.

4. The number of local residents who are "skilled" (i.e., could fill skilled-type OCS jobs) at the beginning of the projection period.

5. The rate at which local residents are trained to become skilled workers if local skilled labor supply is not equal to demand. Two assumptions are required here: the maximum share of nonskilled workers who are willing to be trained, and the maximum share of skilled worker positions which cannot be filled locally for which industry is willing to train.

Table VI-6 shows the assumptions which we have used for this study. This table also shows how we changed these assumptions in order to examine the sensitivity of our impact projections to what we had assumed (see the following section).

PROJECTIONS

Our impact case projections are shown in Tables W.10 through W.18. These tables show the same variables as the base case projection tables W.1 through W.9. Tables W.21 and W.22 provide additional projections of project employment.

It is easiest to get a feel for the projected impacts using Tables W.23 through W.28. These tables compare the base case projections with the impact case projections, and also show absolute and percentage impacts. Table VI-7 summarizes the projected maximum absolute impacts of OCS Sale 88 upon Yakutat.

SENSITIVITY OF IMPACT PROJECTIONS TO ASSUMPTIONS

Tables W.29 through W.34 examine the sensitivity of our impact projections to selected impact assumptions. The tables compare our impact projections to those which we obtained when we varied the impact assumptions as shown in Table VI-6. Table VI-8 summarizes the results of this sensitivity analysis.

Our sensitivity analysis is not complete. It examined only the sensitivity of our results to certain assumptions of the model. We have not examined the sensitivity of our results to two other key kinds of assumptions: the direct employment numbers we have used and the structure of our model. Presumably, the projected impacts of OCS Sale 88 might vary considerably if we were to change either of these assumptions.

TABLE VI-6.
ASSUMPTIONS FOR SENSITIVITY ANALYSIS OF IMPACTS

YAKUTAT

		Low Impact Assumptions	Assumptions Used in Study	High Impact Assumptions
Share of Project Jobs Reserved by Industry for Nonresidents (SN-)				
Onshore Short-term Skilled	(PSONSK)	1.0	1.0	.5
Onshore Short-term Nonskilled	(PSONNS)	1.0	1.0	.5
Onshore Long-term Skilled	(PLONSK)	.6	.3	.2
Onshore Long-term Nonskilled	(PLONNS)	.6	.3	.2
Offshore Short-term Skilled	(PSOFSK)	1.0	1.0	.5
Offshore Short-term Nonskilled	(PSOFNS)	1.0	1.0	.5
Offshore Long-term Skilled	(PLOFSK)	.7	.4	.3
Offshore Long-term Nonskilled	(PLOFNS)	.7	.4	.3
Share of Nonresident Workers Brought in to Fill Excess Demand Who Become Residents (SR-)				
Onshore Short-term Skilled	(PSONSK)	0	0	0
Onshore Short-term Nonskilled	(PSONNS)	0	0	0
Onshore Long-term Skilled	(PLONSK)	0	.05	.2
Onshore Long-term Nonskilled	(PLONNS)	0	.05	.2
Offshore Short-term Skilled	(PSOFSK)	0	0	0
Offshore Short-term Nonskilled	(PSOFNS)	0	0	0
Offshore Long-term Skilled	(PLOFSK)	0	0	.1
Offshore Long-term Nonskilled	(PLOFNS)	0	0	.1
Share of Nonresident Workers Who Only Commute Through Community (CP-)				
Onshore Short-term Skilled	(PSONSK)	0	0	0
Onshore Short-term Nonskilled	(PSONNS)	0	0	0
Onshore Long-term Skilled	(PLONSK)	0	0	0
Onshore Long-term Nonskilled	(PLONNS)	0	0	0
Offshore Short-term Skilled	(PSOFSK)	1	1	1
Offshore Short-term Nonskilled	(PSOFNS)	1	1	1
Offshore Long-term Skilled	(PLOFSK)	1	1	1
Offshore Long-term Nonskilled	(PLOFNS)	1	1	1

Table VI-6. Assumptions for Sensitivity Analysis of Impacts: Yakutat (Continued)

	Low Impact Assumptions	Assumptions Used in Study	High Impact Assumptions
Number of Skilled Workers in Year Prior to First Projection Year (LSSK)	3	3	3
Maximum Share of Nonskilled Workers Who Are Trained for Project Jobs in Any Given Year (TNPANS)	0	0	0
Maximum Share of Excess Demand For Labor Which is Filled by Training Local Nonskilled Workers (TNPAED)	.02	.02	.02

TABLE VI-7.
SUMMARY OF PROJECTED IMPACTS OF OCS SALE 88:
YAKUTAT

	Maximum Absolute Impact	% Impact In Year of Maximum Absolute Impact	Year of Maximum Absolute Impact
Total Population (Including Enclaves and Military)	723	99.9	1993
Resident Population	369	46.2	2010
School-age Population	77	34.3	2010
Total Resident Employment	215	82.8	2009
Support Employment	55	65.6	2009
Civilian Government Employment	29	38.2	2010

SOURCE: RAM Model Projections, Tables W.23 through W.28.

TABLE VI-8.
SUMMARY OF SENSITIVITY ANALYSIS OF IMPACT PROJECTIONS
FOR YEAR OF MAXIMUM PROJECTED IMPACT

	Maximum Projected Impact	Year of Maximum Projected Impact	Impact with Low-Impact Assumptions as Share of Projected Impact	Impact with High-Impact Assumptions as Share of Projected Impact
Total Population (Including Enclaves and Military)	723	1993	0	1.43
Resident Population	369	2010	.35	2.74
School-age Population	77	2010	.40	2.48
Resident Employment	215	2009	.24	2.32
Support Employment	55	2009	.34	2.25
Civilian Government Employment	29	2010	.34	2.72

SOURCE: RAM Model Projections, Tables W.29 through W.34.

Bibliography
Yakutat

Alaska Consultants, Inc. 1976. City of Yakutat Comprehensive Development Plan. Anchorage.

_____. 1978. City of Yakutat Capital Improvements and Services Program. Anchorage: Alaska Department of Community and Regional Affairs.

_____. 1979. Northern Gulf of Alaska Petroleum Development Scenarios Local Socioeconomic Impacts. Anchorage: Bureau of Land Management. OCS Technical Report No. 33.

_____. 1979. Northern and Western Gulf of Alaska Local Socioeconomic Baseline. Anchorage: Bureau of Land Management. OCS Technical Report No. 32.

Alaska Department of Labor. 1980. Statistical Quarterly. Issues for 1980 I-1980 IV.

Alaska Department of Labor. 1983. Alaska Planning Information. Juneau: Alaska Department of Labor, January.

Bureau of Economic Analysis, Special Tabulations of Personal Income by Source by Census Division, 1980.

CH2M Hill. 1980. Ocean Cape Site Development Feasibility Study. Anchorage: Alaska Department of Community and Regional Affairs.

Knapp, Gunnar. 1983. The Rural Alaska Model (Draft). Anchorage: ISER, March.

Orth, D. J. 1971. Dictionary of Alaska Place Names. U.S. Department of Interior, Geological Survey Professional Paper 567.

Terry, J. M. et al; R. S. Johnston and F. J. Smith; and F. L. Orth and P. W. Rogers. 1980. Northern and Western Gulf of Alaska Petroleum Development Scenarios: Commercial Fishing Industry Analysis. Anchorage: Bureau of Land Management, OCS Technical Report No. 30.

U.S. Bureau of the Census. Census for 1960, 1970, 1980.

Institute of Social and Economic Research. 1973. "Age and Race by Sex Characteristics of Alaska's Village Population." Alaska Review of Business and Economic Conditions, September 1973.

VII. CONCLUSIONS

In this report, we have prepared descriptions, base case projections for five coastal communities in Southcentral Alaska which might be affected by oil development in the Gulf of Alaska lease area. We have also prepared projections of the impacts which development of the lease area might have on population and employment in each community. In this conclusion, we briefly summarize the results of these projections.

Table VII-1 summarizes our base case resident population projections for the five communities. We project the lowest growth rates--0.5 percent and 1.1 percent--for the towns of Kenai and Kodiak, which are the largest towns of the five. We project rapid growth rates of 3.6 percent and 2.3 percent for the communities of Seward and Homer, based on increased tourism and, in the case of Seward, development of transportation and ship repair facilities. We project an intermediate growth rate of 1.9 percent for Yakutat, based primarily on government employment growth during the first decade of the projection period.

As we pointed out in the introduction to this report, our base case projections are highly sensitive to the many assumptions which underlie them. Thus, actual population growth in these communities could be quite different than that which we have projected. For example, Kenai could grow much more rapidly if oil refining activities expand there rapidly (which we did not assume), or Seward could grow much more slowly if the growth in tourism which we assumed does not occur. It is important to remember that our impact projections, rather than our base case projections, are the primary purpose of this report. Even if the base case projections are considerably different from what actually occurs, the impact projections may still provide a reasonable indication of actual impacts--especially if the impacts are likely to be small.

TABLE VII-1. SUMMARY OF PROJECTED BASE CASE POPULATION: FIVE COMMUNITIES

	Homer	Kenai	Kodiak	Seward	Yakutat
1981	3238	9200	7605	2525	464
1982	3434	9369	7730	2729	496
1983	3538	9457	7849	7821	522
1984	3642	9618	7975	3107	559
1985	3747	9774	8082	3240	571
1986	3871	9928	8437	3581	604
1987	3979	10078	8539	3716	616
1988	4114	10225	8804	4024	648
1989	4224	10368	8901	4152	661
1990	4336	10510	9006	4323	683
1991	4448	10648	9140	4507	697
1992	4562	10738	9227	4551	710
1993	4676	10691	9311	4593	723
1994	4792	10670	9392	4675	735
1995	4866	10557	9471	4744	738
1996	4914	10444	9548	4805	734
1997	4972	10429	9624	4924	735
1998	5034	10432	9699	5040	737
1999	5112	10485	9773	5188	742
2000	5197	10529	9846	5326	747
2001	5285	10560	9919	5468	753
2002	5377	10582	9991	5613	759
2003	5472	10603	10063	5763	764
2004	5572	10625	10136	5922	768
2005	5677	10650	10208	6087	774
2006	5787	10670	10281	6258	780
2007	5901	10693	10354	6436	784
2008	6021	10715	10428	6622	789
2009	6146	10735	10502	6816	794
2010	6276	10755	10577	7018	799
Growth (In Percent)					
1981-1990	3.3	1.5	1.4	6.2	4.4
1991-2000	1.7	-0.1	0.8	1.9	0.8
2001-2010	1.9	0.2	0.7	2.8	0.7
1981-2010	2.3	0.5	1.1	3.6	1.9

SOURCE: RAM Model Projections, Appendixes S-W.

Table VII-2 summarizes the two key sets of assumptions upon which our impact projections are based. These two sets of assumptions are key to our impact projections because they directly affect our projections of the number of jobs taken by persons who either are or become local residents.

Table VII-3 summarizes our impact projections for the five communities. The most convenient indicator of impacts is the maximum percentage impact on resident population, which is shown in the middle section of the table.

The projected maximum impact would be smallest for Kodiak, with less than a 1 percent maximum increase in resident population. The maximum increase in resident population would be less than 12 percent in Homer, Kenai, and Seward. In Yakutat, however, the maximum projected impact on resident population is 47 percent.

Maximum projected impacts show similar patterns for other variables such as resident employment and school-age population. In short, in percentage terms, the projected impacts of the Gulf of Alaska lease sale are substantial for Yakutat and relatively small for the other communities.

The top section of Table VII-2 helps to explain why this is the case. The maximum <u>absolute</u> impact of the lease area development upon resident population is actually smaller in Yakutat than in any of the other communities except Seward. The absolute impact in Yakutat is 369 compared with 733 in Kenai, 672 in Seward, and 504 in Homer. However, these communities are projected to be much larger than Yakutat during the impact period.

The population of Homer, the next smallest community, is projected to be nearly seven times as great as that of Yakutat. As a result, the relative impact from offshore oil development involving a

TABLE VII-2. KEY ASSUMPTIONS AFFECTING OCS IMPACT PROJECTIONS

	Homer	Kenai	Kodiak	Seward	Yakutat
Share of Project Jobs Reserved by Industry for Nonresidents					
Onshore Short-term Skilled	.3	.3	.3	.3	1.0
Onshore Short-term Nonskilled	.1	.1	.1	.1	1.0
Onshore Long-term Skilled	0	0	0	0	.3
Onshore Long-term Nonskilled	0	0	0	0	.3
Offshore Short-term Skilled	.7	.7	.7	.7	1.0
Offshore Short-term Nonskilled	.7	.7	.7	.7	1.0
Offshore Long-term Skilled	.1	.1	.1	.1	.4
Offshore Long-term Nonskilled	.1	.1	.1	.1	.4
Share of Nonresident Workers Brought in to Fill Excess Demand Who Become Residents					
Onshore Short-term Skilled	.1	.1	0	.1	0
Onshore Short-term Nonskilled	.2	.2	.1	.2	0
Onshore Long-term Skilled	1.0	1.0	.8	1.0	.05
Onshore Long-term Nonskilled	1.0	1.0	1.0	1.0	.05
Offshore Short-term Skilled	0	0	0	0	0
Offshore Short-term Nonskilled	.1	.1	0	.1	0
Offshore Long-term Skilled	.8	.8	.5	.8	0
Offshore Long-term Nonskilled	.8	.8	.5	.8	0

TABLE VII-3. SUMMARY OF PROJECTED IMPACTS OF GULF OF ALASKA LEASE OFFERING: FIVE COMMUNITIES

	Homer	Kenai	Kodiak	Seward	Yakutat
Maximum Absolute Impact					
Total Population (Including Enclaves and Military)	505	735	69	675	723
Resident Population	504	733	67	672	369
School-age Population	99	178	15	121	77
Total Resident Employment	253	314	137	361	215
Support Employment	101	102	4	120	55
Civilian Government Employment	24	30	5	45	29
Percent Impact in Year of Maximum Absolute Impact					
Total Population (Including Enclaves and Military)	8.4	7.2	0.6	11.7	99.9
Resident Population	8.9	7.4	0.6	11.7	46.2
School-age Population	8.6	7.3	0.6	10.3	34.3
Total Resident Employment	9.3	7.8	3.0	16.2	82.8
Support Employment	6.3	4.5	0.2	9.8	65.6
Civilian Government Employment	5.8	4.9	0.4	7.5	38.2
Year of Maximum Absolute					
Total Population (Including Enclaves and Military)	2005	1999	1990	2003	1993
Resident Population	2005	1999	2007	2003	2010
School-age Population	2005	1999	2009	2003	2010
Total Resident Population	2004	1999	2003	1995	2009
Support Employment	2003	1999	1988	1995	2009
Civilian Government Employment	2004	1996	1991	1995	2010

SOURCE: RAM Model Projections, Appendixes S-W.

roughly similar number of workers would be considerably greater in Yakutat.

There are numerous other reasons why impacts would be larger in Yakutat. In addition to being larger, all of the other communities are more accessible, have a more developed economy, and have a more diverse population. Thus, offshore oil development activity is less likely to bring about dramatic changes in the character of these communities.

In sum, our RAM model projections suggest that development resulting from the Gulf of Alaska lease offerings would have relatively minor effects upon population and employment in Homer, Kenai, Kodiak, and Seward, with maximum percentage impacts generally less than 10 percent. However, due to the entirely different character of the community of Yakutat, the lease offering might have a much more substantial effect, with resident population increasing by up to 50 percent and total population increasing by up to 100 percent.

APPENDIX A: THE RURAL ALASKA MODEL

This appendix describes the Rural Alaska Model (RAM), which was developed at the University of Alaska, Institute of Social and Economic Research (ISER), for use in projecting population and employment in small communities in Alaska. The model may also be used to examine the impacts of a specific project, such as outer continental shelf oil development, upon population, resident employment, and separate "enclave" employment of nonresidents.

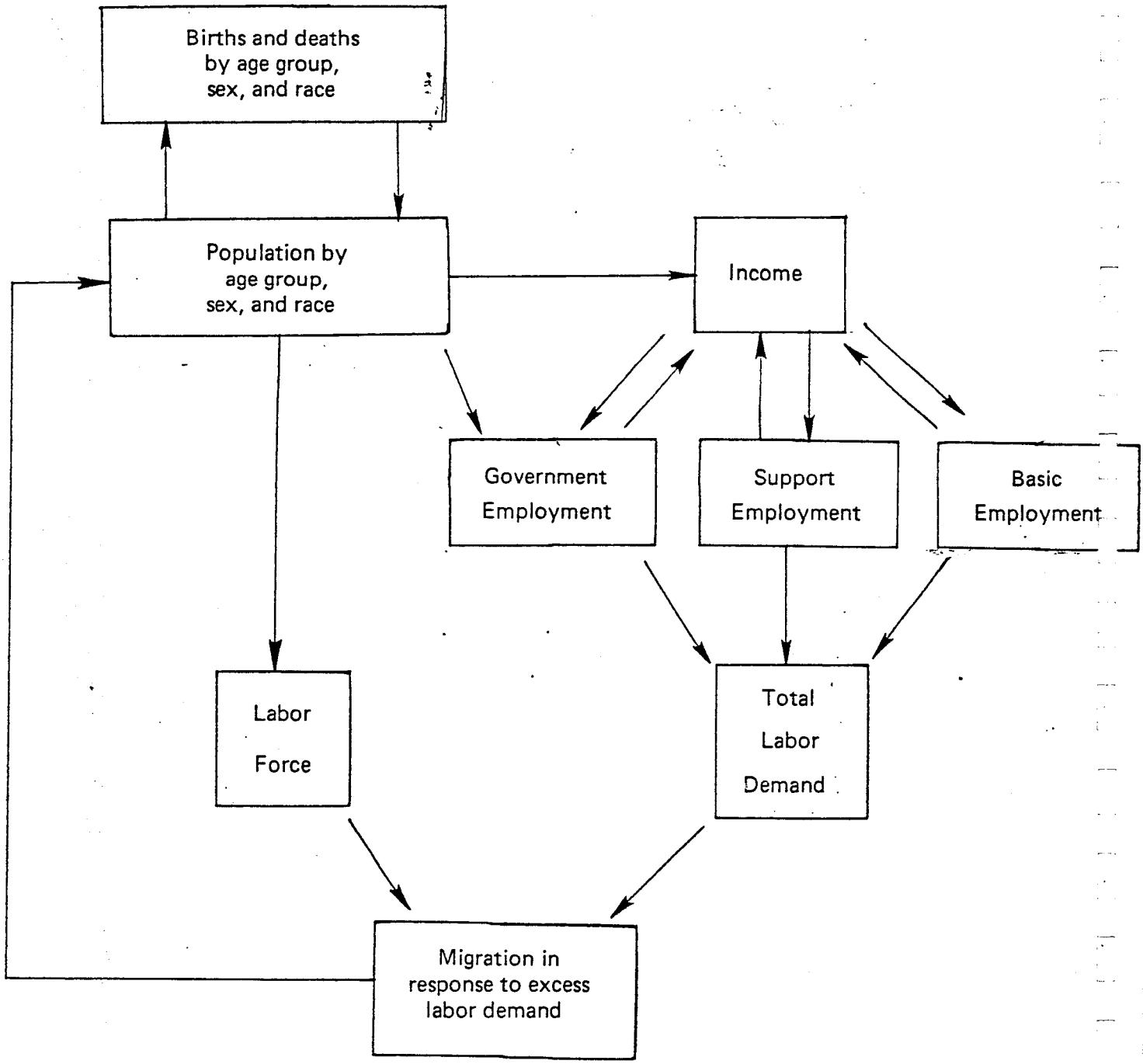
In this appendix, we first describe the structure of the base case RAM model, or the form that the model takes when no specific projects are assumed. Subsequently, we describe the "impact" model, which may be used to examine the impacts of projects. A final section summarizes assumptions required for the model.

In appendixes B and C we provide a glossary of RAM model variable notation and a listing of the equations in the model.

Figure A-1 illustrates the structure of the base case RAM model. From the census, starting year values are obtained for population by age group, sex, and race. Natural change in population due to births and deaths is calculated using assumed fertility rates and death rates for each group. Labor force participation rates for each group are used to calculate the labor force.

Employment is divided into basic, support, and government employment. Basic employment (in industries such as fishing and mining) is assumed independently of the model, based on factors such as resource levels and planned development projects. Government employment is projected as a function of population and total state revenues. Support employment is projected as a function of local resident income.

Figure A-1: Structure of the Rural Alaska Model



Total labor demand is the sum of employment in each sector. If labor demand exceeds the local labor force, additional workers are projected to move into the community, bringing dependents. If the labor force exceeds labor demand (allowing for some unemployment), some workers are projected to leave the community, bringing dependents with them. Total in-migration or out-migration is added to natural population growth in order to determine total population growth.

The following sections describe individual sections of the base case model in greater detail. These are broken down into the population model, the employment model, the income model, the labor market model, and the migration model.

The Population Model

Although the population model accounts for well over half of the equations of the RAM model, it has a very simple structure. The population is divided into 24 cohorts corresponding to six age groups, two sexes, and two races (native and non-native). These groups are shown in Figure A-2.

For each race and each age group except the youngest, the model first calculates population before migration, using the formula

Population before Migration	=	Population in previous year	*	Share which does not die	*	Share which does not advance to next age group

	+	Population in previous year in next lower age group	*	Share of previous age group which advances to next age group

Figure A-2: Cohorts in the RAM Population Model

Group	Ages	Native		Non-Native	
		Male	Female	Male	Female
1	0-4				
2	5-14				
3	15-19				
4	20-34				
5	35-64				
6	65+				

For the youngest age group, the formula is:

Population before Migration = Population in previous year * Share which does not die * Share which advances to next age group

+ Total births * Share of infants surviving first year

Total births are calculated as:

Total births = Female population in each age group * Fertility rate for women in each age group

Finally, for each age, sex, and race cohort, population after migration is calculated as:

Population after migration = Population before migration + Migration

The Income Model

Income is defined in the model as income of local residents. It does not include income of enclave workers, nonresident fishermen, military personnel, etc., which is not calculated.

Income is calculated using the formula

Income = Wage income + Nonwage income

where

Wage income = Basic sector employment * Basic sector wage + Support sector employment * Support sector wage + Government sector employment * Government sector wage

and where

Nonwage income = Population * Assumed per capita nonwage income

Sometimes it is difficult to obtain reliable data on wage rates and on nonwage income. In this case, nonwage income may be assumed to be zero, and an arbitrary, identical wage rate assumed for all sectors. This produces an "income" variable which is proportional to resident employment, allowing for the determination of support employment using a simple multiplier. However, we have used a more elaborate structure incorporating income in the model in order to allow the use of wage and nonwage income data when these data are available.

The Employment Model

Table A-1 summarizes categories of employment in the base case model. All but three categories of employment are exogenous or assumed. Employment in these categories is thus an input to, rather

TABLE A-1.
CATEGORIES OF EMPLOYMENT IN THE BASE CASE RAM MODEL

Category of Employment	How Calculated
Basic Employment	
Fishing	Assumed
Fish processing	Assumed
Nonfishing basic	Assumed
Support Employment	
Exogenous support	Assumed
Endogenous support	Income * Multiplier
Government-sponsored support	Population * State per capita capital expenditures * multiplier
Enclave-generated support	Enclave employment * multiplier
Government Employment	
Exogenous government	Assumed
Endogenous government	Population * State per capita operating expenditures * multiplier
Nonproject Enclave Employment	
Nonresident fishermen	Assumed
Nonresident fish processing	Assumed

than an output of, the RAM model. Thus, in order to run the RAM model, independent projections must first be made of fishing, fish processing, and other basic employment; exogenous support employment; exogenous government employment; and nonproject enclave employment. Examples of exogenous support activities are services provided by regional centers to the surrounding regions, or export shipping terminals. Examples of exogenous government employment are U.S. Forest Service, National Park Service, and Alaska Department of Fish and Game employment.

The four categories of employment which are not assumed--those which are endogenous--typically account for a substantial share of employment in small Alaska communities. These are endogenous support employment, endogenous government employment, government-sponsored support employment, and enclave-generated support employment.

An example of endogenous support employment is employment in providing services to local residents, such as employment in stores and bars. The model calculates this employment as a function of income.

Endogenous government employment consists of those government employees providing services to local residents, such as teachers or police. This employment is calculated as a function of population and per capita state operating expenditures. Assumptions for this latter variable are based on projections of ISER's statewide MAP model. The variable is included as a simple proxy for the availability of revenues to state and local government.

Government-sponsored support employment is support employment, primarily in construction, paid for by government. Examples are employment in construction of schools, roads, and parts. This

employment is projected as a function of population and state government per capita capital expenditures. The reasoning is analogous to that for the calculation of endogenous government employment.

Enclave-generated support employment is assumed to be related to enclave employment by a simple multiplier.

The multipliers used in the calculation of endogenous employment are key assumptions of the model. For any given community, the multipliers are calculated by estimating 1980 values for employment in each category, as well as population, income and per capita state operating and capital expenditures. The multipliers are then derived algebraically, based on these 1980 figures.

The Labor Market and Migration Models

The model calculates a total labor force by applying labor force participation rates to the population in each age, sex, and race cohort. Data in this form on labor force participation rates are not available for most communities and must be assumed or inferred. Labor force participation rate assumptions are calculated using census data on native and non-native male and female employment, and then calculating rates consistent with 1980 population and employment. Labor demand is equal to total resident employment.

In order to calculate migration, the model first calculates a variable called "excess demand for labor." As long as the amount by which the labor force exceeds labor demand results in a level of unemployment which is between a threshold minimum level and a threshold maximum level, excess demand is considered to be zero. If, however, labor demand exceeds the labor force by an amount great enough so that unemployment would be below the threshold minimum level, excess demand is measured as labor demand minus the labor force when unemployment is at the threshold minimum level. If, on

the other hand, the labor force exceeds labor demand by an amount great enough so that unemployment would be above the maximum threshold level, then excess demand is negative, and is measured as labor demand minus the labor force when unemployment is at the threshold maximum level. The purpose of this method of calculation of excess demand for labor is to allow a range within which there will be no migration response to small changes in labor market conditions, which results in a more stable model.

If excess demand is negative, a certain fraction of the excess labor force is assumed to leave. A different fraction may be assumed for natives and non-natives.

In-migrating workers are assumed to bring dependents (dependents are defined as persons not in the labor force). The model calculates total immigration in each age-sex-race cohort using the formula:

Immigration in cohort i = Number of workers immigrating * Assumed number of persons immigrating in cohort i per immigrant worker

Emigrating workers are also assumed to take dependents with them as they leave. Total emigration in each age-sex cohort for natives is calculated as follows:

Total Emigration of native workers = Total excess supply of labor * Share of natives in labor force * Assumed share of native workers who leave if jobs are not available

Total Emigration of native Dependents = Emigration of native workers * $\frac{\text{Total native dependents}}{\text{Total native workers}}$ * Adjustment parameter

Emigration of native workers in age-sex cohort i = Total emigration of native workers * $\frac{\text{Native workers in age-sex cohort i}}{\text{total native workers}}$

$$\text{Emigration of native dependents in age-sex cohort } i = \text{Total emigration of native dependents} * \frac{\text{Native dependents in age-sex cohort } i}{\text{Total native dependents}}$$

The "adjustment parameter" in the second equation is an assumed value for the ratio of dependents to workers for emigrants divided by the ratio of dependents to workers for the total population. Emigration of non-natives in each age-sex cohort is calculated in a similar fashion as for natives.

The model feeds the projected levels of immigration or emigration for each age-sex-race cohort into the population model in order to calculate total population.

The model also allows for exogenous or non-economic-related migration, which is assumed each year to be a fixed share of population in each age cohort.

The Impact Model

We designed the RAM "Impact" Model for the purpose of examining the impact on population and resident employment of special "projects," such as outer continental shelf oil development, which might take place near rural Alaskan communities. Of the employment associated with any given project, we wanted to be able to determine how many jobs might be held by community residents, how many jobs might be held by persons living in enclaves separated from the community, and how many jobs might be held by "commuters" who would pass through but not be based in the community (these would primarily be people holding offshore jobs).

A great number of factors affect the answers to these questions. These include the extent to which the industry actively seeks to

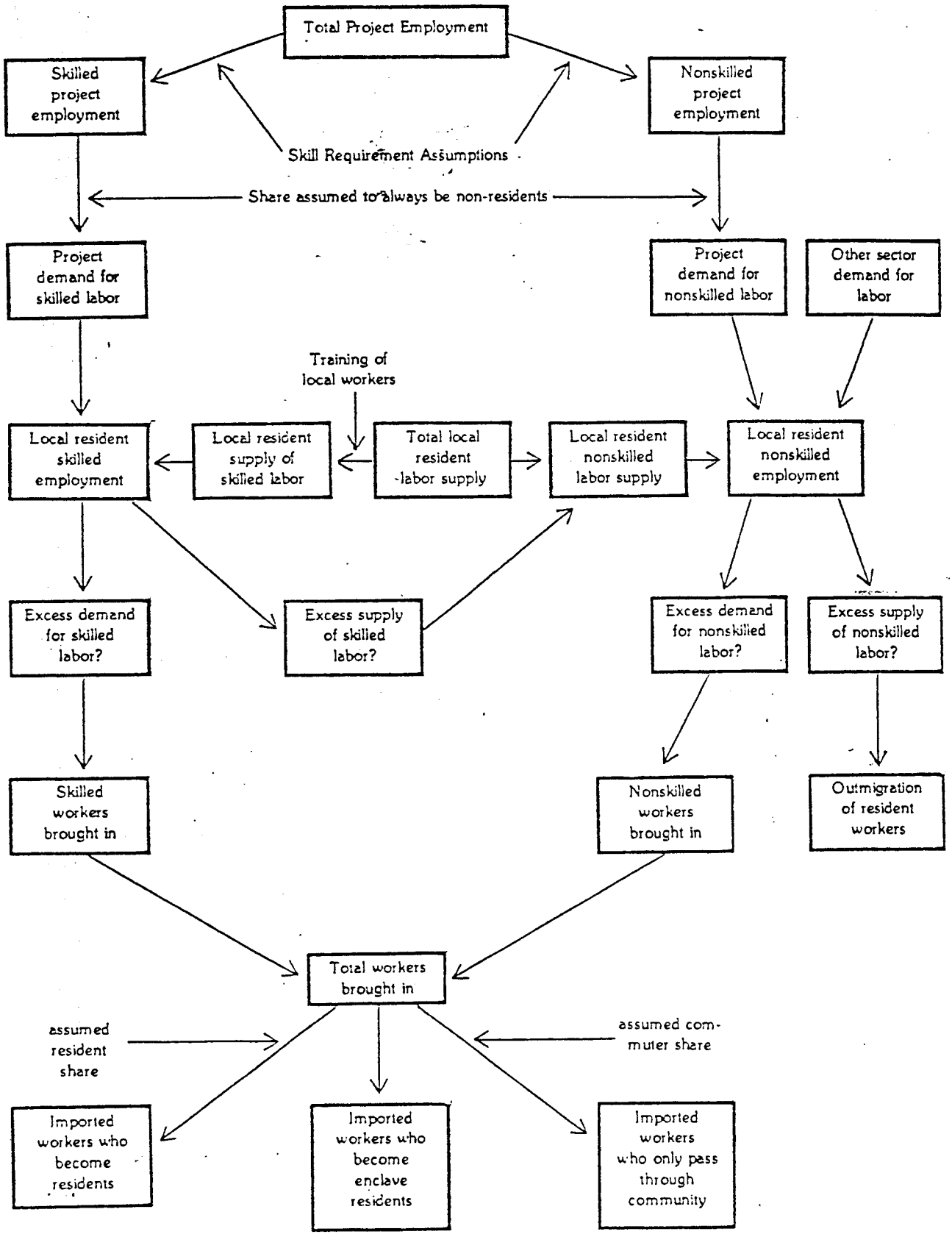
hire locally, or alternatively, has a policy of hiring nonlocally; the extent to which local residents have the skills required for the special project jobs, or receive training for them; and the extent to which workers brought in to fill project jobs settle in the community as opposed to living in an enclave. Developing a model which takes account of all these factors is a complicated task requiring numerous assumptions. In the RAM impact model, we have attempted to allow for flexibility in our assumptions about these factors, while retaining a reasonably simple structure for the model. To the extent that the model structure is still too complicated for a given situation, it can be "collapsed" to a much simpler structure by assuming zero values for various parameters and exogenous inputs.

With the exception of the labor market model, the RAM Impact Model is essentially identical to the base case model. Income and endogenous employment are calculated in the same way (except that wages from resident project employment are added to total income, and project enclave employment is assumed to contribute to enclave-generated support employment). The population and migration models are unchanged.

Figure A-3 illustrates the labor market model. Local resident labor supply, shown in the middle of the figure, is calculated in the same way as in the base case model, using assumed labor force participation rates. "Other sector" demand for labor, shown at the top right of Figure A-3, is derived from the base case employment model. The outputs "imported workers who become residents" and "outmigration of resident workers," shown at the bottom of the figure, are inputs to the base case migration model.

We assume a total level of project employment which is divided into "skilled" and "nonskilled" employment. By "skilled" employment, we refer to jobs which require previous training or experience in the

Figure A-3: Allocation of Project Employment between Resident and Non-Resident Workers in the RAM Impact Model



project sector (i.e., oil-work related skills for OCS development). We also divide total project employment up into onshore and offshore jobs and short-term and long-term jobs, because this affects the extent to which jobs not taken by current residents will be filled by persons who will become residents, and the extent to which jobs not filled by residents will be filled by "commuters" who only pass through the community. Based on these assumptions about the breakdown of project jobs as well as assumptions about the share of jobs which are reserved (for whatever reasons) for nonresidents, we calculate total demand for skilled and unskilled labor from the local community. To the extent that the local community can supply this labor, the jobs are filled by local residents. Otherwise, workers are brought in to fill the jobs.

The model first allocates jobs to local skilled labor. An initial assumption is made as to the number of workers residing in the community who have the required skills. Each year this number is adjusted to reflect new skilled workers who have settled in the community (or skilled workers who have left the community) and local residents who have been trained in the required skills. The number of residents receiving training each year is assumed to be either a given share of those skilled jobs which local skilled labor is not available to fill, or else a given share of nonskilled workers willing to accept training-- whichever is lower.

To the extent that there is excess demand for skilled labor (demand exceeds local supply), skilled workers are brought in to fill these jobs. To the extent that there is excess supply (local supply exceeds demand), the "excess" skilled workers seek nonskilled jobs and are added to the supply of nonskilled labor.

The model next compares the total demand for nonskilled labor (which includes project jobs as well as all other jobs) with the supply of nonskilled labor. If there is excess demand for nonskilled labor,

some workers are brought in; if there is excess supply, some workers leave. The nonskilled labor market is the same as base case model labor market.

If the model calculates that either skilled or unskilled workers are brought in due to excess labor demand, a certain share of these workers is assumed to become residents. All workers brought in to fill nonproject jobs are assumed to become residents, while only some (if any) of the workers brought in to fill project jobs become residents. Those imported workers who become residents also bring dependents, as in the base case model. Those imported workers who do not become residents are divided between those living in enclaves and those who are only commuters passing through the town (such as nonresident offshore workers).

A more detailed understanding of the impact model labor market is best obtained by studying the model equations in Appendix C.

Model Assumptions

This section describes the assumptions required in order to run the RAM model, as well as the procedures used to develop the assumptions. Three kinds of assumptions are required: parameters, exogenous variables, and starting values. Parameters are assumptions which remain the same for each year of the model projections. Examples are fertility rates and employment multipliers. Exogenous variables require assumptions for each year of the projection period. Examples are basic employment in fishing and fish processing, project-related employment, and per capita state government operating and capital expenditures. Starting values are variables for which historical values are needed for the year or years prior to the starting year of the projections. In particular, starting values are needed for population in each

age-sex-race cohort for the year prior to the starting year of the projections, as well as the number of workers with project-related skills.

All of the model assumptions are listed in a set of 20 worksheets which are completed prior to each model run. Each worksheet includes a description of how the assumptions are developed. Table A-2 provides a summary list of model assumptions as well as an index to the worksheets.

Appendix K includes worksheets 2, 3, 4, 5, and 8, which show assumptions which were the same for all five communities for which we prepared RAM model projections. Appendixes L through P include worksheets 1, 6, 7, and 9-17 for the five communities. Our OCS impact assumptions are provided in the chapters discussing our projections for each community as well as in the tables of RAM model projections for these communities. Thus, we have not included worksheets 17-20 in this report.

TABLE A-2. ASSUMPTIONS REQUIRED TO RUN THE RAM POPULATION MODEL

Assumptions	Worksheet
Population Model Assumptions	
Population in year prior to start of projection for each age/sex/race cohort	1
Share of population which survives (does not die) in any given year, for each age/sex/race cohort	2
Fertility rates for Native and Non-Native women in each age group	3
Share of population in each age group which does not advance to the next age group (shift factor)	4
Infant survival rates	5
Sex distribution of infants	5
Income and Employment Model Assumptions	
State government per capita operating and capital expenditures for projection period	8
Endogenous support employment multiplier	9
Government-sponsored support employment multiplier	9
Enclave-generated support employment multiplier	9
Endogenous government employment multiplier	9
Per capita nonwage income for projection period	10
Basic sector, support sector, government sector, and project sector real wage rates for projection period	10

Assumptions	Worksheet
Exogenous employment assumptions for projection period, for resident fishing, resident fish processing, other basic, and nonproject enclave employment	11
Exogenous support and government sector employment, for the projection period	12
Labor Market and Migration Model Assumptions	
Labor force participation rates, by age/sex/race cohort	13
Threshold minimum and maximum levels of unemployment before migration responses occur	14
Shares of Native and Non-Native "excess" workers who leave once unemployment rises above threshold levels	14
Adjustment parameters for emigration by Native and Non-Native dependents	14
Endogenous immigration parameters, by age/sex/race cohort	15
Exogenous migration parameter assumptions, by age/sex/race cohort	16
Miscellaneous Assumptions	
Enclave military employment and dependents	17
Project Assumptions	
Project employment by category (onshore-offshore, skilled-nonskilled, short-term-long-term)	18
Project employment parameters: for each category of employment, share reserved for nonresidents, share of outside workers who become residents, share of outside workers who only commute through community	19
Parameters for rate of training of local residents for skilled project jobs	20

APPENDIX B: RAM MODEL VARIABLE NOTATION

All RAM model variable names are constructed out of combinations of two-letter groups. Table B-1 lists these two-letter groups, along with their definitions, in alphabetical order.

For example, the variable INNOWAPC may be divided into IN-NO-WA-PC. By referring to Table B-1, we can determine that this means "income"-"non"-"wage"-"per capita," or per capita nonwage income. Similarly, STPCOE can be divided into ST-PC-OE, which means "state"-"per capita"-"operating expenditures."

TABLE B-1. RAM (RURAL ALASKA MODEL) NOTATION CODE

AD	adjusted
An	age group n
AT	adult
BA	basic
BE	before adjustment for migration or training
BT	births
CE	capital expenditures
CH	change in
Cn	coefficient in equation used to define a variable
CO	commuter
CP	commuter parameter
CR	crude
DE	dependent
DT	deaths
EC	economic
ED	endogenous
EM	employment
EN	enclave
ES	excess supply
EX	exogenous
FE	female
FI	fishing
Fn	female, age group n
FP	fish processing

FR	fertility rate
GE	geriatric or senior
GF	federal government
GO	government
GR	growth
HG	high
HH	household
IC	increase
ID	index
IM	immigration
IN	income
KD	preschool age children or "kids"
LA	labor
LF	labor force
LO	local
LR	long run
LS	labor supply
LW	low
MA	male
MG	endogenous migration
MI	migration
ML	military
Mn	male, age group n
MU	multiplier
MX	exogenous migration

NA	native
NE	net
NF	nonfishing
NN	Non-Native
NO	non-
NR	nonresident
NS	nonskilled
NT	natural
OE	operating expenditure
OF	offshore
ON	onshore
OT	other
OU	out-
PA	parameter used in defining a variable
PC	per capita
PJ	project
PL	project long-run
PN	percent
PO	population
PR	participation rate
PS	project short-run
PT	potential
RA	rate
RE	resident
RF	resident fishing

RT ratio

RV revenues

SE share of excess demand

SF cohort shift

SH share

SL school aged

SN share of nonresidents

SK skilled

SR share of excess demand who become residents

ST state

SU support

SV survival

TA taxes

TF transfer

TN trainees

TO total

TR tourist

UN unemployment

WA wage

APPENDIX C: RAM MODEL EQUATIONS

This appendix provides a complete listing of the RAM model. The model is programmed in TROLL on the MIT computer. In order to run the model, we access the MIT computer using a telenet telephone connection. TROLL is a powerful modeling language which was developed especially for modeling simultaneous systems such as that of the RAM model.

MODEL: RAM15

THIS VERSION OF THE RURAL ALASKA MODEL (RAM) WAS DEVELOPED AT THE INSTITUTE OF SOCIAL AND ECONOMIC RESEARCH UNDER CONTRACT WITH THE MINERALS MANAGEMENT SERVICES OFFICE OF THE BUREAU OF LAND MANAGEMENT. THE RAM MODEL IS USED FOR PROJECTING ECONOMIC CONDITIONS IN ALASKA'S BUSH COMMUNITIES. DATE COMPLETED: 12 JULY 1983.

SYMBOL DECLARATIONS

THIS LIST CLASSIFIES ALL THE VARIABLES OF THE MODEL AS EITHER ENDOGENOUS, DEFINITION, EXOGENOUS, COEFFICIENT, OR PARAMETER. ALL EXOGENOUS, COEFFICIENT, AND PARAMETER VARIABLE ARE ASSUMED. STARTING YEAR VALUES FOR 1980 ARE REQUIRED FOR ALL ENDOGENOUS VARIABLES. VALUES OF ENDOGENOUS VARIABLES AND DEFINITION VARIABLES FOR THE YEARS AFTER 1980 ARE CALCULATED BY THE MODEL.

ENDOGENOUS:

DENA DENN EMENPJ EMGO EMGOEG EMREPJ EMSU EMSUEG EMSUGO IMMGLA
IMMGLANS IMMGLASK IN INNOWA INWA LSNA LSNN LSSK MGNAF1 MGNAF2
MGNAF3 MGNAF4 MGNAF5 MGNAF6 MGNAM1 MGNAM2 MGNAM3 MGNAM4 MGNAM5
MGNAM6 MGNNF1 MGNNF2 MGNNF3 MGNNF4 MGNNF5 MGNNF6 MGNNM1 MGNNM2
MGNNM3 MGNNM4 MGNNM5 MGNNM6 OUDENAF1 OUDENAF2 OUDENAF3 OUDENAF4
OUDENAF5 OUDENAF6 OUDENAM1 OUDENAM2 OUDENAM3 OUDENAM4 OUDENAM5
OUDENAM6 OUDENNF1 OUDENNF2 OUDENNF3 OUDENNF4 OUDENNF5 OUDENNF6
OUDENNM1 OUDENNM2 OUDENNM3 OUDENNM4 OUDENNM5 OUDENNM6 OULANAF3
OULANAF4 OULANAF5 OULANAF6 OULANAM3 OULANAM4 OULANAM5 OULANAM6
OULANNF3 OULANNF4 OULANNF5 OULANNF6 OULANNM3 OULANNM4 OULANNM5
OULANNM6 OUMGDENA OUMGDENN OUMGLANA OUMGLANN OUMGLASK PO PONAF1
PONAF2 PONAF3 PONAF4 PONAF5 PONAF6 PONAM1 PONAM2 PONAM3 PONAM4
PONAM5 PONAM6 PONNF1 PONNF2 PONNF3 PONNF4 PONNF5 PONNF6 PONNM1
PONNM2 PONNM3 PONNM4 PONNM5 PONNM6 TN

DEFINITION:
BEPONAF1 BEPONAF2 BEPONAF3 BEPONAF4 BEPONAF5 BEPONAF6 BEPONAM1
BEPONAM2 BEPONAM3 BEPONAM4 BEPONAM5 BEPONAM6 BEPONNF1 BEPONNF2
BEPONNF3 BEPONNF4 BEPONNF5 BEPONNF6 BEPONNM1 BEPONNM2 BEPONNM3
BEPONNM4 BEPONNM5 BEPONNM6 BTNA BTNN BTRACR BTRANA BTRANN BTTO CHPO
CPNS CPSK DTNA DTNN DTRACR DTRANA DTRANN DTTO ED EDSK EDSKBE EMBA
EMCOPJ EMCOPJNS EMCOPJSK EMENPJNS EMENPJSK EMPJ EMPJNS EMPJOF EMPJON
EMPJSK EMREPJNS EMREPJSK EMRETO EMSUEN EMTO IM IMDE IMLA INPC
INWAPC LDNS LDPJNS LDPJSK LDPLOFNS LDPLOFSK LDPLONNS LDPLONSK
LDPSOFNS LDPSOFSK LDPSONNS LDPSONSK LDSK LSNS LSNSBE LSSKBE MGNA
MGNN NTIC NTICNA NTICNN OUMGLA PNPOA1 PNPOA2 PNPOA3 PNPOA4 PNPOA5
PNPOA6 PNPOF1 PNPOF2 PNPOF3 PNPOF4 PNPOF5 PNPOF6 PNPOM1 PNPOM2

PNPOM3 PNPOM4 PNPOM5 PNPOM6 PNPONAA1 PNPONAA2 PNPONAA3 PNPONAA4
PNPONAA5 PNPONAA6 PNPONAF1 PNPONAF2 PNPONAF3 PNPONAF4 PNPONAF5
PNPONAF6 PNPONAM1 PNPONAM2 PNPONAM3 PNPONAM4 PNPONAM5 PNPONAM6
PNPONNA1 PNPONNA2 PNPONNA3 PNPONNA4 PNPONNA5 PNPONNA6 PNPONNF1
PNPONNF2 PNPONNF3 PNPONNF4 PNPONNF5 PNPONNF6 PNPONNM1 PNPONNM2
PNPONNM3 PNPONNM4 PNPONNM5 PNPONNM6 POAT POA1 POA2 POA3 POA4 POA5
POA6 POFE POF1 POF2 POF3 POF4 POF5 POF6 POGE POKD POMA POML POM1
POM2 POM3 POM4 POM5 POM6 PONA PONAA1 PONAA2 PONAA3 PONAA4 PONAA5
PONAA6 PONAFE PONAMA PONN PONNA1 PONNA2 PONNA3 PONNA4 PONNA5 PONNA6
PONNFE PONNMA POSL POTO SEBA SEGO SEPLOFNS SEPLOFSK SEPLONNS
SEPLONSK SEPSOFNS SEPSOFSK SEPSONNS SEPSONSK SESU

EXOGENOUS:
DEML EMBANF EMENNOPJ EMFI EMFP EMGOEX EMML EMPLOFNS EMPLOFSK
EMPLONNS EMPLONSK EMPSOFNS EMPSOFSK EMPSONNS EMPSONSK EMSUEX INNOWAPC
STPCCE STPCOE WABA WAGO WAPJ WASU

COEFFICIENT:
EMGOEGC1 EMSUEGC1 EMSUENC1 EMSUENC2 EMSUGOC1 LFPRNAF3 LFPRNAF4
LFPRNAF5 LFPRNAF6 LFPRNAM3 LFPRNAM4 LFPRNAM5 LFPRNAM6 LFPRNNF3
LFPRNNF4 LFPRNNF5 LFPRNNF6 LFPRNNM3 LFPRNNM4 LFPRNNM5 LFPRNNM6
MGPANAF1 MGPANAF2 MGPANAF3 MGPANAF4 MGPANAF5 MGPANAF6 MGPANAM1
MGPANAM2 MGPANAM3 MGPANAM4 MGPANAM5 MGPANAM6 MGPANNF1 MGPANNF2
MGPANNF3 MGPANNF4 MGPANNF5 MGPANNF6 MGPANNM1 MGPANNM2 MGPANNM3
MGPANNM4 MGPANNM5 MGPANNM6

PARAMETER:
CPPLOFNS CPPLOFSK CPPLONNS CPPLONSK CPPSOFNS CPPSOFSK CPPSONNS
CPPSONSK FRNAO3 FRNAO4 FRNAO5 FRNNO3 FRNNO4 FRNNO5 HIUNRA IFSVNAFE
IFSVNAMA IFSVNNFE IFSVNNMA LWUNRA MXRANAF1 MXRANAF2 MXRANAF3 MXRANAF4
MXRANAF5 MXRANAF6 MXRANAM1 MXRANAM2 MXRANAM3 MXRANAM4 MXRANAM5
MXRANAM6 MXRANNF1 MXRANNF2 MXRANNF3 MXRANNF4 MXRANNF5 MXRANNF6
MXRANNM1 MXRANNM2 MXRANNM3 MXRANNM4 MXRANNM5 MXRANNM6 OUDEPANA
OUDEPANN OULAPANA OULAPANN SFPAO1 SFPAO2 SFPAO3 SFPAO4 SFPAO5 SFPAO6
SNPLOFNS SNPLOFSK SNPLONNS SNPLONSK SNPSOFNS SNPSOFSK SNPSONNS
SNPSONSK SRPLOFNS SRPLOFSK SRPLONNS SRPLONSK SRPSOFNS SRPSOFSK
SRPSONNS SRPSONSK SVRANAF1 SVRANAF2 SVRANAF3 SVRANAF4 SVRANAF5
SVRANAF6 SVRANAM1 SVRANAM2 SVRANAM3 SVRANAM4 SVRANAM5 SVRANAM6
SVRANNF1 SVRANNF2 SVRANNF3 SVRANNF4 SVRANNF5 SVRANNF6 SVRANNM1
SVRANNM2 SVRANNM3 SVRANNM4 SVRANNM5 SVRANNM6 SXDVNA SXDVNN TNPAED
TNPANS

EQUATIONS

EMPLOYMENT BY SECTOR

1: EMBA == EMFI+EMFP+EMBANF

2: EMGOEG = EMGOEGC1*PO*STPCOE

3: EMGO = EMGOEG+EMGOEX

4: EMSUGO = EMSUGOC1*PO*STPCCE

5: EMSUEN == EMSUENC1*EMENNOPJ+EMSUENC2*EMENPJ

6: EMSUEG = EMSUEGC1*IN

7: EMSU = EMSUEG+EMSUGO+EMSUEX+EMSUEN

8: EMRETO == EMBA+EMSU+EMGO+EMREPJ

9: EMTO == EMRETO+EMML+EMENPJ+EMENNOPJ

10: EMPJON == EMPSONSK+EMPSONNS+EMPLONSK+EMPLONNS

11: EMPJOF == EMPSOFSK+EMPSOFNS+EMPLOFSK+EMPLOFNS

TOTAL AND PER CAPITA INCOME

12: INNOWA = INNOWAPC*PO

13: INWA = EMGO*WAGO+EMSU*WASU+EMBA*WABA+EMREPJ*WAPJ

14: IN = INNOWA+INWA

15: INPC == IN/PO

16: INWAPC == INWA/PO

POPULATION BY AGE, SEX, AND RACE

NON NATIVE POPULATION BEFORE MIGRATION

```
17:   BEPONNM2 == SFPA02*SVRANNM2*PONNM2(-1)+(1-SFPA01)*PONNM1(-1)*
      SVRANNM1

18:   BEPONNF2 == SFPA02*SVRANNF2*PONNF2(-1)+(1-SFPA01)*PONNF1(-1)*
      SVRANNF1

19:   BEPONNM3 == SFPA03*SVRANNM3*PONNM3(-1)+(1-SFPA02)*PONNM2(-1)*
      SVRANNM2

20:   BEPONNF3 == SFPA03*SVRANNF3*PONNF3(-1)+(1-SFPA02)*PONNF2(-1)*
      SVRANNF2

21:   BEPONNM4 == SFPA04*SVRANNM4*PONNM4(-1)+(1-SFPA03)*PONNM3(-1)*
      SVRANNM3

22:   BEPONNF4 == SFPA04*SVRANNF4*PONNF4(-1)+(1-SFPA03)*PONNF3(-1)*
      SVRANNF3

23:   BEPONNM5 == SFPA05*SVRANNM5*PONNM5(-1)+(1-SFPA04)*PONNM4(-1)*
      SVRANNM4

24:   BEPONNF5 == SFPA05*SVRANNF5*PONNF5(-1)+(1-SFPA04)*PONNF4(-1)*
      SVRANNF4

25:   BEPONNM6 == SFPA06*SVRANNM6*PONNM6(-1)+(1-SFPA05)*PONNM5(-1)*
      SVRANNM5

26:   BEPONNF6 == SFPA06*SVRANNF6*PONNF6(-1)+(1-SFPA05)*PONNF5(-1)*
      SVRANNF5

27:   BTNN == BEPONNF3*FRNN03+BEPONNF4*FRNN04+BEPONNF5*FRNN05

28:   BEPONNM1 == SFPA01*SVRANNM1*PONNM1(-1)+SXDVNN*BTNN*IFSVNNMA

29:   BEPONNF1 == SFPA01*SVRANNF1*PONNF1(-1)+(1-SXDVNN)*BTNN*IFSVNNFE

30:   DTNN == BEPONNM6(-1)*(1-SVRANNM6)+BEPONNF6(-1)*(1-SVRANNF6)+
      BEPONNM5(-1)*(1-SVRANNM5)+BEPONNF5(-1)*(1-SVRANNF5)+BEPONNM4(-1)*
      (1-SVRANNM4)+BEPONNF4(-1)*(1-SVRANNF4)+BEPONNM3(-1)*(1-SVRANNM3)+
      BEPONNF3(-1)*(1-SVRANNF3)+BEPONNM2(-1)*(1-SVRANNM2)+BEPONNF2(-1)*(
      1-SVRANNF2)+BEPONNM1(-1)*(1-SVRANNM1)+BEPONNF1(-1)*(1-SVRANNF1)

31:   NTICNN == BTNN-DTNN
```

NON NATIVE POPULATION AFTER MIGRATION

```
32:     PONNM1 = BEPONNM1*(1+MXRANNM1)+MGNNM1

33:     PONNF1 = BEPONNF1*(1+MXRANNF1)+MGNNF1

34:     PONNM2 = BEPONNM2*(1+MXRANNM2)+MGNNM2

35:     PONNF2 = BEPONNF2*(1+MXRANNF2)+MGNNF2

36:     PONNM3 = BEPONNM3*(1+MXRANNM3)+MGNNM3

37:     PONNF3 = BEPONNF3*(1+MXRANNF3)+MGNNF3

38:     PONNM4 = BEPONNM4*(1+MXRANNM4)+MGNNM4

39:     PONNF4 = BEPONNF4*(1+MXRANNF4)+MGNNF4

40:     PONNM5 = BEPONNM5*(1+MXRANNM5)+MGNNM5

41:     PONNF5 = BEPONNF5*(1+MXRANNF5)+MGNNF5

42:     PONNM6 = BEPONNM6*(1+MXRANNM6)+MGNNM6

43:     PONNF6 = BEPONNF6*(1+MXRANNF6)+MGNNF6

44:     PONN == PONNM6+PONNF6+PONNM5+PONNF5+PONNM4+PONNF4+PONNM3+PONNF3+
        PONNM2+PONNF2+PONNM1+PONNF1
```

NATIVE POPULATION BEFORE MIGRATION

```
45:     BEPONAM2 == SFPA02*SVRANAM2*PONAM2(-1)+(1-SFPA01)*PONAM1(-1)*
        SVRANAM1

46:     BEPONAF2 == SFPA02*SVRANAF2*PONAF2(-1)+(1-SFPA01)*PONAF1(-1)*
        SVRANAF1

47:     BEPONAM3 == SFPA03*SVRANAM3*PONAM3(-1)+(1-SFPA02)*PONAM2(-1)*
        SVRANAM2

48:     BEPONAF3 == SFPA03*SVRANAF3*PONAF3(-1)+(1-SFPA02)*PONAF2(-1)*
        SVRANAF2

49:     BEPONAM4 == SFPA04*SVRANAM4*PONAM4(-1)+(1-SFPA03)*PONAM3(-1)*
        SVRANAM3

50:     BEPONAF4 == SFPA04*SVRANAF4*PONAF4(-1)+(1-SFPA03)*PONAF3(-1)*
        SVRANAF3

51:     BEPONAM5 == SFPA05*SVRANAM5*PONAM5(-1)+(1-SFPA04)*PONAM4(-1)*
        SVRANAM4

52:     BEPONAF5 == SFPA05*SVRANAF5*PONAF5(-1)+(1-SFPA04)*PONAF4(-1)*
        SVRANAF4

53:     BEPONAM6 == SFPA06*SVRANAM6*PONAM6(-1)+(1-SFPA05)*PONAM5(-1)*
        SVRANAM5

54:     BEPONAF6 == SFPA06*SVRANAF6*PONAF6(-1)+(1-SFPA05)*PONAF5(-1)*
        SVRANAF5

55:     BTNA == BEPONAF3*FRNA03+BEPONAF4*FRNA04+BEPONAF5*FRNA05

56:     BEPONAM1 == SFPA01*SVRANAM1*PONAM1(-1)+SXDVNA*BTNA*IFSVNAMA

57:     BEPONAF1 == SFPA01*SVRANAF1*PONAF1(-1)+(1-SXDVNA)*BTNA*IFSVNAFE
```

NATIVE POPULATION AFTER MIGRATION

```
58:     PONAM1 = BEPONAM1*(1+MXRANAM1)+MGNAM1

59:     PONAF1 = BEPONAF1*(1+MXRANAF1)+MGNAF1

60:     PONAM2 = BEPONAM2*(1+MXRANAM2)+MGNAM2

61:     PONAF2 = BEPONAF2*(1+MXRANAF2)+MGNAF2

62:     PONAM3 = BEPONAM3*(1+MXRANAM3)+MGNAM3

63:     PONAF3 = BEPONAF3*(1+MXRANAF3)+MGNAF3

64:     PONAM4 = BEPONAM4*(1+MXRANAM4)+MGNAM4

65:     PONAF4 = BEPONAF4*(1+MXRANAF4)+MGNAF4

66:     PONAM5 = BEPONAM5*(1+MXRANAM5)+MGNAM5

67:     PONAF5 = BEPONAF5*(1+MXRANAF5)+MGNAF5

68:     PONAM6 = BEPONAM6*(1+MXRANAM6)+MGNAM6

69:     PONAF6 = BEPONAF6*(1+MXRANAF6)+MGNAF6

70:     DTNA == BEPONAM6(-1)*(1-SVRANAM6)+BEPONAF6(-1)*(1-SVRANAF6)+
        BEPONAM5(-1)*(1-SVRANAM5)+BEPONAF5(-1)*(1-SVRANAF5)+BEPONAM4(-1)*(
        1-SVRANAM4)+BEPONAF4(-1)*(1-SVRANAF4)+BEPONAM3(-1)*(1-SVRANAM3)+
        BEPONAF3(-1)*(1-SVRANAF3)+BEPONAM2(-1)*(1-SVRANAM2)+BEPONAF2(-1)*(
        1-SVRANAF2)+BEPONAM1(-1)*(1-SVRANAM1)+BEPONAF1(-1)*(1-SVRANAF1)

71:     PONA == PONAM6+PONAF6+PONAM5+PONAF5+PONAM4+PONAF4+PONAM3+PONAF3+
        PONAM2+PONAF2+PONAM1+PONAF1

72:     NTICNA == BTNA-DTNA
```

MALE POPULATION BY AGE COHORT

```
73:     POM1 == PONNM1+PONAM1
74:     POM2 == PONNM2+PONAM2
75:     POM3 == PONNM3+PONAM3
76:     POM4 == PONNM4+PONAM4
77:     POM5 == PONNM5+PONAM5
78:     POM6 == PONNM6+PONAM6
```

FEMALE POPULATION BY AGE COHORT

```
79:     POF1 == PONNF1+PONAF1
80:     POF2 == PONNF2+PONAF2
81:     POF3 == PONNF3+PONAF3
82:     POF4 == PONNF4+PONAF4
83:     POF5 == PONNF5+PONAF5
84:     POF6 == PONNF6+PONAF6
```

TOTAL POPULATION AND CHANGE IN POPULATION

```
85:     PO = POM1+POM2+POM3+POM4+POM5+POM6+POF1+POF2+POF3+POF4+POF5+POF6
86:     CHPO == PO-PO(-1)
```

BIRTH AND DEATH RATE IDENTITIES

```
87:     BTTO == BTNN+BTNA
88:     DTTO == DTNN+DTNA
89:     NTIC == BTTO-DTTO
90:     BTRANA == BTNA/PONA*1000
91:     DTRANA == DTNA/PONA*1000
92:     BTRANN == BTNN/PONN*1000
93:     DTRANN == DTNN/PONN*1000
94:     BTRACR == BTTO/(PONN+PONA)*1000
95:     DTRACR == DTTO/(PONN+PONA)*1000
```

DEFINITION OF AGE GROUPS

```
96:     POKD == POM1+POF1
97:     POSL == POM2+POF2+0.8*(POM3+POF3)
98:     POAT == 0.2*(POM3+POF3)+POM4+POF4+POM5+POF5
99:     POGE == POM6+POF6
```

NATIVE POPULATION BY AGE COHORT

```
100:    PONAA1 == PONAM1+PONAF1
101:    PONAA2 == PONAM2+PONAF2
102:    PONAA3 == PONAM3+PONAF3
103:    PONAA4 == PONAM4+PONAF4
104:    PONAA5 == PONAM5+PONAF5
105:    PONAA6 == PONAM6+PONAF6
```

NON NATIVE POPULATION BY AGE COHORT

```
106:    PONNA1 == PONNM1+PONNF1
107:    PONNA2 == PONNM2+PONNF2
108:    PONNA3 == PONNM3+PONNF3
109:    PONNA4 == PONNM4+PONNF4
110:    PONNA5 == PONNM5+PONNF5
111:    PONNA6 == PONNM6+PONNF6
```

TOTAL POPULATION BY AGE COHORT

```
112:    POA1 == POM1+POF1
113:    POA2 == POM2+POF2
114:    POA3 == POM3+POF3
115:    POA4 == POM4+POF4
116:    POA5 == POM5+POF5
117:    POA6 == POM6+POF6
```

POPULATION BY RACE AND SEX COHORTS

```
118:    PONAMA == PONAM1+PONAM2+PONAM3+PONAM4+PONAM5+PONAM6
119:    PONAFE == PONAF1+PONAF2+PONAF3+PONAF4+PONAF5+PONAF6
120:    PONNMA == PONNM1+PONNM2+PONNM3+PONNM4+PONNM5+PONNM6
121:    PONNFE == PONNF1+PONNF2+PONNF3+PONNF4+PONNF5+PONNF6
122:    POMA == PONAMA+PONNMA
123:    POFE == PONAFE+PONNFE
```

TOTAL CIVILIAN, ENCLAVE, AND MILITARY POPULATION

```
124:        POML == EMML+DEML

125:        POTO == PO+EMENNOPJ+EMENPJ+POML
```

SPECIAL POPULATION CATEGORIES AS A PERCENT OF TOTAL POPULATION

```
126:        PNPOA1 == 100*POA1/PO

127:        PNPOA2 == 100*POA2/PO

128:        PNPOA3 == 100*POA3/PO

129:        PNPOA4 == 100*POA4/PO

130:        PNPOA5 == 100*POA5/PO

131:        PNPOA6 == 100*POA6/PO

132:        PNPONAA1 == 100*PONAA1/PONA

133:        PNPONAA2 == 100*PONAA2/PONA

134:        PNPONAA3 == 100*PONAA3/PONA

135:        PNPONAA4 == 100*PONAA4/PONA

136:        PNPONAA5 == 100*PONAA5/PONA

137:        PNPONAA6 == 100*PONAA6/PONA

138:        PNPONNA1 == 100*PONNA1/PONN

139:        PNPONNA2 == 100*PONNA2/PONN

140:        PNPONNA3 == 100*PONNA3/PONN

141:        PNPONNA4 == 100*PONNA4/PONN

142:        PNPONNA5 == 100*PONNA5/PONN

143:        PNPONNA6 == 100*PONNA6/PONN

144:        PNPOM1 == 100*POM1/POMA

145:        PNPOM2 == 100*POM2/POMA
```

```
146:        PNPOM3 == 100*POM3/POMA
147:        PNPOM4 == 100*POM4/POMA
148:        PNPOM5 == 100*POM5/POMA
149:        PNPOM6 == 100*POM6/POMA
150:        PNPOF1 == 100*POF1/POFE
151:        PNPOF2 == 100*POF2/POFE
152:        PNPOF3 == 100*POF3/POFE
153:        PNPOF4 == 100*POF4/POFE
154:        PNPOF5 == 100*POF5/POFE
155:        PNPOF6 == 100*POF6/POFE
156:        PNPONAM1 == 100*PONAM1/PONAMA
157:        PNPONAM2 == 100*PONAM2/PONAMA
158:        PNPONAM3 == 100*PONAM3/PONAMA
159:        PNPONAM4 == 100*PONAM4/PONAMA
160:        PNPONAM5 == 100*PONAM5/PONAMA
161:        PNPONAM6 == 100*PONAM6/PONAMA
162:        PNPONAF1 == 100*PONAF1/PONAFE
163:        PNPONAF2 == 100*PONAF2/PONAFE
164:        PNPONAF3 == 100*PONAF3/PONAFE
165:        PNPONAF4 == 100*PONAF4/PONAFE
166:        PNPONAF5 == 100*PONAF5/PONAFE
167:        PNPONAF6 == 100*PONAF6/PONAFE
168:        PNPONNM1 == 100*PONNM1/PONNMA
169:        PNPONNM2 == 100*PONNM2/PONNMA
170:        PNPONNM3 == 100*PONNM3/PONNMA
171:        PNPONNM4 == 100*PONNM4/PONNMA
```

```
172:        PNPONNM5 == 100*PONNM5/PONNMA

173:        PNPONNM6 == 100*PONNM6/PONNMA

174:        PNPONNF1 == 100*PONNF1/PONNFE

175:        PNPONNF2 == 100*PONNF2/PONNFE

176:        PNPONNF3 == 100*PONNF3/PONNFE

177:        PNPONNF4 == 100*PONNF4/PONNFE

178:        PNPONNF5 == 100*PONNF5/PONNFE

179:        PNPONNF6 == 100*PONNF6/PONNFE
```

LABOR MARKET

Labor Supply

```
180:        LSNN = LFPRNNM3*BEPONNM3+LFPRNNM4*BEPONNM4+LFPRNNM5*BEPONNM5+
            LFPRNNM6*BEPONNM6+LFPRNNF3*BEPONNF3+LFPRNNF4*BEPONNF4+LFPRNNF5*
            BEPONNF5+LFPRNNF6*BEPONNF6

181:        LSNA = LFPRNAM3*BEPONAM3+LFPRNAM4*BEPONAM4+LFPRNAM5*BEPONAM5+
            LFPRNAM6*BEPONAM6+LFPRNAF3*BEPONAF3+LFPRNAF4*BEPONAF4+LFPRNAF5*
            BEPONAF5+LFPRNAF6*BEPONAF6
```

Labor Demand

```
182:        LDPLONSK == EMPLONSK*(1-SNPLONSK)

183:        LDPLONNS == EMPLONNS*(1-SNPLONNS)

184:        LDPSONSK == EMPSONSK*(1-SNPSONSK)

185:        LDPSONNS == EMPSONNS*(1-SNPSONNS)

186:        LDPLOFSK == EMPLOFSK*(1-SNPLOFSK)

187:        LDPLOFNS == EMPLOFNS*(1-SNPLOFNS)

188:        LDPSOFSK == EMPSOFSK*(1-SNPSOFSK)

189:        LDPSOFNS == EMPSOFNS*(1-SNPSOFNS)

190:        LDPJNS == LDPLONNS+LDPLOFNS+LDPSONNS+LDPSOFNS

191:        LDPJSK == LDPLONSK+LDPLOFSK+LDPSONSK+LDPSOFSK
```

```
192:    LDSK == LDPJSK

193:    LDNS == EMBA+EMSU+EMGO+LDPJNS

        Skilled Labor Market

194:    LSSK = LSSK(-1)+TN+IMMGLASK(-1)+OUMGLASK(-1)

195:    LSSKBE == LSSK(-1)+IMMGLASK(-1)+OUMGLASK(-1)

196:    LSNSBE == LSNA+LSNN-LSSKBE

197:    EDSKBE == LDSK-LSSKBE

198:    TN = IF LDSK LT LSSKBE THEN 0 ELSE (IF TNPAED*EDSKBE LT TNPANS*
        LSNSBE THEN TNPAED*EDSKBE ELSE TNPANS*LSNSBE)

199:    EDSK == LDPJSK-LSSK

        Nonskilled Labor Market

200:    LSNS == LSNA+LSNN-LSSK+(IF EDSK LT 0 THEN -EDSK ELSE 0)

201:    ED == IF LDNS-LSNS*(1-LWUNRA) GT 0 THEN LDNS-LSNS*(1-LWUNRA) ELSE
        (IF LDNS-LSNS*(1-HIUNRA) LT 0 THEN LDNS-LSNS*(1-HIUNRA) ELSE 0)

        Share of Employment of Each Type in Excess Demand

202:    SEPLONSK == IF LDPJSK GT 0 THEN LDPLONSK/LDPJSK ELSE 0

203:    SEPLOFSK == IF LDPJSK GT 0 THEN LDPLOFSK/LDPJSK ELSE 0

204:    SEPSONSK == IF LDPJSK GT 0 THEN LDPSONSK/LDPJSK ELSE 0

205:    SEPSOFSK == IF LDPJSK GT 0 THEN LDPSOFSK/LDPJSK ELSE 0

206:    SEBA == IF LDNS GT 0 THEN EMBA/LDNS ELSE 0

207:    SEGO == IF LDNS GT 0 THEN EMGO/LDNS ELSE 0

208:    SESU == IF LDNS GT 0 THEN EMSU/LDNS ELSE 0

209:    SEPLONNS == IF LDNS GT 0 THEN LDPLONNS/LDNS ELSE 0

210:    SEPLOFNS == IF LDNS GT 0 THEN LDPLOFNS/LDNS ELSE 0

211:    SEPSONNS == IF LDNS GT 0 THEN LDPSONNS/LDNS ELSE 0

212:    SEPSOFNS == IF LDNS GT 0 THEN LDPSOFNS/LDNS ELSE 0
```

MIGRATION OF LABOR AND DEPENDENTS BY AGE, SEX, AND RACE, AS A FUNCTION OF EXCESS DEMAND OR SUPPLY OF LABOR

Skilled Labor Immigration

213: IMMGLASK = IF EDSK GT 0 THEN (SEPLONSK*SRPLONSK+SEPLOFSK*SRPLOFSK+SEPSONSK*SRPSONSK+SEPSOFSK*SRPSOFSK)*EDSK ELSE 0

Nonskilled Labor Immigration

214: IMMGLANS = IF ED GT 0 THEN (SEBA+SESU+SEGO+SEPLONNS*SRPLONNS+SEPLOFNS*SRPLOFNS+SEPSONNS*SRPSONNS+SEPSOFNS*SRPSOFNS)*ED ELSE 0

Total Immigration of Labor

215: IMMGLA == IMMGLASK+IMMGLANS

Outmigration of Labor and Dependents

216: OUMGLANN = IF ED GT 0 THEN 0 ELSE OULAPANN*ED*(LSNN/LSNS)

217: OUMGLANA = IF ED GT 0 THEN 0 ELSE OULAPANA*ED*(LSNA/LSNS)

218: DENN = BEPONNM1+BEPONNM2+BEPONNM3+BEPONNM4+BEPONNM5+BEPONNM6+BEPONNF1+BEPONNF2+BEPONNF3+BEPONNF4+BEPONNF5+BEPONNF6-LSNN

219: DENA = BEPONAM1+BEPONAM2+BEPONAM3+BEPONAM4+BEPONAM5+BEPONAM6+BEPONAF1+BEPONAF2+BEPONAF3+BEPONAF4+BEPONAF5+BEPONAF6-LSNA

220: OUMGDENN = IF ED GT 0 THEN 0 ELSE OUMGLANN*(DENN/LSNN)*OUDEPANN

221: OUMGDENA = IF ED GT 0 THEN 0 ELSE OUMGLANA*(DENA/LSNA)*OUDEPANA

222: OUMGLA == OUMGLANN+OUMGLANA

223: OUMGLASK = IF EDSK GT 0 THEN 0 ELSE EDSK/LSNS*OUMGLA

224: OULANNM3 = IF ED GT 0 THEN 0 ELSE LFPRNNM3*BEPONNM3/LSNN*OUMGLANN

225: OULANNM4 = IF ED GT 0 THEN 0 ELSE LFPRNNM4*BEPONNM4/LSNN*OUMGLANN

226: OULANNM5 = IF ED GT 0 THEN 0 ELSE LFPRNNM5*BEPONNM5/LSNN*OUMGLANN

227: OULANNM6 = IF ED GT 0 THEN 0 ELSE LFPRNNM6*BEPONNM6/LSNN*OUMGLANN

228: OULANNF3 = IF ED GT 0 THEN 0 ELSE LFPRNNF3*BEPONNF3/LSNN*OUMGLANN

229: OULANNF4 = IF ED GT 0 THEN 0 ELSE LFPRNNF4*BEPONNF4/LSNN*OUMGLANN

230: OULANNF5 = IF ED GT 0 THEN 0 ELSE LFPRNNF5*BEPONNF5/LSNN*OUMGLANN

```
231:    OULANNF6 = IF ED GT 0 THEN 0 ELSE LFPRNNF6*BEPONNF6/LSNN*OUMGLANN
232:    OULANAM3 = IF ED GT 0 THEN 0 ELSE LFPRNAM3*BEPONAM3/LSNA*OUMGLANA
233:    OULANAM4 = IF ED GT 0 THEN 0 ELSE LFPRNAM4*BEPONAM4/LSNA*OUMGLANA
234:    OULANAM5 = IF ED GT 0 THEN 0 ELSE LFPRNAM5*BEPONAM5/LSNA*OUMGLANA
235:    OULANAM6 = IF ED GT 0 THEN 0 ELSE LFPRNAM6*BEPONAM6/LSNA*OUMGLANA
236:    OULANAF3 = IF ED GT 0 THEN 0 ELSE LFPRNAF3*BEPONAF3/LSNA*OUMGLANA
237:    OULANAF4 = IF ED GT 0 THEN 0 ELSE LFPRNAF4*BEPONAF4/LSNA*OUMGLANA
238:    OULANAF5 = IF ED GT 0 THEN 0 ELSE LFPRNAF5*BEPONAF5/LSNA*OUMGLANA
239:    OULANAF6 = IF ED GT 0 THEN 0 ELSE LFPRNAF6*BEPONAF6/LSNA*OUMGLANA
240:    OUDENNM1 = IF ED GT 0 THEN 0 ELSE BEPONNM1/DENN*OUMGDENN
241:    OUDENNM2 = IF ED GT 0 THEN 0 ELSE BEPONNM2/DENN*OUMGDENN
242:    OUDENNM3 = IF ED GT 0 THEN 0 ELSE (1-LFPRNNM3)*BEPONNM3/DENN*
        OUMGDENN
243:    OUDENNM4 = IF ED GT 0 THEN 0 ELSE (1-LFPRNNM4)*BEPONNM4/DENN*
        OUMGDENN
244:    OUDENNM5 = IF ED GT 0 THEN 0 ELSE (1-LFPRNNM5)*BEPONNM5/DENN*
        OUMGDENN
245:    OUDENNM6 = IF ED GT 0 THEN 0 ELSE (1-LFPRNNM6)*BEPONNM6/DENN*
        OUMGDENN
246:    OUDENNF1 = IF ED GT 0 THEN 0 ELSE BEPONNF1/DENN*OUMGDENN
247:    OUDENNF2 = IF ED GT 0 THEN 0 ELSE BEPONNF2/DENN*OUMGDENN
248:    OUDENNF3 = IF ED GT 0 THEN 0 ELSE (1-LFPRNNF3)*BEPONNF3/DENN*
        OUMGDENN
249:    OUDENNF4 = IF ED GT 0 THEN 0 ELSE (1-LFPRNNF4)*BEPONNF4/DENN*
        OUMGDENN
250:    OUDENNF5 = IF ED GT 0 THEN 0 ELSE (1-LFPRNNF5)*BEPONNF5/DENN*
        OUMGDENN
251:    OUDENNF6 = IF ED GT 0 THEN 0 ELSE (1-LFPRNNF6)*BEPONNF6/DENN*
        OUMGDENN
252:    OUDENAM1 = IF ED GT 0 THEN 0 ELSE BEPONAM1/DENA*OUMGDENA
```

```
253:    OUDENAM2 = IF ED GT 0 THEN 0 ELSE BEPONAM2/DENA*OUMGDENA

254:    OUDENAM3 = IF ED GT 0 THEN 0 ELSE (1-LFPRNAM3)*BEPONAM3/DENA*
        OUMGDENA

255:    OUDENAM4 = IF ED GT 0 THEN 0 ELSE (1-LFPRNAM4)*BEPONAM4/DENA*
        OUMGDENA

256:    OUDENAM5 = IF ED GT 0 THEN 0 ELSE (1-LFPRNAM5)*BEPONAM5/DENA*
        OUMGDENA

257:    OUDENAM6 = IF ED GT 0 THEN 0 ELSE (1-LFPRNAM6)*BEPONAM6/DENA*
        OUMGDENA

258:    OUDENAF1 = IF ED GT 0 THEN 0 ELSE BEPONAF1/DENA*OUMGDENA

259:    OUDENAF2 = IF ED GT 0 THEN 0 ELSE BEPONAF2/DENA*OUMGDENA

260:    OUDENAF3 = IF ED GT 0 THEN 0 ELSE (1-LFPRNAF3)*BEPONAF3/DENA*
        OUMGDENA

261:    OUDENAF4 = IF ED GT 0 THEN 0 ELSE (1-LFPRNAF4)*BEPONAF4/DENA*
        OUMGDENA

262:    OUDENAF5 = IF ED GT 0 THEN 0 ELSE (1-LFPRNAF5)*BEPONAF5/DENA*
        OUMGDENA

263:    OUDENAF6 = IF ED GT 0 THEN 0 ELSE (1-LFPRNAF6)*BEPONAF6/DENA*
        OUMGDENA
```

Endogenous Migration by Age, Sex, and Race

```
264:    MGNNM1 = IF ED GT 0 THEN IMMGLA*MGPANNM1 ELSE OUDENNM1

265:    MGNNM2 = IF ED GT 0 THEN IMMGLA*MGPANNM2 ELSE OUDENNM2

266:    MGNNF1 = IF ED GT 0 THEN IMMGLA*MGPANNF1 ELSE OUDENNF1

267:    MGNNF2 = IF ED GT 0 THEN IMMGLA*MGPANNF2 ELSE OUDENNF2

268:    MGNNM3 = IF ED GT 0 THEN IMMGLA*MGPANNM3 ELSE OULANNM3+OUDENNM3

269:    MGNNM4 = IF ED GT 0 THEN IMMGLA*MGPANNM4 ELSE OULANNM4+OUDENNM4

270:    MGNNM5 = IF ED GT 0 THEN IMMGLA*MGPANNM5 ELSE OULANNM5+OUDENNM5

271:    MGNNM6 = IF ED GT 0 THEN IMMGLA*MGPANNM6 ELSE OULANNM6+OUDENNM6

272:    MGNNF3 = IF ED GT 0 THEN IMMGLA*MGPANNF3 ELSE OULANNF3+OUDENNF3

273:    MGNNF4 = IF ED GT 0 THEN IMMGLA*MGPANNF4 ELSE OULANNF4+OUDENNF4
```

```
274:    MGNNF5 = IF ED GT 0 THEN IMMGLA*MGPANNF5 ELSE OULANNF5+OUDENNF5

275:    MGNNF6 = IF ED GT 0 THEN IMMGLA*MGPANNF6 ELSE OULANNF6+OUDENNF6

276:    MGNAM1 = IF ED GT 0 THEN IMMGLA*MGPANAM1 ELSE OUDENAM1

277:    MGNAM2 = IF ED GT 0 THEN IMMGLA*MGPANAM2 ELSE OUDENAM2

278:    MGNAF1 = IF ED GT 0 THEN IMMGLA*MGPANAF1 ELSE OUDENAF1

279:    MGNAF2 = IF ED GT 0 THEN IMMGLA*MGPANAF2 ELSE OUDENAF2

280:    MGNAM3 = IF ED GT 0 THEN IMMGLA*MGPANAM3 ELSE OULANAM3+OUDENAM3

281:    MGNAM4 = IF ED GT 0 THEN IMMGLA*MGPANAM4 ELSE OULANAM4+OUDENAM4

282:    MGNAM5 = IF ED GT 0 THEN IMMGLA*MGPANAM5 ELSE OULANAM5+OUDENAM5

283:    MGNAM6 = IF ED GT 0 THEN IMMGLA*MGPANAM6 ELSE OULANAM6+OUDENAM6

284:    MGNAF3 = IF ED GT 0 THEN IMMGLA*MGPANAF3 ELSE OULANAF3+OUDENAF3

285:    MGNAF4 = IF ED GT 0 THEN IMMGLA*MGPANAF4 ELSE OULANAF4+OUDENAF4

286:    MGNAF5 = IF ED GT 0 THEN IMMGLA*MGPANAF5 ELSE OULANAF5+OUDENAF5

287:    MGNAF6 = IF ED GT 0 THEN IMMGLA*MGPANAF6 ELSE OULANAF6+OUDENAF6

288:    MGNN == MGNNM1+MGNNM2+MGNNF3+MGNNF4+MGNNF5+MGNNF6+MGNNF1+MGNNF2+
        MGNNF3+MGNNF4+MGNNF5+MGNNF6

289:    MGNA == MGNAM1+MGNAM2+MGNAM3+MGNAM4+MGNAM5+MGNAM6+MGNAF1+MGNAF2+
        MGNAF3+MGNAF4+MGNAF5+MGNAF6

290:    IM == MGNN+MGNA

291:    IMLA == IF ED GT 0 THEN IMMGLA ELSE OUMGLA

292:    IMDE == IM-IMLA
```

PROJECT EMPLOYMENT IDENTITIES

```
293:    EMPJSK == EMPLONSK+EMPSONSK+EMPLOFSK+EMPSOFSK

294:    EMPJNS == EMPLONNS+EMPSONNS+EMPLOFNS+EMPSOFNS

295:    EMPJ == EMPJSK+EMPJNS

296:    CPSK == IF EMPJSK GT 0 THEN (CPPLONSK*EMPLONSK+CPPSONSK*EMPSONSK+
        CPPLOFSK*EMPLOFSK+CPPSOFSK*EMPSOFSK)/EMPJSK ELSE 0

297:    CPNS == IF EMPJNS GT 0 THEN (CPPLONNS*EMPLONNS+CPPSONNS*EMPSONNS+
        CPPLOFNS*EMPLOFNS+CPPSOFNS*EMPSOFNS)/EMPJNS ELSE 0

298:    EMENPJSK == (IF EDSK GT 0 THEN EMPJSK-LDPJSK+EDSK-IMMGLASK ELSE
        EMPJSK-LDPJSK)*(1-CPSK)

299:    EMENPJNS == (IF ED GT 0 THEN EMPJNS-LDPJNS+ED-IMMGLA ELSE EMPJNS-
        LDPJNS)*(1-CPNS)

300:    EMENPJ = EMENPJSK+EMENPJNS

301:    EMCOPJSK == (IF EDSK GT 0 THEN EMPJSK-LDPJSK+EDSK-IMMGLASK ELSE
        EMPJSK-LDPJSK)*CPSK

302:    EMCOPJNS == (IF ED GT 0 THEN EMPJNS-LDPJNS+ED-IMMGLA ELSE EMPJNS-
        LDPJNS)*CPNS

303:    EMCOPJ == EMCOPJSK+EMCOPJNS

304:    EMREPJ = EMPJ-EMENPJ-EMCOPJ

305:    EMREPJSK == IF EDSK GT 0 THEN LSSK ELSE LDPJSK

306:    EMREPJNS == EMREPJ-EMREPJSK
```

APPENDIX D
TECHNICAL APPENDIX: HOMER

In this appendix, we develop estimates of employment, income, and labor force participation in Homer in 1980.

Employment Data

There are a variety of alternative definitions of employment. The measure we have chosen is resident full-time equivalent employment. Full-time equivalent employment is a measure of total person-years of work. We believe it is the single most useful measure of employment in a community although other measures, such as seasonal variation, are required to complete the picture. Care is needed in interpreting this measure, since full-time equivalent employment for a given year may vary greatly from actual employment at any particular time during the year. During the height of the fishing and tourism season, actual employment in Homer is far higher than is full-time equivalent employment for the entire year.

We concentrated our efforts on measuring resident employment because resident employment is directly related to population. We excluded the substantial number of workers who migrate to Homer for seasonal jobs each year from our definition of resident employment.

There is no single data source which provides a complete description of current employment in Homer. Tables D.1-D.2 provide employment information from several different sources.

Table D.1 provides data on full-time equivalent employment for 1979 collected in a special count by Alaska Consultants, Inc. The 1979 estimate of fishing employment was checked against information collected by the Alaska Department of Fish and Game on gear

registration, estimates of the number of fishermen usually associated with each kind of gear, and the average number of months each kind of gear was usually fished.

Table D.1 also provides information on Alaska Consultants' estimate of the share of employment in each industry which is basic and the share which is secondary, where basic employment is defined as employment serving markets outside the community.

Although they are several years old, the Alaska Consultants estimates in Table D.1 are the only available data on full-time equivalent employment in Homer. In addition, they provide a useful breakdown of employment by industry between basic and secondary information. In some ways, however, the data are not directly comparable to our needs for describing current employment or projecting future employment. For example, they do not distinguish between resident and nonresident employment.

The data in Table D.1 suggest that in 1979 fishing and fish processing together accounted for approximately one third of full-time equivalent employment in the Homer area, and that over half of all employment was basic.

Table D.2 presents selected information on employment collected in the 1980 census. These data were collected for a given week during the spring of 1980 (unfortunately, the choice of week was not necessarily the same for all households). As a result, the numbers do not serve as a measure of full-time equivalent employment, since persons unemployed during the winter may have been employed for substantial periods of time during other seasons. Almost all of the persons sampled are likely to have been permanent residents of Homer. Due to the nature of the census, and the structure and wording of the questionnaire, fishing employment is undoubtedly under-reported by this data.

TABLE D.1
AVERAGE ANNUAL FULL-TIME EMPLOYMENT[a]
HOMER LABOR AREA[b]
1979

Industry Classification	Number	Basic Number	Secondary Number
Agriculture, Forestry, and Fishing	400 (c)	392	8
Mining	0 (d)	0	
Contract Construction	49	6	43
Manufacturing	151	143	8
Transportation, Communication and Public Utilities	139	64	75
Trade	311	115	196
Finance, Insurance, and Real Estate	77	24	53
Service	198	53	145
Government	296	125	171
Federal	(78)	(62)	(16)
State	(71)	(34)	(37)
Local	(147)	(29)	(118)
TOTAL	1,621	922	699

---

[a]Includes self-employed and military personnel.

[b]The Homer Labor Area is defined as the Homer Precinct, Anchor Point, Fritz Creek, Dimond Ridge, and Kachemak.

[c]Number of fishermen employed on an average annual year round basis estimated by using yearly registration data, length of fishing season, and normal "crew" sizes for various types of fishing vessels.

[d]Minor employment in sand and gravel considered with contract construction and transporation.

SOURCE: Alaska Consultants, Inc. Lower Cook Inlet Petroleum Development Scenarios: Local Socioeconomic Systems Analysis (Anchorage: Bureau of Land Management, Alaska Outer Continental Shelf Office, March 1980), p. 248.

TABLE D.2
SELECTED EMPLOYMENT-RELATED DATA
FROM 1980 CENSUS: HOMER AREA (a)

Civilian Employed Workers by Industry		
Agriculture, Forestry, Fishing and Mining	199	
Construction	31	
Manufacturing: Nondurables	148	
Manufacturing: Durables	9	
Transportation	64	
Communication and Public Utilities	39	
Wholesale Trade	18	
Retail Trade	144	
Finance, Insurance, and Real Estate	16	
Business and Repair Services	10	
Personal, Entertainment and Recreation Services	26	
Professional Health Services	56	
Professional Education Services	89	
Other Professional Services	21	
Public Administration	70	
TOTAL	940	
Employed Workers Claiming Farming, Forestry, or Fishing as Occupation	174	
Civilian Employed Workers by Kind of Employer		
Government	233	
Federal		31
State		45
Local		157
Private other than self	560	
Self	140	
Unpaid (usually work for family)	7	
TOTAL	940	
Military Employment	46	

(a) Data were collected as of a given week during the spring of 1980. However, the particular week was not necessarily consistent for all households. Includes Homer, Kachemak, Anchor Point, and Fritz Creek.

SOURCE: Special Tabulations for 1980 census, from U.S. Bureau of the Census, Tape STF3A, Tabulations 55, 65, 66, and 67.

Estimation of 1980 Employment in Homer

Table D.3 presents our estimates of resident full-time equivalent employment in Homer, and the distribution of this employment among several different categories of employment. The footnotes to the table describe how each figure was developed.

We estimate a total 1980 resident employment of 1,746. Of this figure, 608 (35 percent) are in basic sector jobs, 783 (45 percent) are in support sector jobs, and 355 (20 percent) are in government sector jobs. Exogenous employment, or employment which provides goods and services for markets other than the local community, was 1,019 (59 percent) of all resident employment. For every exogenous job, there were .709 endogenous jobs. In terms of endogenous support jobs--such as those in retail trade, home construction, or insurance--there were .30 jobs for every other job in the community.

TABLE D.3
ESTIMATED FULL-TIME EQUIVALENT
EMPLOYMENT IN HOMER AREA, 1980

Resident Basic Employment	608	
Fishing	429	(a)
Fish Processing	147	(b)
Other	32	(c)
Resident Support Employment	783	(d)
Exogenous	266	
Endogenous	376	(f)
Government-sponsored	125	
Enclave-sponsored	16	(e)
Resident Government Employment	355	(g)
Exogenous	145	
Endogenous	210	
Total Resident	1746	
Total Exogenous	1019	
Total Endogenous	727	
Nonresident (Enclave) Employment	323	(h)
Fishing	285	
Fish Processing	38	
Total Resident and Nonresident	2069	

TABLE D.3 NOTES

(a) Resident full-time equivalent employment in commercial fishing was derived from the number of commercial fishing boats permanently moored in Homer, the number of transient boats reported, length of boats and fishing seasons, and assumed crew factors. In 1980, the 227 boats with permanent stall leases in the Homer harbor fell into the following length categories (U.S. Army Corps of Engineers, p. B-2): 150 were less than 40 feet in length, 30 were between 40 and 50 feet, and 47 were over 50 feet. Crew sizes were assumed to be 2, 3, and 4 for these length classes, respectively, yielding 578 workers on these boats, all of whom we assume to be Homer area residents. Assuming that this employment lasted for six months, we calculated the FTE as 578 X .5 = 289. There are about 400 transient commercial fishing boats which are based in Homer during a five month peak season. We assumed boat length and crew sizes to be the same as for the resident boats, yielding (263 X 2) + (53 X 3) + (84 X 4) = 526 + 159 + 336 = 1,026 workers. We calculated the full-time equivalent employment on the basis of a five month season, or (1,021 X 5)/12 = 425. Of these we assumed that one third were Homer area residents, or 140. Total resident FTE in fishing, then, equals 140 + 289 = 429; this is close to the Alaska Consultants' estimate of 400 FTE in fishing shown in Table D.1. We estimate nonresident fishing full-time employment at 425 - 140 = 285.

(b) The 1980 Census counted 116 employees in nondurables manufacturing in Homer alone, during one week in March 1980, which we assumed to be entirely in fish processing. We adjusted this figure for seasonality, using a seasonality factor calculated from employment reported by the two large year-round Homer processors. They report employing 80 Homer area residents full-time for eight months of the year, and employ on a seasonal basis about 40 additional residents and about 65 transient workers, or an average monthly resident employment of 93.33, which is then divided by the lowest monthly resident employment to yield the seasonality factor, 93.33/80 = 1.17. Multiplying the census-reported nondurables manufacturing employment by this factor yields 136 resident full-time equivalent employees. We increased this number by 25 percent to account for employment at several additional processors that operate seasonally for which no employment data were available. One third of the additional 34 FTE processing jobs (11) were assumed taken by residents for a total of 147.

(c) Other resident basic sector employment is that employment in durable goods manufacturing in Homer reported in the 1980 Census.

(d) Total support employment was calculated from 1980 Census figures (Table D.2), which we assumed to represent full-time equivalent employment. We summed reported employment in construction (132), transportation (97), communication and public utilities (65), wholesale trade (24), retail trade (245), finance, insurance, and real estate (68), business and repair services (37), personal, entertainment and recreational services (52), professional health (53), and educational services (109), other professional services (74), and public administration (125), and then subtracted all civilian government employment (298) to yield 783. This compares well with the Alaska Consultants' estimate of 774 full-time equivalent employment in contract construction, transportation, and public utilities, trade, fire and services (Table D.1). In that report, they estimated 34 percent of support employment to be basic or exogenous, which we apply to our estimate to calculate 266 exogenous support jobs.

(e) Little data exists upon which to base a multiplier for enclave-sponsored resident support employment. We arbitrarily assume a value of .05 for this multiplier; hence the 317 nonresident (enclave) FTE generates 16 support sector jobs.

(f) Of the 783 support sector resident-held jobs, 783 - 266 - 15 = 501 that are endogenous or government-sponsored. We arbitrarily assign 75 percent of these, or 376, to endogenous and 25 percent, 125 jobs, to government-sponsored.

(g) Total government employment, both civilian and military, equals 298 + 57 or 355 (Table D.3). All federal employment (56 + 57 = 113) and a portion of state employment is considered exogenous, while all local (175) and the remaining state employment is considered endogenous. We assumed 48 percent of state government employment to be exogenous, based on the breakdown by Alaska Consultants. This yields exogenous government employment of 113 + .48 (67) = 113 + 32 = 145, with the remainder, 355 - 145 = 210 being endogenous.

(h) There are two components to nonresidents (enclave) employment: seasonal workers in both fish harvesting and fish processing. Table Note (a) above describes the derivation of 285 nonresident FTE figures for fish harvesting. We calculated 15 nonresident full-time equivalent employment as the difference between the Alaska Consultants' estimated 151 FTE in processing and our 136 FTE in fish processing. We added an additional 23 FTE jobs as that portion of employment in other processing plants that is made up of nonresidents, for a total of 38 nonresident FTE employment (see Note (b) above).

Income

One measure of personal income in Homer may be obtained by multiplying the population by the average per capita income for the Kenai-Cook Inlet census division. The Alaska Department of Labor measured per capita income as $10,158 in 1980 (Alaska Department of Labor, Alaska Planning Information, p. 92). This method provides an estimate of total personal income of $31,896,000.

Alternatively, Table D.5 provides estimates of average wage rates by industry. We used these wage rates to calculate average monthly wage rates for the basic, support, and government sectors, as shown in Table D.6. Multiplying these wage rates by the employment estimates in Table D.3 provides an estimate of total wage income of $44,990,000, which is considerably higher than that calculated by the method above. This difference is probably due to higher per capita income levels in Homer than in the rest of the census division.

Labor Force Participation

Tables D.7 and D.8 provide information on labor force participation in Homer. As shown in Table D.8, non-Native males account for over 62 percent of the labor force in Homer. Among persons aged 20-64, full-time equivalent labor force participation is over 100 percent for non-Native males, approximately 74 percent for non-Native females, 73 percent for Native males, and 67 percent for Native females. However, these rates are overestimated because they assume that all workers are within this age group. The high rate for non-Native males is due to the large seasonal employment in fishing and fish processing.

TABLE D.4
NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT,
KENAI-COOK INLET CENSUS DIVISION, 1980

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	1980 Average	Seasonality Factor (a)
Total Non-agricultural	5962	7044	8185	7343	7133	.73
Mining	672	730	793	825	755	.81
Construction	294	424	902	822	611	.33
Manufacturing	625	1238	2022	1038	1231	.31
Transportation, Utilities	622	574	671	621	622	.86
Wholesale Trade	240	280	272	235	257	.84
Retail Trade	841	964	1048	915	942	.80
Finance, Insurance and Real Estate	193	199	203	215	203	.90
Services	912	1046	1023	918	975	.87
Federal Gov't	116	115	122	122	119	.94
State Gov't	297	324	337	371	332	.80
Local Gov't	1116	1090	711	1200	1029	.59
Agriculture, Forestry, and Fisheries	*	43	51	27	-	-
Total Undisclosed Employment (b)	34	0	0	0	9	-
Nonclassifiable Establishments	*	17	31	30	26	-

*Not shown to avoid disclosure of data for individual firms.

(a) Lowest quarterly employment/highest quarterly employment.

(b) Total nonagricultural employment - disclosed employment.

SOURCE: Alaska Department of Labor, Statistical Quarterly, 1980 I, pp. 14-15; 1980 II, pp. 14-15; 1980 III, pp. 14-15; 1980 IV, pp. 14-15.

TABLE D.5
NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT,
AVERAGE MONTHLY WAGE, 1980
KENAI-COOK INLET CENSUS DIVISION

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual Average
Total	2079	1938	2055	2429	2125
Mining	3109	3194	3085	2908	3074
Construction	1855	2055	3531	4281	2931
Manufacturing	2486	1488	1581	2268	1956
Transportation, Communication, and Utilities	3705	3562	3142	3572	3495
Wholesale Trade	2097	2084	2515	2750	2361
Retail Trade	1136	995	1021	1123	1069
Finance, Insurance, and Real Estate	1372	1238	1259	1310	1295
Services	1508	1548	1366	1990	1603
Federal Government	2098	1873	2149	2008	2032
State Government	2293	2256	2259	2085	2223
Local Government	1645	1960	1821	2035	1865
Agriculture, Forestry, and Fisheries	*	1904	2387	1719	-
Nonclassifiable Establishments	*	1142	1158	1682	-

SOURCE: Alaska Department of Labor, Statistical Quarterly, 1980 I - 1980 IV, pp. 14-15

TABLE D.6
CALCULATION OF AVERAGE MONTHLY WAGE IN
KENAI-COOK INLET CENSUS DIVISION IN
BASIC, SUPPORT, AND GOVERNMENT SECTORS

	Average Employment	Average Wage	Average Total Earnings
Mining	755	3074	2,320,870
Manufacturing	1231	1956	2,407,836
Total Basic Sector	1986	2381	4,728,706
Construction	611	2931	1,790,841
Transportation, Communication, and Utilities	622	3495	2,173,890
Wholesale Trade	257	2361	606,777
Retail Trade	942	1069	1,006,998
Finance, Insurance and Real Estate	203	1295	262,885
Services	975	1603	1,562,925
Total Support Sector	3610	2051	7,404,316
Federal Government	119	2032	241,808
State Government	332	2223	738,036
Local Government	1029	1865	1,919,085
Total Government Sector	1480	1959	2,898,929

SOURCES: Average employment and average wages from Tables D.2 and D.5. Sectoral wage rates calculated by dividing average total earnings by average employment.

TABLE D.7
EMPLOYMENT STATUS OF
PERSONS AGED 16 AND OVER
HOMER AREA 1980

	Total		Non-Native[a]		Native	
	Male	Female	Male	Female	Male	Female
Civilian Employed	875	546	867	533	8	13
Armed Forces	57	0	57	0	0	0
Unemployed	57	40	57	40	0	0
Not in Labor Force	253	511	251	487	2	24
TOTAL	1242	1097	1232	1060	10	37

[a]Calculated by subtracting Native figures from total figures.

SOURCE: Bureau of the Census, 1980 Census Special Tabulation STF3A, Table 55.

TABLE D.8
CALCULATION OF LABOR FORCE
PARTICIPATION RATE ASSUMPTIONS FOR HOMER AREA

Group	Number Employed (a)	Population (b)	Labor Force Participation Rate (c)	Adjusted Labor Force Participation Rate (d)
Non-Native Males Ages 20-64	924	1014	.911	1.00 (e)
Non-Native Females Ages 20-64	533	857	.622	.735
Native Males Ages 20-64	8	13	.615	.726
Native Females Ages 20-64	13	23	.565	.667
Total	1478	1907	.775	.916

(a) 1980 Census data from Table D.7. Employed persons ages 16 and over were assumed to be between ages 20 and 64.

(b) 1980 Census data from Table II-1.

(c) Number employed/population.

(d) We have assumed resident full-time employment of 1,746 (Table D.3). The census employment figures account for employment of only 1,478. In order to obtain rates consistent with total estimated full-time equivalent employment, an adjusted labor force participation rate was calculated by multiplying by an adjustment factor of 1,746/1,478 = 1.181.

(e) Labor force participation rate cannot exceed 1.0.

APPENDIX E

TECHNICAL APPENDIX: KENAI

In this appendix we develop estimates of employment, income, and labor force participation in the Kenai Market Area in 1980.

Employment Data

There is no single data source that provides a complete description of current employment in the Kenai area. Literature and data on employment often pertain to different geographic areas (e.g., Kenai Peninsula Borough, Kenai Labor Area, and Kenai Market Area) and use different methods to measure employment. Tables E.1 through E.4 provide employment information from several different sources.

Table E.1 shows nonagricultural wage and salary employment in the Kenai Labor Area for 1974 and 1977. The data was compiled by the Alaska Department of Labor (DOL) and essentially counts the number of people who held a job during those years. These data do not distinguish between resident and nonresident employment, nor do they include most fishing employment. However, the Kenai Labor Area is roughly comparable to the Kenai Market Area shown in Figure III-1. The data in Table E.1 indicate that between 1974 and 1977, the composition of employment changed markedly in several industry sectors. Contract construction increased nearly four-fold from 327 to 1,535, roughly doubling its share of total nonagricultural, wage, and salary employment. Every other industry sector reported absolute employment increases, yet declined as a proportion of total because of employment gains in the construction sector. The rise in construction employment resulted mainly from expansion of a petrochemical refinery for which construction peaked in 1977. This data illustrates the important influence that a single project can have on a relatively moderate-size local economy. The reader is reminded that employment in construction, as well as other sectors of the Kenai Labor Area, is not necessarily entirely resident-based. In addition, the data in Table E.1 do not reveal the number of Kenai area residents that worked outside of the local economy, estimated at about 7 to 8 percent of total employment in 1977 (Braund and Behnke, 1980, p. 55).

TABLE E.1.
NONAGRICULTURAL WAGE AND SALARY
EMPLOYMENT DISTRIBUTION
KENAI LABOR AREA[a]

Industry Classification	1974		1977	
	Total	Percent of Total	Total	Percent of Total
Agriculture, Forestry and Fishing	N/A	N/A	N/A	N/A
Mining	338	25	612	14.7
Contract Construction	327	16.7	1535	37
Manufacturing	310	15.8	588	14.2
Transportation, Communication, & Public Utilities	127	6.5	206	5.0
Trade	315	16.1	584	14.1
Finance, Insurance, & Real Estate	52	2.6	92	2.2
Service	425	21.7	430	10.4
Government	68 (b)	3.5	103 (b)	2.5
Federal	35	1.8	37	0.9
State & Local	33	1.7	66	1.6
TOTAL	1962	100	4150	100

NOTES: (a) Includes Nikishka, Nikiski, Red Mountain, Swanson River, and Wildwood Station.

(b) Estimates.

SOURCE: Alaska Consultants, Inc., Lower Cook Inlet Petroleum Development Scenarios Local Socioeconomic Systems Analysis, OCS Socioeconomic Studies Program Technical Report No. 46, Vol. 1 (Anchorage: BLM-OCS Office, March 1980), p. 88.

Table E.2 shows the results of a sample survey of adult employment by economic sector in the city of Kenai conducted in the Anchorage Urban Observatory in 1976. Comparison of these figures with the 1974 DOL employment data for the Kenai Labor Area in Table E.1 suggests that, with the exception of government employment, employment patterns in the city of Kenai are similar to those of the Kenai Labor Area. The city of Kenai captures about half of total employment in the Kenai Labor Area.

Table E.3 presents 1980 data collected by the Alaska Department of Labor in wage and salary employment in the Kenai-Cook Inlet Census Division. Like the data in Table E.1, these data do not distinquish between resident and nonresident employment, nor do they include most fishing employment. Furthermore, they were collected for a larger area than the road-connected Kenai Market Area shown in Figure III-1. However, employment in the Kenai Market Area represents at least half of total census-division employment and is probably well represented by census-division employment patterns.

The data in Table E.3 suggest that, for the most part, seasonal patterns are relatively stable. With the exception of food and kindred manufacturing, construction, fishing, hunting, and trapping employment in the remaining industry sectors exhibited a seasonality factor of at least .67, suggesting that employment in the peak quarter was not more than 50 percent higher than employment in the lowest quarter. The seasonal changes in government employment primarily reflect seasonal education patterns. During peak summer operations, food and kindred manufacturing employment--essentially fish processing--was 20-fold higher (1,466) than it was during the slow winter season (71).

Table E.4 presents selected information on employment collected in the 1980 census. These data were collected for a given week during the spring of 1980. Unfortunately, the choice of week was not necessarily the same for all households. As a result, the

TABLE E.2
DISTRIBUTION OF TOTAL ADULT
EMPLOYMENT BY ECONOMIC SECTOR
CITY OF KENAI
1976

Agriculture and Commercial Fishing	4.2
Mining, Oil, and Gas Production	20.5
Construction	14.0
Manufacturing (lumber & fish processing, oil & gas refining)	11.6
Transportation, Communications, and Public Utilities	4.7
Wholesale, Retail Trade	10.7
Finance, Insurance, & Real Estate	1.9
Services: Medicine, Law, Hotel, etc.	16.3
Government	16.3
Other	--
TOTAL	100.0

(N = 215)

SOURCE: Bureau of Management and Urban Affairs and Anchorage Urban Observatory, University of Alaska. 1977. Profile of Five Kenai Peninsula Towns. Anchorage. (Taken from Alaska Consultants, 1980, p. 89.)

TABLE E.3
NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT,
KENAI-COOK INLET CENSUS DIVISION, 1980

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	1980 Average	Seasonality Factor (a)
Total Non-agricultural	5962	7044	8185	7343	7134	.73
Mining	672	730	793	825	755	.81
Construction	294	424	902	822	611	.33
Manufacturing						
Food & Kindred	71	731	1466	405	668	.05
Other	554	507	556	633	563	.80
Transportation, Utilities	622	574	671	621	622	.86
Wholesale Trade	240	280	272	235	257	.84
Retail Trade	841	964	1048	915	942	.80
Finance, Insurance and Real Estate	193	199	203	215	203	.90
Services	912	1046	1023	918	975	.87
Federal Government	116	115	122	122	119	.94
State & Local Government	1414	1414	1047	1571	1362	.67
Fishing, Hunting and Trapping	6	18	29	7	15	.21
Total Undisclosed Employment	27	42	53	54	44	.50

*Not shown to avoid disclosure of data for individual firms.

(a) Lowest quarterly employment/highest quarterly employment.

SOURCE: Alaska Department of Labor, Statistical Quarterly, 1980 I, pp. 14-15; 1980 II, pp. 14-15; 1980 III, pp. 14-15; 1980 IV, pp. 14-15.

numbers do not serve as a measure of full-time equivalent employment, since persons unemployed during the winter may well have been employed for substantial periods of time during other seasons. However, the area covered in Table E.4 is the same as for our population data (Figure III-1). In addition, almost all of the persons sampled are likely to have been permanent residents of The Kenai Market Area.

The figures in Table E.4 reflect the seven census subareas shown in Figure III-1. The cities of Kenai and Soldotna together accounted for over three-quarters of total Market Area employment. As explained in Chapter III, most of the commercial, government, and health-related activity was centered in these cities. Kenai and Soldotna, along with Nikishka, account for nearly all lumber, fish processing, and oil and gas refining. To some extent, Sterling, which captures 7 percent of total Market Area employment, contains a business and public service infrastructure of its own, geared toward local inhabitants somewhat removed from the more concentrated population centers of Kenai and Soldotna. In 1980, government retail trade, mining, fishing, and construction were the largest Market Area employers. Together, these sectors accounted for 58 percent of total employment.

The figures in Table E.5 are based primarily on the 1980 Census, but reflect employment patterns exhibited in the previous four tables. Adjustments to the original census figures were introduced to correct for resident patterns, or to more accurately account for full-time equivalent employment. Specific assumptions used to derive the estimates in Table E.5 are presented in the table notes that follow. These estimates were used as start values for the projections.

TABLE E.4
SELECTED EMPLOYMENT-RELATED DATA
FROM 1980 CENSUS: KENAI MARKET AREA (a)

Civilian Employed Workers by Industry		
Agriculture, Forestry, Fishing and Mining	523	
Construction	344	
Manufacturing: Nondurables	250	
Manufacturing: Durables	60	
Transportation	201	
Communication and Public Utilities	109	
Wholesale Trade	216	
Retail Trade	576	
Finance, Insurance, and Real Estate	213	
Business and Repair Services	186	
Personal, Entertainment and Recreation Services	124	
Professional Health Services	132	
Professional Education Services	378	
Other Professional Services	87	
Public Administration	237	
TOTAL	3636	
Employed Workers Claiming Farming, Forestry, or Fishing as Occupation	117	
Civilian Employed Workers by Kind of Employer		
Government	679	
Federal		89
State		210
Local		380
Private other than self	2605	
Self	312	
Unpaid (usually work for family)	40	
TOTAL	3636	
Military Employment	0	

(a) Data were collected as of a given week during the spring of 1980. However, the particular week was not necessarily consistent for all households.

SOURCE: Special Tabulations for 1980 census, from U.S. Bureau of the Census, Tape STF3A, Tabulations 55, 65, 66, and 67.

TABLE E.5
ESTIMATED FULL-TIME EQUIVALENT
EMPLOYMENT IN KENAI MARKET AREA, 1980

Resident Basic Employment	1176	
Fishing	159	(a)
Fish Processing	185	(b)
Petroleum Processing	468	(c)
Other (Primarily Mining)	364	(d)
Resident Support Employment	2138	(g)
Exogenous	1232	
Endogenous	669	
Government-sponsored	223	
Enclave-sponsored	14	(e)
Resident Government Employment	679	(f)
Exogenous	194	
Endogenous	485	
Total Resident	3993	
Total Exogenous	2616	
Total Endogenous	1377	
Nonresident (Enclave) Employment	277	(b)
Total Resident and Nonresident	4270	

TABLE E.5 NOTES

a. The 1980 census counted 117 employed persons in forestry, fishing, or farming as an occupation. This is substantially below other estimates of fishing employment. For example, Alaska Consultants, Inc. (1980, p. 90) estimated 272 active resident fishermen in 1975, based on the count of permit holders in the Kenai Labor Area. Although this estimate is resident-based, it does not account for seasonal patterns or for crew size. Rogers (1980, p. 154) counted 498 fishing employees in the Cook Inlet Region (including the Resurrection Bay area) in 1975. Special Alaska Department of Labor estimates, using methods comparable to those of Rogers (1980), counted 1,202 average annual fishing employees for the Cook Inlet Region in 1979. If we adjust this figure by the proportion of Cook Inlet Region population in the Kenai Market Area (37 percent), then there were 446 fishing employees in the Kenai Market Area in 1979 (1,202 x .37). This figure is significantly higher than the census estimate (117), but may include both resident and nonresident fishermen. Nevertheless, it has the advantage of being a full-time equivalent measure of employment.

   Our estimate of 159 full-time equivalent fishermen in 1980 is based on: (1) the number of permit holders in 1980 was the same as the number of permit holders in 1975; (2) the fishing season lasted two months (primarily salmon seining); and (3) average crew size was 3.5 persons. This estimate is higher than the 1980 census count, but below the adjusted Alaska Department of Labor figure (446), suggesting that about two-thirds of Kenai Market Area fishing employment (287) resided in other places within or outside of Alaska.

b. According to the Alaska Department of Fish and Game Processor certification list for 1980 and Hal Haynes of the Alaska Department of Labor, there were about 20 major shore-based seafood processors operating in the Cook Inlet Region in 1980, of which 14 were located in the Kenai Market Area. As shown in Table E.3, average annual 1980 food and kindred manufacturing employment was 668 for the Cook Inlet Census Division as a whole. This implies an average of 33 resident and nonresident full-time equivalent employees per processor. The 14 processors in the Kenai Market Area would, therefore, account for about 462 employees. We arbitrarily assume that 40 percent, or 185, of these were resident employees. The remaining 277 would be nonresident, itinerant processing workers.

c. The 1980 census counted a total of 250 nondurable manufacturing employees in 1980. Subtracting 185 fish-processing employment (from note b above) leaves 65 full-time equivalent employees for other processing, including lumber and oil and gas refining. According to various Kenai Borough Planning Department memorandums, the four Nikiski refineries alone employed 468 persons in 1982: Tesoro-85; Union-325; Chevron-20; Phillips-38. These figures are more consistent with Alaska Consultants, Inc. and Alaska Department of Labor estimates from Table E.1 and E.3, respectively.

d. This figure essentially includes mining employment related to on- and offshore oil and gas development in the Cook Inlet area. It was derived by subtracting 159 fishing employees (from note a) from the total 1980 census count of 523 agriculture, forestry, fishing, and mining employment.

e. Very little data are available on which to base a figure for a multiplier for enclave-sponsored resident support employment. Based on an arbitrary multiplier of .05, the 277 enclave employees (from note b) would generate 14 additional full-time equivalent jobs in the support sector.

f. We assumed a total government employment figure of 679 based on the 1980 census (Table E.4). According to the 1980 census, military employment in the Kenai Market Area was zero. We assumed that all federal workers were exogenous and all local government employees were endogenous. We assumed that roughly half of the state government employees were exogenous, based on the proportion of total census division population captured in the Kenai Market Area. This resulted in exogenous government employment of 89 + (.50 X 210) = 194, while the remainder (380 + .50 x 210 = 485) is endogenous.

g. We obtained a total figure for support employment by assuming that the census figures for support employment are reasonable measures of full-time equivalent employment. However, we had to subtract out that component of support employment which is actually government employment. Thus, we have support employment = employment in construction + transportation + communication and public utilities + wholesale trade + retail trade + finance, insurance, and real estate + all services - total civilian government employment = 344 + 201 + 109 + 216 + 576 + 213 + 186 + 124 + 132 + 378 + 87 + 237 - 671 = 2124. This figure is lower than an estimate of support employment figure derived similarly from the 1977 data in Table E.1. However, this difference could in part reflect the unusually high amount of construction employment in that year. Furthermore, the data in Table E.1 are not necessarily expressed in full-time equivalent measure of support employment for the Kenai Labor Area.

One minus the ratio of Kenai Market Area population to total Kenai Borough population in 1980 (58 percent) was used to determine the number of exogenous support employees. This produces 1,232 exogenous support employment, leaving 892 endogenous and government-sponsored support jobs. We arbitrarily assume that 75 percent of these jobs were endogenous, resulting in 669 endogenous support and 223 government-sponsored support employment.

Income

Table E.6 provides Alaska Department of Labor estimates of average wage rates by industry. We used these wage rates to calculate average monthly wage rates for the basic, support, and government sectors, as shown in Table E.7. Expressed in annual 1980 dollars, the wage rates for each sector exhibit less difference than wage rate comparisons across industry sectors in other communities (see, for example, Cordova or Yakutat). We estimated the 1980 basic sector wage to be $24,243. At $24,614, the support sector wage was higher than wages in the basic and government sectors. We estimated the annual government sector wage rate to be $24,516 in 1980.

An estimate of nonwage income was derived for 1980 from the Bureau of Economic Analysis (BEA), Special Tabulations of Personal Income by Major Source by Alaska Census Divisions (April 1982). The BEA reported a total of $20.4 million in transfer payments for the Kenai-Cook Inlet census division in 1980. Using our earlier estimate, the Kenai Market Area accounts for 42 percent of total census division population. We derive $8.6 million in total transfer payments to Kenai Market Area residents. This translates to $920 per capita ($8.6 million/9,299). Total income for the Kenai Market Area was equal to $106.2 million, the sum of $97.6 million in total wage income plus $8.6 million in nonwage income. This implies average per capita income of $11,412 per person in 1980.

TABLE E.6
NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT,
AVERAGE MONTHLY WAGE, 1980
KENAI-COOK INLET CENSUS DIVISION

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual Average
Total	2079	1938	2055	2429	2125
Mining	3109	3194	3085	2908	3074
Construction	1855	2055	3531	4281	2931
Manufacturing	2486	1488	1581	2268	1956
Transportation, Communication, and Utilities	3705	3562	3142	3572	3495
Wholesale Trade	2097	2084	2515	2750	2362
Retail Trade	1136	995	1021	1123	1069
Finance, Insurance, and Real Estate	1372	1238	1259	1310	1295
Services	1508	1548	1366	1990	1603
Federal Government	2098	1873	2149	2008	2032
State Government	2293	2256	2259	2085	2223
Local Government	1645	1960	1821	2035	1865

SOURCE: Alaska Department of Labor, Statistical Quarterly, 1980 I - 1980 IV, pages 14-15.

TABLE E.7
CALCULATION OF AVERAGE MONTHLY WAGE IN
KENAI REGION IN
BASIC, SUPPORT, AND GOVERNMENT SECTORS

	Average Employment	Average Wage	Average Total Earnings
Mining	755	2125	1,604,375
Manufacturing	1231	1956	2,407,836
Total Basic Sector	1986	2020	4,012,211
Construction	611	2931	1,790,841
Transportation, Communication, and Utilities	622	3495	2,173,890
Wholesale Trade	257	2362	607,034
Retail Trade	942	1069	1,006,998
Finance, Insurance and Real Estate	203	1295	262,885
Services	975	1603	1,562,925
Total Support Sector	3610	2051	7,404,573
Federal Government	119	2032	241,808
State and Local Government	1362	2044	2,783,928
Total Government Sector	1481	2043	3,025,736

[a]Includes 32 undisclosed employment.

SOURCES: Average employment and average wages from Tables E.3 and E.6. Sectoral wage rates calculated by dividing average total earnings by average employment.

Labor Force Participation

Tables E.8 and E.9 provide information on labor force participation in the Kenai Market Area. As shown in Table E.9, Non-Native males and females account for 96 percent of the Kenai Market Area resident labor force. Among persons aged 20 to 64, full-time equivalent labor force participation is highest for Native males, but lowest for Native females. In general, males exhibit notably higher labor force participation than females. However, all these rates are slightly overstated because they assume all workers are within the 20 to 64 age group. These labor force participation rates do not reflect the labor force status of itinerant seasonal employment.

TABLE E.8
EMPLOYMENT STATUS OF
PERSONS AGED 16 AND OVER
KENAI MARKET AREA 1980

	Total		Non-Native[a]		Native	
	Male	Female	Male	Female	Male	Female
Civilian Employed	2294	1342	2194	1299	100	43
Armed Forces	0	0	0	0	0	0
Unemployed	234	284	234	267	0	17
Not in Labor Force	795	1466	780	1382	15	84

[a]Calculated by subtracting Native figures from total figures.

SOURCE: Bureau of the Census, 1980 Census Special Tabulation STF3A, Table 55.

TABLE E.9
CALCULATION OF LABOR FORCE
PARTICIPATION RATE ASSUMPTIONS FOR
THE KENAI MARKET AREA

Group	Number Employed (a)	Population (b)	Labor Force Participation Rate (c)	Adjusted Labor Force Participation Rate (d)
Non-Native Males Ages 20-64	2194	2815	.779	.915
Non-Native Females Ages 20-64	1299	2564	.507	.595
Native Males Ages 20-64	100	106	.943	1.000
Native Females Ages 20-64	43	108	.348	.467
Total	3636	5593	.650	.763

(a)1980 Census data from Table E.8. Employed persons ages 16 and over were assumed to be between ages 20 and 64.

(b)1980 Census data from Table III-1.

(c)Number employed/population.

(d)We have assumed resident full-time employment of 4270 (Table E.4). The census employment figures account for employment of only 3636. In order to obtain rates consistent with total estimated full-time equivalent employment, an adjusted labor force participation rate was calculated by multiplying each rate in column (c) by an adjustment factor of 4270/3636 = 1.17.

APPENDIX F

TECHNICAL APPENDIX: KODIAK

In this appendix, we develop an estimate of employment, income, and labor force participation in Kodiak in 1980.

Employment Data

As discussed in chapter IV, the relevant boundary for this analysis is the civilian road-connected area for the city of Kodiak.

In this appendix, we describe resident employment patterns for the city of Kodiak's civilian economy. This information is the basis for the assumptions used in our projections of future employment and population in the city of Kodiak. The population and economy of the Kodiak Coast Guard Station was, therefore, not included in this description nor in the corresponding projections. As shown in Table F.1, the economy of the Kodiak Coast Guard Station was not insignificant in 1980. A large number of the 238 jobs held by civilian dependents of active-duty personnel were probably tied to Kodiak's civilian economy (i.e., retail clerks, processing employees, construction workers, etc.).

However, our projection ignores this segment of the Kodiak Island economy in spite of its proximity to the city of Kodiak for several reasons. First, an unknown number of Kodiak city civilian population presumably held civilian jobs at the Kodiak Coast Guard Station. These employees would offset jobs in the city of Kodiak filled by dependents of active-duty personnel. The net number of jobs in Kodiak held by Kodiak Coast Guard Station civilian dependents would be less than 238, and could be very small.

Second, the size and demographic composition of the Kodiak Coast Guard Station population are likely to remain fairly constant because of normal Armed Forces rotation and reassignment policies. Similarly, civilian jobs held by dependents of active-duty personnel would probably be stable over time and, thus, not affect growth in Kodiak's civilian economy.

TABLE F.1
SELECTED EMPLOYMENT-RELATED DATA
FROM 1980 CENSUS: KODIAK NAVAL STATION (a)

Civilian Employed Workers by Industry		
Agriculture, Forestry, Fishing and Mining	5	
Construction	9	
Manufacturing: Nondurables	30	
Manufacturing: Durables	0	
Transportation	0	
Communication and Public Utilities	8	
Wholesale Trade	0	
Retail Trade	76	
Finance, Insurance, and Real Estate	16	
Business and Repair Services	0	
Personal, Entertainment and Recreation Services	4	
Professional Health Services	14	
Professional Education Services	18	
Other Professional Services	14	
Public Administration	44	
TOTAL	238	
Employed Workers Claiming Farming, Forestry, or Fishing as Occupation	5	
Civilian Employed Workers by Kind of Employer		
Government	102	
Federal		65
State		21
Local		16
Private other than self	136	
Self	0	
Unpaid (usually work for family)	0	
TOTAL	238	
Military Employment	619	

(a) Data were collected as of a given week during the spring of 1980. However, the particular week was not necessarily consistent for all households.

SOURCE: Special Tabulations for 1980 census, from U.S. Bureau of the Census, Tape STF3A, Tabulations 55, 65, 66, and 67.

Third, the dependents of active-duty personnel that held civilian jobs off-base would continue to live on-base and, therefore, interact less regularly in Kodiak's civilian economy and with residents of Kodiak city. Their propensity to spend in the city of Kodiak probably would be less than that of other workers.

Fourth, as discussed in Chapter IV, the population of Kodiak Coast Guard Station has declined in absolute terms since 1970. Even if their numbers remain constant over the forecast period, their relative size would continue to decline as Kodiak's economy expanded. Over time we expect a gradual, continuous decline in the proportion of total civilian jobs held by dependents of Kodiak Coast Guard Station active-duty personnel.

There are a variety of alternative definitions of employment. The measure we have chosen is resident full-time equivalent employment. Full-time equivalent employment is a measure of total person-years of work. We believe it is the single most useful measure of employment in a community; although other measures, such as seasonal variation, are required to complete the picture. Care is needed in interpreting this measure, since full-time equivalent employment for a given year may vary greatly from actual employment at any particular time during the year. During the height of the fishing season, actual employment in Kodiak is far higher than is full-time equivalent employment for the entire year.

We concentrated our efforts on measuring resident employment because resident employment is directly related to population. We excluded the substantial number of workers who migrate to Kodiak for seasonal jobs each year from our definition of resident employment.

There are no direct sources of data for resident full-time equivalent employment, making it difficult to measure. Our

estimates are based on a number of data sources and a variety of assumptions. Further research and discussions with persons familiar with different aspects of employment in Kodiak could help to improve our estimates. In the following section, we describe data on employment in Kodiak from several different sources. In the subsequent section, we discuss our own employment estimates.

There is no single data source which provides a complete description of current employment in Kodiak. Tables F.2 through F.4 provide employment information from several different sources.

Table F.2 provides data on the composition of employment in 1976 and 1980. This data was compiled originally by the Alaska Department of Labor, Employment Security Division. Although self-employed persons are supposed to be captured in these figures, it is not clear if fishermen were counted accurately. For the 1976 figures, Alaska Consultants, Inc. assumed that miscellaneous employment referred to agriculture, forestry, and fishing, primarily the latter category. Using similar assumptions, we estimated agriculture, forestry, and fishing employment for 1980 as shown in Table F.2 Note (b).

The data in Table F.2 do not reflect average annual full-time equivalent employment in all cases. If two persons worked one job, they could have been counted twice. Furthermore, these data do not distinguish between either resident and nonresident, or basic and secondary employment.

In addition, these data correspond to the Kodiak Island Borough boundaries and thus extend beyond the city of Kodiak and immediate, road-connected vicinity--the relevant boundaries for this study.

For these and other reasons, the data are not directly comparable to our needs for describing current employment or projecting future employment. However, used in conjunction with

other sources of employment data as a check (see Tables F.3 and F.4), these data provide some insights into Kodiak employment patterns. For example, the data in Table F.2 suggest that fishing and fish processing accounted for nearly half of total employment in the Kodiak Borough. Government accounted for another fifth.

Table F.3 presents data collected by the Alaska Department of Labor on wage and salary employment in the Kodiak census division. Again, these data were collected for a larger area than were our population data, and they do not distinguish between resident and nonresident employment. More importantly, however, they do not include most fishing employment, and they include only civilian employment. Given the significance of fishing in the Kodiak area, the data provide a distorted picture of employment. However, they do provide some insights into the seasonality of employment. Except in the manufacturing industry, the ratio of the lowest quarterly figure for employment to the highest quarterly figure is never below .60. At .62, the fish processing industry exhibits relatively stable seasonal patterns reflecting the year-round nature of crab processing. Government employment experiences a seasonal trough in the third quarter, when most other industries experience their highest levels of employment.

Table F.4 presents selected information on employment collected in the 1980 census. These data were collected for a given week during the spring of 1980 (unfortunately, the choice of week was not necessarily the same for all households). As a result, the numbers do not serve as a measure of full-time equivalent employment, since persons unemployed during the winter may well have been employed for substantial periods of time during other seasons.

However, the area covered in Table F.4 is the same as for our population data. In addition, almost all of the persons sampled are likely to have been permanent residents of Kodiak.

TABLE F.2
ESTIMATES OF NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT IN KODIAK ISLAND BOROUGH, EXCLUDING MILITARY EMPLOYMENT,[a] 1976 AND 1980

Industry Classification	1976	1980
Agriculture, Forestry, and Fishing	428	316 (b)
Mining	0	N/A
Contract Construction	253	109
Manufacturing	1639	1834
Transportation, Communication, & Public Utilities	213	360
Trade	512	603
Finance, Insurance, & Real Estate	105	101
Service	406	315 (b)
Government	894	1045
Federal	(278)	(345)
State & Local	(616)	(700)
TOTAL	4487	4683

NOTES: (a) Data includes self-employed persons. Figures may not reflect average annual full-time employment.

(b) Originally combined into one category called "Services and Other." Allocation to "Agriculture, Forestry, and Fishing" based in the 1976 ratio of "Agriculture, Forestry, and Fishing plus Services."

SOURCES: 1976 data: Alaska Consultants, Inc. Northern and Western Gulf of Alaska Local Socioeconomic Baseline. OCS Socioeconomic Studies Program, Technical Report No. 32 (Anchorage: BLM-OCS Office, May 1979) p. 406-7; 1980 data: Peratrovich & Nottingham, Inc. et al. Port of Kodiak Development Plan (Anchorage: City of Kodiak, 1982) p. 9.

TABLE F.3
NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT,
KODIAK CENSUS DIVISION, 1980

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	1980 Average	Seasonality Factor (a)
Total Non-agricultural	4371	4781	5168	4254	4644	.82
Mining	0	0	0	0	0	-
Construction	80	111	107	107	101	.72
Manufacturing						
Food and Kindred	1303	1478	2085	1311	1544	.62
Other	269	345	361	118	273	.33
Transportation, Utilities	331	403	364	310	352	.77
Wholesale Trade	18	*	24	17	*	-
Retail Trade	510	565	606	622	599	.82
Finance, Insurance and Real Estate	99	96	98	100	98	.96
Services	543	579	635	501	565	.79
Federal Gov't	291	290	292	271	286	.93
State & Local Government	841	796	516	853	752	.60
Miscellaneous	9	*	*	16	*	-
Agriculture, Forestry, and Fishing	51	*	*	24	*	-
Total Undisclosed Employment	20	478	80	4	146	-

*Not shown to avoid disclosure of data for individual firms.

(a) Lowest quarterly employment/highest quarterly employment.

SOURCE: Alaska Department of Labor, Statistical Quarterly, 1980 I, p. 17-8; 1980 II, p. 17-8; 1980 III, p. 17-8; 1980 IV, p. 17-8.

TABLE F.4
SELECTED EMPLOYMENT-RELATED DATA
FROM 1980 CENSUS: KODIAK CITY AND
REMAINDER OF KODIAK CENSUS SUBAREAS [a]

Civilian Employed Workers by Industry		
Agriculture, Forestry, Fishing and Mining	517	
Construction	166	
Manufacturing: Nondurables	859	
Manufacturing: Durables	88	
Transportation	183	
Communication and Public Utilities	122	
Wholesale Trade	29	
Retail Trade	510	
Finance, Insurance, and Real Estate	55	
Business and Repair Services	101	
Personal, Entertainment and Recreation Services	116	
Professional Health Services	145	
Professional Education Services	351	
Other Professional Services	136	
Public Administration	464	
TOTAL	3842	
Employed Workers Claiming Farming, Forestry, or Fishing as Occupation	498	
Civilian Employed Workers by Kind of Employer		
Government	924	
Federal		293
State		284
Local		347
Private other than self	2444	
Self	448	
Unpaid (usually work for family)	26	
TOTAL	3842	
Military Employment	74	

(a) Data were collected as of a given week during the spring of 1980. However, the particular week was not necessarily consistent for all households.

SOURCE: Special Tabulations for 1980 census, from U.S. Bureau of the Census, Tape STF3A, Tabulations 55, 65, 66, and 67.

ESTIMATION OF 1980 EMPLOYMENT IN KODIAK

Table F.5 presents our estimates of resident full-time equivalent employment in Kodiak, and the distribution of this employment among several different categories of employment. The footnotes to the table describe how each figure was developed.

We estimate a total 1980 resident employment of 3,995. Of this figure, 1,518 (38 percent) are in basic sector jobs, 1,479 (37 percent) are in support sector jobs, and 998 (25 percent) are in government sector jobs. Exogenous employment, or employment which provides goods and services for markets other than the local community, was 2,814 (70 percent of all resident employment). For every exogenous job, there were .42 endogenous jobs. In terms of endogenous support jobs--such as those in retail trade, home construction, or insurance--there were .21 jobs for every other job in the community.

TABLE F.5
ESTIMATED FULL-TIME EQUIVALENT
EMPLOYMENT IN KODIAK, 1980

Resident Basic Employment	1518
Fishing	518[a]
Fish Processing	893[b]
Other	107[c]
Resident Support Employment	1479[g]
Exogenous	756
Endogenous	524
Government-sponsored	174
Enclave-sponsored	25[e]
Resident Government Employment	998[f]
Exogenous	515
Endogenous	483
Total Resident	3995
Total Exogenous	2814
Total Endogenous	1181
Nonresident (Enclave) Employment	596[d]
Nonresident Military Employment	497
Active-Duty Personnel at Kodiak Coast Guard Stn.	829
Employment of Military Dependents who Live at Kodiak Coast Guard Stn.	591
Total Resident and Nonresident	5321

TABLE F.5 NOTES

(a) The 1980 census counted 498 employed persons claiming forestry, fishing, or farming as an occupation (Table F.4). Presumably, almost all of these are employed in fishing. However, this figure needs to be adjusted for seasonal variations in order to estimate full-time equivalent employment. In order to calculate a seasonality adjustment figure, we used the Department of Labor figures for manufacturing, assuming that manufacturing (fish processing) employment would be subject to the same seasonal variation as fishing. The census data were supposed to have been collected for the last week in March of 1980, but may instead reflect data for later in the spring. In order to estimate a seasonality factor, we calculated the ratio of the Department of Labor annual average food and kindred manufacturing employment figure to the second quarter food and kindred manufacturing employment (Table F.3). This resulted in a seasonality factor of 1544/1478 = 1.04. Multiplying this by 498, we estimated full-time equivalent resident fishing employment as 518. This is somewhat higher than Alaska Consultant's estimate of 428 for 1976.

(b) This figure was obtained in the same way as the figure for fishing employment, by multiplying the census figure for employment in manufacturing nondurables (859) by a seasonality adjustment factor of 1.04. This adjustment assumes that residents account for a constant share of fish processing employment. The resulting figure of 893 is 58 percent of the 1980 estimate (1,544) shown in Table F.3, suggesting that over 40 percent of fish processing employment are nonresidents of the city of Kodiak.

(c) This is the difference between the census figure for employment in the agriculture, forestry, fishing, and mining industries and the number of workers claiming agriculture, forestry, and fishing as occupations, or 517-498 = 19, plus employment in manufacturing of durables (88).

(d) A count of processors from the Alaska Department of Fish and Game certificate list indicates that there were 18 major shore-based seafood processors in the city of Kodiak in 1980. We estimate that this represented about 90 percent of total processing activity on Kodiak Island. This 90 percent factor is used to adjust the Alaska Department of Labor estimate of 1,544 shown in Table F.3 to reflect that portion of total processing employment in Kodiak City (.90 X 1544 = 1390). The difference between 1,390 and 893 resident processing employees equals 497 nonresident processing employees. We assume that processing represents the only segment of the civilian economy for which nonresident enclave employment occurs.

(e) Very little data are available on which to base a figure for a multiplier for enclave-sponsored resident support employment. Based on an arbitrary multiplier of .05, the 497 employees assumed to be nonresident would generate 25 additional jobs.

(f) We assume total government employment was equal to 998, based on the 1980 Census (Table F.4). This figure includes 924 civilian employees and 74 active-duty military employees. Of these, we assumed that all federal-civilian and military workers were exogenous, and that all local government employees were endogenous. To estimate the number of state employees that were endogenous, we multiplied the ratio of Kodiak City population to total Kodiak Island population (4746/9917=.48) by the total number of state employees (.48 X 284 = 136). This resulted in 293+74+148=515 exogenous government employment and 347+136=483 endogenous government employment.

(g) We obtained a total figure for support employment by assuming that the census figures for support employment are reasonable measures of full-time equivalent employment. However, we had to subtract out that component of support employment which is actually government employment. Thus, we have support employment = employment in construction + transportation + communication and public utilities + wholesale trade + retail trade + finance, insurance, and real estate + all services - total civilian government employment = 166+183+122+29+510+55 +101+116+145+351+136+464-924=1,454. This figure is lower than an estimate of support employment derived similarily from the 1980 data in Table F.2 (109+360+603+101+315=1,488). However, the difference could, in part, reflect the larger geographic area that underlies the figures in Table A.2. Also, the data in Table F.2 are not necessarily expressed in full-time equivalent units and, thus, would overstate the full-time equivalent measure of support employment for the Kodiak census division as well.

To determine the number of exogenous support employees, we applied the same factor used to allocate exogenous government employment, one minus the ratio of Kodiak City population to the Kodiak Island population as a whole (1-.48 =.52). This produces 756 exogenous support employment leaving 698 endogenous and government-sponsored support jobs. We arbitrarily assume that 75 percent of these jobs are endogenous, resulting in 524 endogenous support and 174 government-sponsored support.

Income

Table F.6 provides Alaska Department of Labor estimates of average wage rates by industry. We used these wage rates to calculate average monthly wage rates for the support and government sectors, as shown in Table F.7. The basic sector wage rate was estimated by taking the weighted average of the manufacturing wage rate from Table F.7 and an assumed commercial fish harvest employment wage rate of $25,000. The weights equaled the number of processing and harvesting employment from Table F.5, respectively. We estimated a 1980 basic-sector average annual wage rate of $16,128. The support-sector wage rate was estimated to be $17,460. We estimated the government sector wage rate to be $22,944 in 1980. Multiplying these wage rates by the employment estimates in Table F.5 provides an estimate of total resident wage income of $78.257 million in 1980. An estimate of nonwage income was derived from the Bureau of Economic Analysis (BEA) estimates of personal income by source by Alaska Census Division (April, 1982). A total of $9.062 million in transfer payments were distributed to residents of the Kodiak census division in 1980. Based on the proportion of total census-division population, the city of Kodiak would account for $6.813 million in nonwage transfer payments. This implies a per capita nonwage income of $914. Combining nonwage income of $6.813 million with $78.257 million in wage income produces $85.070 million in total personal income. This implies a per capita level of $11,385.

LABOR FORCE PARTICIPATION

Tables F.8 and F.9 provide information on civilian labor force participation in Kodiak. As shown in Table F.9, Non-Native males account for over 59 percent of the civilian labor force in Kodiak. Among persons aged 20-64, full-time equivalent labor force participation is almost 100 percent for Non-Native males, and approximately 76 percent for Non-Native females. Native males and Native females account for markedly lower labor force participation

rates. However, all of these rates are slightly overestimated because they assume that all workers are within this age group. These labor force participation rates do not reflect the labor force status of civilian dependents of active-duty personnel from the Kodiak Coast Guard Station.

TABLE F.6
NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT,
AVERAGE MONTHLY WAGE, 1980

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual Average
Total	1397	1495	1697	1519	1527
Mining	0	0	0	0	0
Construction	2402	2457	3131	3330	2830
Manufacturing	1183	1366	1694	1132	1344
Transportation, Communication, and Utilities	1736	1631	2006	2224	1899
Wholesale Trade	1344	-	1561	1661	1522
Retail Trade	1245	1231	1122	1336	1234
Finance, Insurance, and Real Estate	1724	1505	1688	1571	1622
Services	1097	1107	1074	1262	1135
Federal Government	2373	2129	2352	2331	2296
State Government	2391	2344	2395	2113	2311
Local Government	1251	1704	1793	1481	1557

- not available

SOURCE: Alaska Department of Labor, Statistical Quarterly, 1980 I - 1980 IV, page 17-18.

TABLE F.7
CALCULATION OF AVERAGE
MONTHLY EARNINGS IN KODIAK REGION
IN BASIC, SUPPORT, AND GOVERNMENT SECTORS

	Average Employment	Average Wage	Average Total Earnings
Mining	0	0	0
Manufacturing	1817	1344	2,442,048
Total Basic Sector	1817	1344	2,442,048
Construction	101	2830	285,830
Transportation, Communication, and Utilities	352	1899	688,448
Wholesale Trade	20	1522	30,440
Retail Trade	599	1234	739,166
Finance, Insurance and Real Estate	98	1622	158,956
Services	565	1135	641,275
Total Support Sector	1735	1455	2,524,115
Federal Government	286	2296	656,656
State and Local Government	752	1766	1,328,032
Government Sector	1038	1912	1,984,688

SOURCES: Average employment and average wages from Tables F.3 and F.4. Sectoral wage rates calculated by dividing average total earnings by average employment.

TABLE F.8
EMPLOYMENT STATUS OF
PERSONS AGED 16 AND OVER
KODIAK 1980

	Total		Non-Native[a]		Native	
	Male	Female	Male	Female	Male	Female
Civilian Employed	2408	1432	2228	1311	180	121
Armed Forces[b]	69	5	69	5	0	0
Unemployed	152	104	121	96	31	8
Not in Labor Force	459	904	350	724	109	180
TOTAL	3088	2445	2768	2136	320	309

---

[a]Calculated by subtracting Native figures from total figures.

[b]Figures exclude Kodiak Coast Guard Station active duty and civilian employment.

SOURCE: Bureau of the Census, 1980 Census Special Tabulation STF3A, Table 55.

TABLE F.9
CALCULATION OF LABOR FORCE
PARTICIPATION RATE ASSUMPTIONS FOR KODIAK

Group	Number Employed (a)	Population (b)	Labor Force Participation Rate (c)	Adjusted Labor Force Participation Rate (d)
Non-Native Males Ages 20-64	2297	2441	.941	.978
Non-Native Females Ages 20-64	1316	1864	.706	.734
Native Males Ages 20-64	180	276	.652	.678
Native Females Ages 20-64	121	236	.513	.533
Total	3914	4817	.813	.845

(a)1980 Census data from Table F.8. Employed persons ages 16 and over were assumed to be between ages 20 and 64.

(b)1980 Census data from Table IV-1.

(c)Number employed/population.

(d)We have assumed resident full-time civilian employment of 3,995 (Table F.5). The census employment figures account for employment of only 3,842 (Table F.4). In order to obtain rates consistent with total estimated full-time equivalent employment, an adjusted labor force participation rate was calculated by multiplying by an adjustment factor of 3995/3842 = 1.040.

APPENDIX G

TECHNICAL APPENDIX: SEWARD

In this appendix, we develop estimates of employment, income, and labor force participation in Seward in 1980. Our discussion is for the Seward census subarea, which includes the area south of Kenai Lake along the Seward Highway.

Employment Data

There are a variety of alternative definitions of employment. The measure we have chosen is resident full-time equivalent employment. Full-time equivalent employment is a measure of total person-years of work. We believe it is the single most useful measure of employment in a community although other measures, such as seasonal variation, are required to complete the picture. Care is needed in interpreting this measure, since full-time equivalent employment for a given year may vary greatly from actual employment at any particular time during the year. During the height of the fishing and tourism season, actual employment in Seward is far higher than is full-time equivalent employment for the entire year.

We concentrated our efforts on measuring resident employment because resident employment is directly related to permanent population. We excluded workers who migrate to Seward for seasonal jobs each year from our definition of resident employment.

There is no single data source which provides a complete description of current employment in Seward. Tables G.1-G.3 provide employment information from several different sources.

Table G.1 provides data on full-time equivalent employment for 1979 collected in a special count by Alaska Consultants, Inc. The 1979 estimate of fishing employment was based on information supplied by the Alaska Department of Fish and Game, the Seward harbor master, and the largest local seafood processor.

Table G.1 also provides information on Alaska Consultants' estimate of the share of employment in each industry which is basic and the share which is secondary, where basic employment is defined as employment serving markets outside the community.

Although they are several years old, the Alaska Consultants estimates in Table G.1 are the only available data on full-time equivalent employment in Seward. In addition, they provide a useful breakdown of employment by industry between basic and secondary information. In some ways, however, the data are not directly comparable to our needs for describing current employment or projecting future employment. For example, they do not distinguish between resident and nonresident employment.

Alaska Consultants reported that in 1978 fishing and fish processing together accounted for approximately 180 FTE jobs, or roughly 18 percent of full-time equivalent employment in the Seward area.[1] This suggests that the Seward economy is less dependent upon fishing than other southcentral coastal communities such as Cordova and Homer where fishing and fish processing accounts for a larger share of employment.

---

[1] Alaska Consultants, Inc. Northern and Western Gulf of Alaska Local Socioeconomic Baseline. Technical Report No. 32. (Anchorage: Bureau of Land Management, Alaska Outer Continental Shelf Office, May 1979) p. 303.

TABLE G.1
AVERAGE ANNUAL FULL-TIME EMPLOYMENT[a]
SEWARD (b)
1978

Industry Classification	Number	Exogenous	Endogenous
Agriculture, Forestry, and Fishing	100 (c)	100	0
Mining	0	0	0
Contract Construction	9	0	9
Manufacturing	121	117	4
Transportation, Communication and Public Utilities	37	36	21
Trade	193	82	111
Finance, Insurance, and Real Estate	20	0	20
Service	161	62	99
Government	354	214	140
Federal	(104)	(99)	(5)
State	(152)	(115)	(37)
Local	(98)	(0)	(98)
TOTAL	1,015	611	404

(a) Includes self-employed and military personnel.

(b) Area covered is not defined but probably extends beyond limits of city proper.

(c) Number of fishermen employed on an average annual year round basis estimated on basis of information supplied by Alaska Department of Fish and Game, Seward harbor master, and local seafood processor.

SOURCE: Alaska Consultants, Inc. Northern and Western Gulf of Alaska Local Socioeconomic Baseline, Technical Report No. 32 (Anchorage: Bureau of Land Management, Alaska Outer Continental Shelf Office, May 1979), p. 286.

Table G.2 presents nonagricultural wage and salary employment data for the Seward census division. These data do not provide an accurate picture of resident employment in Seward for several reasons. They do not include fishing employment or manufacturing employment; the area covered is greater than that of the immediate Seward area, and they do not distinguish between resident and nonresident employment. However, the data do provide an indication of the high degree of seasonality in industries such as construction, retail trade, the federal government, and "other" undisclosed employment.

One indication that the underestimate resulting from using these figures may not be too low is that the total employment counted by the census is fairly close to that reported in the Alaska Consultants' estimates for 1978 (1,075 compared to 1,015). We arbitrarily assume an underestimate of 10 percent for employment in the basic and support sectors.

Table G.3 presents selected information on employment collected in the 1980 census. These data were collected for a given week during the spring of 1980 (unfortunately, the choice of week was not necessarily the same for all households). As a result, the numbers are not an accurate measure of full-time equivalent employment, since persons unemployed during the winter may have been employed for substantial periods of time during other seasons. However, almost all of the persons sampled are likely to have been permanent residents of Seward. Therefore, we have based our estimates of 1980 FTE employment in Seward upon these census data, although they may underestimate FTE employment in some sectors.

TABLE G.2
NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT,
SEWARD CENSUS DIVISION, 1980

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	1980 Average	Seasonality Factor (a)
Total Non-agricultural	1228	1365	1468	1578	1410	.78
Mining	*	*	*	*	*	*
Construction	*	7	13	5	8	.38
Manufacturing	*	*	*	*	*	-
Transportation, Communication, & Utilities	53	51	41	48	48	.77
Wholesale Trade	*	*	*	*	*	*
Retail Trade	131	154	194	149	157	.68
Finance, Insurance and Real Estate	16	16	18	19	17	.84
Services	200	174	168	165	177	.83
Federal Gov't	47	59	84	55	61	.56
State and Local Gov't	309	317	295	337	315	.95
Other (b)	472	777	655	800	627	.59

*Not shown to avoid disclosure of data for individual firms.

(a) Lowest quarterly employment/highest quarterly employment.

(b) Includes miscellaneous, undisclosed, and uninsured employment.

SOURCE: Alaska Department of Labor, Statistical Quarterly, 1980 I, p. 19; 1980 II, p. 19; 1980 III, p. 19; 1980 IV, p. 19.

TABLE G.3

SELECTED EMPLOYMENT-RELATED DATA

FROM 1980 CENSUS: SEWARD AREA (a)

	City of Seward	Remainder of Seward	Total
Civilian Employed Workers by Industry			
Agriculture, Forestry, Fishing and Mining	76	33	109
Construction	40	26	66
Manufacturing: Nondurables	64	40	104
Manufacturing: Durables	15	13	28
Transportation	50	0	50
Communication and Public Utilities	19	0	19
Wholesale Trade	3	0	3
Retail Trade	132	23	155
Finance, Insurance, and Real Estate	15	0	0
Business and Repair Services	12	7	19
Personal, Entertainment and Recreation Services	39	0	39
Professional Health Services	66	42	108
Professional Education Services	95	68	163
Other Professional Services	39	6	45
Public Administration	94	41	135
TOTAL	759	299	1058
Employed Workers Claiming Farming, Forestry, or Fishing as Occupation	31	21	52
Civilian Employed Workers by Kind of Employer			
Government	276	109	285
Federal	45	0	45
State	34	51	85
Local	97	58	155
Private other than self	411	167	378
Self	66	23	89
Unpaid (usually work for family)	6	0	6
TOTAL	759	299	1058
Military Employment	17	0	17
Total Civilian and Military Employment	776	299	1075

(a) Data were collected as of a given week during the spring of 1980. However, the particular week was not necessarily consistent for all households.

SOURCE: Special Tabulations for 1980 census, from U.S. Bureau of the Census, Tape STF3A, Tabulations 55, 65, 66, and 67.

Estimation of 1980 Employment in Seward

Table G.4 presents our estimates of resident full-time equivalent employment in Seward, and the distribution of this employment among several different categories of employment. The footnotes to the table describe how each figure was developed.

We estimate a total 1980 resident employment of 1,132. Of this figure, 265 (23 percent) are in basic sector jobs, 582 (51 percent) are in support sector jobs, and 285 (25 percent) are in government sector jobs.

TABLE G.4
ESTIMATED FULL-TIME EQUIVALENT
EMPLOYMENT IN SEWARD AREA, 1980

Resident Basic Employment	265	(a)
Fishing	120	
Fish Processing	114	
Other	31	
Resident Support Employment	582	(b)
Exogenous	308	
Endogenous	206	
Government-sponsored	68	
Resident Government Employment	285	(c)
Exogenous	66	
Endogenous	219	
Total	1132	

TABLE G.4 NOTES

(a) We may include in basic employment the following census industries from Table G.3: agriculture, forestry, fishing, and mining (109); manufacturing of nondurables (104), and manufacturing of durables (28). We assumed that these categories were roughly equivalent to fishing, fish processing, and other basic employment. We then increased each figure by an arbitrary figure of ten percent to partially allow for seasonality of employment.

(b) We obtained a total figure for support employment in the census count by subtracting total government and basic employment (before seasonal adjustments) from total civilian and military employment in Table G.3. This produced a figure of 1075 - 17 - 285 - 109 - 104 - 18 = 532. We also arbitrarily increased this figure by ten percent to allow for higher employment levels during the summer, resulting in a total support employment figure of 582. We assumed that the share of this employment which was exogenous was the same as the share of exogenous employment in the Alaska Consultants' estimates shown in Table 1 or (0 + 117 + 36 + 82 + 0 + 62)/(9 + 121 + 57 + 193 + 20 + 161) = 53 percent. We arbitrarily assumed that the remaining 479 of support employment was 75 percent endogenous and 25 percent government-sponsored.

(c) We used the total government employment count for the 1980 Census. We assumed all local government and 75 percent of State government positions serve the local community. All other government jobs were considered exogenous.

Income

One measure of personal income in Seward may be obtained by multiplying the population by the average per capita income for the Seward census division. The Alaska Department of Labor measured per capita income as $11,967 in 1980 (Alaska Department of Labor, Alaska Planning Information, p. 92). Multiplying this figure by a total population of 2,493 provides an estimate of total personal income of $29,834,000.

Alternatively, Table G.5 provides estimates of total wage earnings in the support and government sectors for the Seward census division. We used these figures to calculate average annual wage rates for these sectors of $13,200 and $27,100, respectively. If we arbitrarily assume a basic sector annual wage rate of $25,000, we may estimate annual wage income in thousands of dollars as (265 x 25 + 582 x 13.2 + 285 x 27.1) = $22,030 thousand, or $22,030,000.

The discrepancy between these estimates suggests that our estimates of employment or wage rates may be low, the figure for per capita income may be high, or nonwage income may be substantial. We obtained an estimate of 1980 nonwage income from the Bureau of Economic Analysis estimates of dividends, interest spent, and transfer payments for 1980 for the Seward census division (Bureau of Economic Analysis, Personal Income by Major Sources, 1975-80, April 1982). These components of personal income totaled $8,475,000 in 1980. Assuming a 1980 population for the Seward census division of 2,809 (Alaska Department of Labor Alaska Planning Information, p. 9), we may assume per capita nonwage income of $3,017 in 1980. For a population of 2,493, this would result in nonwage income of $7,521,600 for the immediate Seward area. This accounts for almost all of the difference between our estimates of total income and wage income.

TABLE G.5
NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT,
TOTAL PAYROLL
SEWARD CENSUS DIVISION
(Thousands of Dollars)

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual Average	
Total Nonagricultural	5172	6376	7041	5156	23745	
Mining	*	*	*	*	-	
Construction	*	55	113	28	196	(a)
Manufacturing	*	*	*	*	-	
Transportation, Communication, and Utilities	272	278	226	329	1105	
Wholesale Trade	*	*	*	*	-	
Retail Trade	363	413	507	446	1729	
Finance, Insurance, and Real Estate	47	52	53	59	211	
Services	521	490	518	529	2058	
Federal Government	252	272	473	307	1304	
State and Local Gov't	2089	2249	2130	2403	8871	
Other (b)	1628	2567	3021	1055	8271	

---

* Not shown to avoid disclosure of data for individual firms.

(a) Total for second, third, and fourth quarters.

(b) Includes miscellaneous, undisclosed, and uninsured employment.

SOURCE: Alaska Department of Labor, Statistical Quarterly, 1980 I - 1980 IV, p. 19.

TABLE G.6
CALCULATION OF AVERAGE ANNUAL WAGE IN
SUPPORT AND GOVERNMENT SECTORS
SEWARD 1980
(Thousands of Dollars)

	Average Employment	Average Annual Wage	Average Total Earnings
Construction[a]	8	32.6	261
Transportation, Communication, and Utilities	48	23.0	1105
Wholesale Trade	*	-	*
Retail Trade	157	11.0	1729
Finance, Insurance and Real Estate	17	12.4	211
Services	177	11.6	2058
Total Support Sector	407	13.2	5364
Federal Government	61	21.4	1304
State and Local Government	315	28.2	8871
Total Government Sector	376	27.1	10175

*Not shown to avoid disclosure of data for individual firms.

[a]Average employment does not incude first quarter. Total earnings for last three quarters adjusted upwards by one-third to obtain estimate of total annual earnings.

SOURCES: Average employment and total earnings from Tables G.2 and G.5. Sectoral wage rates calculated by dividing average total earnings by average employment.

Employment Rate

Table G.7 provides data from the 1980 census on employment rates. The rate of employment was highest for Non-Native males and lowest for Native males. The low rate of employment for Natives may be due in part to the presence of a substantial number of Natives as students at the Seward Skill Center.

Labor Force Participation Rate

The labor force participation rate for total persons aged 20-64 in the Seward census subarea is .710 (Table G.8). Non-Native males and females had rates of .772 and .740, respectively. The rate was higher for Native females (.384) than Native males (.371).

TABLE G.7
EMPLOYMENT STATUS OF
PERSONS AGED 16 AND OVER
SEWARD CENSUS SUBAREA 1980

	Total		Non-Native[a]		Native	
	Male	Female	Male	Female	Male	Female
Civilian Employed	660	458	562	423	38	35
Armed Forces	17	0	17	0	0	0
Unemployed	87	70	81	54	6	16
Not in Labor Force	358	348	301	307	57	41
TOTAL	1062	876	961	784	101	92
Employment Rate[b]	.581	.523	.602	.540	.376	.380

[a]Calculated by subtracting Native figures from total figures.

[b](Civilian employment + military)/total.

SOURCE: Bureau of the Census, 1980 Census Special Tabulation STF3A, Table 55.

TABLE G.8
CALCULATION OF LABOR FORCE
PARTICIPATION RATE ASSUMPTIONS FOR SEWARD AREA

Group	Number Employed (a)	Population (a)	Labor Force Participation Rate (c)	Adjusted Labor Force Participation Rate (d)
Non-Native Males Aged 20-64	579	790	.733	.772
Non-Native Females Aged 20-64	423	602	.703	.740
Native Males Aged 20-64	38	108	.352	.371
Native Females Aged 20-64	35	96	.365	.384
Total	1,075	1,596	.674	.710

(a)1980 Census data from Table G.7.

(b)1980 Census data from Table 0.1. Employed persons aged 16 and over were assumed to be between ages 20 and 64.

(c)Number employed/population.

(d)We have assumed resident full-time equivalent employment of 1,132 (Table G.4). The census employment figures account for employment of only 1,075. In order to obtain rates consistent with total estimated full-time equivalent employment, an adjusted labor force participation rate was calculated by multiplying by an adjustment factor of 1,132/1,075 = 1.053.

APPENDIX H
TECHNICAL APPENDIX
YAKUTAT

In this appendix we develop estimates of employment, income, and labor force participation in Yakutat in 1980.

Employment Data

There is no single data source which provides a complete description of current employment in Yakutat. Tables H.1 through H.3 provide employment information from several different sources.

Table H.1 provides data on full-time equivalent employment for the years 1976 and 1977, collected in special counts by Alaska Consultants, Inc. Except for fishermen, the data were obtained by interviewing employers. The data on fishing employment were developed using information collected by the Alaska Department of Fish and Game on gear registration, estimates of the number of fishermen usually associated with each kind of gear, and the average number of months each kind of gear was usually fished.

Table H.1 also provides information on Alaska Consultants' estimates of the share of employment in each industry which is basic and the share which is secondary. Basic employment is defined as employment serving markets outside the community. About 60 percent of total employment was classified as basic. The difference between total employment in 1976 and 1977 reflects mining and transportation employment for oil and gas exploration connected with Federal OCS Sale No. 55 in the Northern Gulf of Alaska. Alaska Consultants assumed that Yakutat's remaining employment composition did not change from 1976 to 1977.

Although they are several years old, the Alaska Consultants estimates in Table H.1 are the only available data on full-time equivalent employment in Yakutat.

The implications of using a full-time equivalent unit of measure can be illustrated with a fishing industry example. According to Terry et al. (1980, p. 336, Table 3.178), a total of 131 resident, set-gill-net permit owners harvested salmon in the Yakutat district in 1976 (they represent 4/5 of total resident and nonresident licensed fishermen). If each permit owner was helped by one person,

TABLE H.1.
ALASKA CONSULTANTS, INC. ESTIMATES OF AVERAGE ANNUAL FULL-TIME EMPLOYMENT IN YAKUTAT AND IMMEDIATE VICINITY, INCLUDING SELF-EMPLOYED AND MILITARY EMPLOYMENT, 1976 AND 1977

Industry Classification	1976			1977		
	Total	Basic	Secondary	Total	Basic	Secondary
Agriculture, Forestry and Fishing	38	38	0	38	38	0
Mining	2	2	0	8	8	0
Contract Construction	13	6	7	13	6	7
Manufacturing	32	32	0	32	32	0
Transportation, Communication, & Public Utilities	20	9	11	30	19	11
Trade	32	10	22	32	10	22
Finance, Insurance, & Real Estate	5	2	3	5	2	3
Service	17	5	12	17	5	12
Government	82	33	49	82	33	49
Federal	34	31	3	34	31	3
State	8	2	6	8	2	6
Local	40	0	40	40	0	40
TOTAL	241	137	104	257	153	104

SOURCES: Alaska Consultants, Inc., Yakutat Comprehensive Development Plan (Anchorage, Alaska Consultants, February 1976), p. 52; Alaska Consultants, Inc., Northern and Western Gulf of Alaska Local Socioeconomic Baseline, OCS Socioeconomic Studies Program Technical Report No. 32 (Anchorage, BLM-OCS Office, May 1979),p. 36.

this would mean that 262 people worked in fishing at some time during the year. Alaska Consultants estimated full-time equivalent agriculture, forestry, and fishing employment to be 38. If we assume that all of this employment was in fishing, this implies total fishing employment of 1976 work weeks. Dividing 1976 work weeks by 262 persons implies an average job duration of six to seven weeks per year. Thus, if we accept the data provided by Terry et al. (1980) and Alaska Consultants (1976), then the full-time equivalent concept collapses 131 licensed commercial fishmen plus an additional 131 crew that work six to seven weeks per year into 38 full-time equivalent jobs.

The Alaska Consultants' data also provide a useful breakdown of employment by industry between basic and secondary information. However, because they do not distinguish between resident and nonresident employment, the data are not directly comparable to our needs for describing current employment or projecting future employment.

In general, the data in Table H.1 suggest that in 1977 fishing and fish processing together accounted for about one-third of full-time equivalent employment in the Yakutat road-connected area, and that government accounted for another third.

Table H.2 presents data collected by the Alaska Department of Labor on wage and salary employment in the Skagway-Yakutat census division. These data do not distinquish between resident and nonresident employment, nor do they include most fishing employment. Furthermore, they were collected for a much larger area than the Yakutat, road-connected area to which the population figures correspond. Alaska Consultants (1976, p. 52) suggest that employment data for the overall labor market area reflected in the Skagway-Yakutat census division are not representative of employment patterns for the immediate Yakutat area. They argue that Yakutat is isolated, having virtually no economic ties with the other communities reflected in the data in Table H.2 (i.e., Haines,

TABLE H.2
NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT,
SKAGWAY-YAKUTAT CENSUS DIVISION, 1980

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	1980 Average	Seasonality Factor (a)
Total Non-agricultural	779	1172	1443	967	1090	54
Mining	0	0	0	*	-	-
Construction	*	*	*	5	-	-
Manufacturing	99	269	374	140	221	.26
Transportation, Utilities	219	265	322	248	264	.68
Wholesale Trade	3	*	*	*	-	-
Retail Trade	79	121	141	108	112	.56
Finance, Insurance and Real Estate	11	17	17	32	19	.34
Services	56	169	258	99	146	.22
Federal Gov't	54	65	74	59	63	.73
State & Local Government	247	237	189	257	233	.74
Miscellaneous	*	14	22	13	-	-
Total Undisclosed Employment	11	15	46	6	32	-

*Not shown to avoid disclosure of data for individual firms.

(a) Lowest quarterly employment/highest quarterly employment.

SOURCE: Alaska Department of Labor, Statistical Quarterly, 1980 I, p. 20; 1980 II, p. 20; 1980 III, p. 20; 1980 IV, p. 20.

Skagway, Hoonah, Pelican, Elfin Cove, and Gustavus).[a] This problem may be particularily evident in the case of manufacturing employment. Unlike many Alaska fishing and fish-porcessing communities, processing employment in Yakutat is largely resident-based precisely because of Yakutat's ralative isolation.[b] Thus, the strong seasonal patterns of manufacturing employment exhibited in Table H.2 may actually pertain to places in the Skagway-Yakutat census division other than Yakutat. This does not preclude the possibility that residents engaged in seasonal processing employment do other work at other times of the year.

Table H.3 presents selected information on employment collected in the 1980 census. These data were collected for a given week during the spring of 1980. Unfortunately, the choice of week was not necessarily the same for all households. As a result, the numbers do not serve as a measure of full-time equivalent employment, since persons unemployed during the winter may well have been employed for substantial periods of time during other seasons. However, the area covered is the same as for our population data. In addition, almost all of the persons sampled are likely to have been permanent residents of Yakutat.

The figures in Table H.3 pertain specifically to the Yakutat road-connected area and, although not perfectly comparable, are generally much lower than the corresponding figures in Table H.2. Thus, from the standpoint of total employment, the Yakutat road-connected area, having 151 employees (Table H.3), accounts for

---

[a]During a personal conversation on March 11, 1983, Barbara Baker, an Alaska Department of Labor analyst familiar with Yakutat, confirmed this viewpoint.

[b]Ibid.

TABLE H.3
SELECTED EMPLOYMENT-RELATED DATA
FROM 1980 CENSUS: YAKUTAT (a)

Civilian Employed Workers by Industry		
Agriculture, Forestry, Fishing and Mining	17	
Construction	1	
Manufacturing: Nondurables	17	
Manufacturing: Durables	4	
Transportation	16	
Communication and Public Utilities	11	
Wholesale Trade	2	
Retail Trade	19	
Finance, Insurance, and Real Estate	3	
Business and Repair Services	0	
Personal, Entertainment and Recreation Services	2	
Professional Health Services	12	
Professional Education Services	34	
Other Professional Services	2	
Public Administration	11	
TOTAL	151	
Employed Workers Claiming Farming, Forestry, or Fishing as Occupation	16	
Civilian Employed Workers by Kind of Employer		
Government	67	
Federal		11
State		6
Local		50
Private other than self	67	
Self	16	
Unpaid (usually work for family)	1	
TOTAL	151	
Military Employment	0	

(a) Data were collected as of a given week during the spring of 1980. However, the particular week was not necessarily consistent for all households.

SOURCE: Special Tabulations for 1980 census, from U.S. Bureau of the Census, Tape STF3A, Tabulations 55, 65, 66, and 67.

14 percent of total census division employment. (This ratio is also consistent with the proportion of Yakutat population [13 percent] out of total census division population in 1980.)

Government employment accounts for 44 percent of total employment and captures the largest share of any single employment category. At three quarters, local government employment accounts for a relatively large share of total government employment. Fishing and nondurable manufacturing (fish processing) account for one-quarter of total employment.

TABLE H.4
ESTIMATED FULL-TIME EQUIVALENT
EMPLOYMENT IN YAKUTAT, 1980

Resident Basic Employment	75	
Fishing	38	(a)
Fish Processing	32	(b)
Other	5	(c)
Resident Support Employment	46	(g)
Exogenous	20	
Endogenous	20	
Government-sponsored	6	
Enclave-sponsored	0	(e)
Resident Government Employment	67	(f)
Exogenous	13	
Endogenous	54	
Total Resident	188	
Total Exogenous	108	
Total Endogenous	80	
Nonresident (Enclave) Employment	1	(d)
Total Resident and Nonresident	189	(h)

TABLE H.4 NOTES

(a) The 1980 census counted 16 employed persons claiming forestry, fishing, or farming as an occupation. This is substantially below the Alaska Consultants 1977 estimate of 38 fishing employees (Table H.1) based on the ADFG count of 131 licensed set-gill-net fishermen in 1976 (Alaska OCS Studies Program, Tech. Report 30, page 336, Table 3.178). Despite their contributions to average full-time equivalent employment, it is possible that a significant portion of Yakutat's resident, licensed fishermen could have been omitted from the census tabulations because they were not actually working in the designated time period of the survey. For this reason, and because the seafood industry remained strong between 1977 and 1980, we reject the census figure in favor of the Alaska Consultants estimate of 38 FTE fish harvesting employees.

(b) The 1980 Census counted 17 nondurable manufacturing employees (Table H.3), compared with Alaska Consultants' estimate of 32 for total manufacturing. According to the Alaska Department of Fish and Game processor certificate and permit list (special tabulations) of licensed processors, there was one major, shore-based, seafood processor operating in Yakutat in 1980. Processing employment could vary significantly depending on time of year, species, and level of catch. In this case, we assume the census figures reflect the seasonal employment trough rather than average annual level of employment. We reject the census count of nondurable manufacturing employment in favor of Alaska Consultants' estimates, after deducting four employees counted by the census as durable manufacturing (wood products).

(c) This figure reflects the 1980 census count of four employees in nondurable manufacturing plus one mining employee (derived by subtracting employed persons claiming agriculture, forestry, and fishing occupations [16], from census industry, employment classified as agriculture, forestry, fishing, and mining [17]).

(d) As a proportion of total census division population, the city of Yakutat accounts for only 13 percent. We multiply this proportion by average annual census division manufacturing employment from Table H.2 (221) to derive a crude estimate of total resident and nonresident nondurable manufacturing employment in Yakutat (13 percent x 221 = 29). The difference between this figure and the previous estimate of 28 fish processing employees (note [b] above) indicate there was one nonresident enclave employee in full-time equivalent units. This is consistent with a high degree of resident participation in processing, an interpretation supported by Barbara Baker of the Alaska Department of Labor (personal conversation, March 11, 1983).

(e) Very little data are available to estimate a multiplier for enclave-sponsored support employment. In this case, we derived only one enclave employee. We, therefore, assumed that this person would negligibly affect the support sector.

(f) We assumed a total government employment figure of 67 based on the 1980 census (Table H.3). This figure includes civilian employment of 67 with zero military employment. Of these, we assumed that all federal workers were exogenous and all local government employees were endogenous. We assumed that 25 percent of the state government employees were exogenous, based on the 1978 breakdown assumed by Alaska Consultants (Table H.1). This resulted in exogenous government employment of 11 + (.25 X 6) = 13, while the remainder (67 - 13 = 54) is endogenous.

(g) We obtained a total figure for support employment by assuming that the census figures for support employment are reasonable measures of full-time equivalent employment. However, we had to subtract out that component of support employment which is actually government employment. Thus, we have support employment = employment in construction + transportation + communication and public utilities + wholesale trade + retail trade + finance, insurance, and real estate + all services - total civilian government employment = 1 + 16 + 11 + 2 + 19 + 3 + 2 + 12 + 32 + 4 + 11 - 67 = 46. This figure compares with the Alaska Consultants' estimate of 97 for 1978 (Table H.1). Alaska Consultants estimates that 43 percent of support jobs were basic or exogenous. Using this same share, we have exogenous support employment of 20. Given six enclave-sponsored support jobs, this results in a remainder of 26 support jobs which are either endogenous or government-sponsored. Arbitrarily assuming that 75 percent of these jobs are endogenous, we have 20 endogenous support jobs and 6 government-sponsored support jobs.

(h) Excludes nonresident fish harvesting employment.

Income

One measure of personal income in Yakutat may be obtained by multiplying the population by the average per capita income for the Skagway-Yakutat census division. The Alaska Department of Labor measured per capita income as $9,098 in 1980 (Alaska Department of Labor, Alaska Planning Information, p. 92). This method provides an estimate of total personal income of $4.085 million.

Alternatively, Table H.5 provides estimates of average wage rates by industry; we used these to calculate average monthly wage rates for the basic, support, and government sectors shown in Table H.6. Multiplying these wage rates by the employment estimates in Table H.4 provides an estimate of total wage income of $3.551 million, which is similar to the estimate based on per capita income.

The $500,000 discrepancy between these alternative estimates reflects the difficulty in using regional data to estimate personal income on a local, community level. This is particularly evident in the case of Yakutat, which contains only 13 percent of the Skagway-Yakutat census division population and is relatively isolated from other census division communities. The discrepancy could also reflect the presence of nonwage income. Yet another possible explanation is that our estimate of the basic sector wage rate is low since the data used to estimate it did not include fishing employment. If we assume an average annual wage rate of $25,000 for basic sector employment, then total wage income increases to $3.702 million.

An estimate of nonwage income was derived for 1980 from the Bureau of Economic Analysis (BEA), Special Tabulations of Personal Income by Major Source by Alaska Census Divisions (April 1982). The BEA reported a total of $710,000 in transfer payments for the Skagway-Yakutat census division in 1980. Using our earlier estimate that Yakutat accounts for 14 percent of total census division

TABLE H.5
NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT,
AVERAGE MONTHLY WAGE, 1980
YAKUTAT

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual Average
Total	1258	1325	1460	1563	1402
Mining	0	0	0	-	-
Construction	-	-	-	2294	-
Manufacturing	2232	1327	1862	2239	1915
Transportation, Communication, and Utilities	1042	1873	1801	1914	1658
Wholesale Trade	1360	-	-	-	-
Retail Trade	634	685	837	644	700
Finance, Insurance, and Real Estate	1159	1149	1292	1375	1244
Services	794	687	827	1136	861
Federal Government	1730	1647	1848	1857	1771
State and Local Gov't	1291	1450	1249	1349	1335
Miscellaneous	-	619	823	622	-

- not available

SOURCE: Alaska Department of Labor, Statistical Quarterly, 1980 I - 1980 IV, page 20.

TABLE H.6
CALCULATION OF AVERAGE MONTHLY WAGE IN
SKAGWAY-YAKUTAT REGION IN
BASIC, SUPPORT, AND GOVERNMENT SECTORS

	Average Employment	Average Wage	Average Total Earnings
Mining	-	1402	-
Manufacturing	221	1915	423215
Total Basic Sector	221	1915	423215
Construction	-	-	-
Transportation, Communication, and Utilities	264	1658	437712
Wholesale Trade	-	-	-
Retail Trade	112	700	78400
Finance, Insurance and Real Estate	19	1244	23636
Services	146	861	125706
Total Support Sector	541	1230	665454
Federal Government	63	1771	111573
State and Local Government	233	1335	311055
Total Government Sector	296	1428	422628

[a]Includes 32 undisclosed employment.

SOURCES: Average employment and average wages from Tables H.2 and H.5. Sectoral wage rates calculated by dividing average total earnings by average employment.

employment, we derive $99,400 in total transfer payments to Yakutat residents. This reduces to $221 per capita ($99,400/449). To derive total income, we added $99,400 to wage income of $3.702 million.

Labor Force Participation

Tables H.7 and H.8 provide information on labor force participation in Yakutat. As shown in Table H.8, the labor force is distributed somewhat evenly on the basis of sex and ethnicity. At 31 percent, Native females account for the largest segment of the labor force. At 20 percent, Native males fall into the smallest segment. Among persons aged 20 to 64, the full-time equivalent labor force participation rate is highest for Non-Native females. Non-Native males and Native females had comparable labor force participation rates, while Native males ranked lowest in terms of labor force participation. However, these rates are slightly overstated because we assume that all workers are within this age group.

TABLE H.7
EMPLOYMENT STATUS OF
PERSONS AGED 16 AND OVER
YAKUTAT 1980

	Total		Non-Native[a]		Native	
	Male	Female	Male	Female	Male	Female
Civilian Employed	72	79	42	32	30	47
Armed Forces	0	0	0	0	0	0
Unemployed	35	13	13	4	23	9
Not in Labor Force	54	46	23	9	31	37
TOTAL	161	138	77	45	84	93

[a]Calculated by subtracting Native figures from total figures.

SOURCE: Bureau of the Census, 1980 Census Special Tabulation STF3A, Table 55.

TABLE H.8
CALCULATION OF LABOR FORCE
PARTICIPATION RATE ASSUMPTIONS FOR YAKUTAT

Group	Number Employed (a)	Population (b)	Labor Force Participation Rate (c)	Adjusted Labor Force Participation Rate (d)
Non-Native Males Ages 20-64	42	76	.553	.753
Non-Native Females Ages 20-64	32	38	.842	.842
Native Males Ages 20-64	30	63	.476	.648
Native Females Ages 20-64	47	70	.671	.671
Total	151	273	.553	.689

(a) 1980 Census data from Table H.7. Employed persons ages 16 and over were assumed to be between ages 20 and 64.

(b) 1980 Census data from Table VI-1.

(c) Number employed/population.

(d) We have assumed resident full-time employment of 188 (Table H.4). The census employment figures account for employment of only 151. In order to obtain rates consistent with total estimated full-time equivalent employment, an adjusted labor force participation rate was calculated for Native and Non-Native males under the assumption that the difference between our estimate of 188 full-time equivalent employment and the 1980 census estimate of 155 was related entirely to male employment. An adjustment factor was recalculated by multiplying the ratio of this difference (26) plus the census count of employed males (72) to the census count of employed males [(26 + 72)/72 = 1.36] by the Native and Non-Native male labor force participation rates.

APPENDIX K: WORKSHEETS FOR RAM MODEL ASSUMPTIONS COMMON TO ALL COMMUNITIES

This appendix presents worksheets of RAM model assumptions which were the same for each of the communities included in this report.

WORKSHEET 2. SURVIVAL RATE ASSUMPTIONS
FOR POPULATION MODEL

(Share of population which
does not die each year)

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	.99654	.99757	.99171	.99413
5-14	.99964	1.0000	.99894	.99952
15-19	.99848	1.0000	.99260	.99634
20-34	.99742	.99926	.99164	.99674
35-64	.99310	.99671	.98817	.99403
65+	.94008	.96612	.93506	.97311

NOTE: Variable names for each column are SM1, . . ., SM6; SF1, . . ., SF6; NSM1, . . .,NSM6; NSF1, . . .,NSF6.

SOURCE: We assume the same cohort survival rates for all communities, due to the absence of reliable community-specific data. We calculated the survival rates from 1980 census total population and mortality figures for non-Anchorage Alaska residents.

WORKSHEET 3. FERTILITY RATE ASSUMPTIONS FOR POPULATION MODEL

(Share of women giving birth each year)

	Non-Native		Native	
	Variable		Variable	
Age Group	Name	Value	Name	Value
15-19	FERT3	.04033	NFERT3	.13668
20-34	FERT4	.11641	NFERT4	.18235
35-64	FERT5	.02084	NFERT5	.03727

SOURCE: We assume the same cohort fertility rates for all communities due to the absence of reliable community-specific data. The rates are based on data for non-Anchorage Alaska. The number of births are from the Alaska Department of Health and Social Services, Office of Information Systems and the Alaska Native Medical Center, Anchorage. Non-Anchorage figures are derived by subtracting Anchorage from statewide data.

WORKSHEET 4. SHIFT FACTOR ASSUMPTIONS

(Share of population which does not advance to the next age group each year)

Age Group	Variable Name	Shift Factor
0-4	G1	.80
5-14	G2	.90
15-19	G3	.80
20-34	G4	.9333
35-64	G5	.9667
65+	G6	1.0000

SOURCE:

Calculated using the formula $1 - \frac{1}{\text{(number of age-years in group)}}$

WORKSHEET 5. INFANT SURVIVAL AND SEX DISTRIBUTION ASSUMPTIONS

Variable	Variable Name	Value
Infant survival rates		
Males	SURINFM	1.0
Females	SURINPF	1.0
Sex distribution of infants	SEXDIV	.5

SOURCE: We assumed these figures, in the absence of better data.

Base Year for Real Dollars 1982

WORKSHEET 8. STATE GOVERNMENT PER CAPITA OPERATING AND CAPITAL EXPENDITURES

(Thousands of Real Dollars)

	State Government per capita operating Expenditures (STPCOE)	State Government per capita capital Expenditures (STPCCE)
1980		
1981	4.210	1.831
1982	4.758	2.293
1983	4.602	1.684
1984	5.138	2.014
1985	5.130	1.452
1986	5.121	2.710
1987	4.801	2.526
1988	5.294	2.820
1989	5.102	2.710
1990	5.075	2.710
1991	5.068	2.710
1992	4.365	2.298
1993	4.108	2.146
1994	3.944	2.050
1995	3.672	1.890
1996	3.422	1.742
1997	3.351	1.700
1998	3.258	1.645
1999	3.248	1.640
2000	3.194	1.609
2001	3.142	1.579
2002	3.084	1.548
2003	3.036	1.517
2004	2.992	1.492
2005	2.949	1.468
2006	2.904	1.442
2007	2.861	1.418
2008	2.819	1.395
2009	2.778	1.372
2010	2.736	1.349

SOURCE: These figures are based on recent ISER MAP model projections for the statewide economy (DSET A83T2).

APPENDIX L: WORKSHEETS FOR HOMER RAM MODEL ASSUMPTIONS

The following worksheets, together with those in Appendix K, provide a complete list of the assumptions we used to run the RAM model for Homer.

Community Homer
Year 1980

WORKSHEET 1. POPULATION ASSUMPTIONS
FOR YEAR PRIOR TO FIRST PROJECTION YEAR

Total Population (PO) 3140 (a)

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	127	139	7	11
5-14	262	257	9	8
15-19	135	97	1	4
20-34	559	458	10	19
35-64	472	395	8	15
65+	77	68	1	1

NOTE: Variable names for each column are
PONNM1, . . ., PONNM6; PONNF1, . . .,PONNF6;
PONAM1, . . .,PONAM6; PONAF1, . . ., PONAF6.

SOURCE: The best source of population data is usually the 1980 census. We obtain these data directly from census tapes stored at ISER.

HOMER
SOURCE: 1980 Census Tapes.

(a) Includes population in Kachemak, Anchor Point, and Fritz Creek reported by 1980 Census. The age, sex, and race breakdown in these places is not given by the Census Bureau for reasons of confidentiality, due to the small size of these communities. We assumed age, sex, and racial characteristics to be proportionately the same as in Homer city.

Community Homer
Year 1980

WORKSHEET 6. EMPLOYMENT IN YEAR PRIOR TO FIRST PROJECTION YEAR

(Full-time Equivalent Employment)

Variable	Variable Name	Value
Resident fishing employment	EMFI	429
Resident fish processing employment	EMFP	147
Nonfishing related basic employment	EMBANF	32
Exogenous support employment	EMSUEX	266
Endogenous support employment	EMSUEG	376
Government-sponsored support employment	EMSUGO	125
Enclave-sponsored support employment	EMSUEN	16
Exogenous government employment	EMGOEX	145
Endogenous government employment	EMGOEG	210
Nonproject enclave employment	EMEN	323

NOTE: These figures are not used directly as model assumptions. Instead, they are used as the basis for calculation of model assumptions in subsequent worksheets.

SOURCES: Sources vary for each community. Possible sources include the 1980 Census, Alaska Department of Labor figures, planning documents, and other studies of the community.

HOMER
SOURCE: 1980 Census, Alaska Department of Labor, and Alaska Consultants estimates for 1979. See discussion in footnotes to Table A.3.

Community Homer
Year 1980
Base Year for Real Dollars 1980

WORKSHEET 7. WAGE RATES AND INCOME IN YEAR PRIOR TO FIRST PROJECTION YEAR (Thousands of Real Dollars)

Variable	Variable Name	Value
Basic sector wage rate	WABA	28.572
Support sector wage rate	WASU	24.612
Government sector wage rate	WAGO	23.508
Total wage income	INWA	44,990.00
Nonwage income per capita	INNOWAPC	0
Total income	IN	44,990.00

NOTE: These figures are not used directly as model assumptions. Instead, they are used as the basis for calculation of model assumptions in subsequent worksheets.

SOURCES: Wage rates are calculated on the basis of available data from the Department of Labor, which is usually available only at the census division level. Total wage income is calculated by multiplying employment in each category (see Worksheet 6) by the assumed wage rates. If a total income figure is available from the Census or another source, nonwage income may be calculated by subtracting wage income from total income. Otherwise, nonwage income may be assumed on the basis of a statewide ratio of nonwage income to wage income. Per capita nonwage income is obtained by dividing nonwage income by population (see Worksheet 1).

HOMER
SOURCE: Sector wage rates based on Table A.6 in report. An estimate of total income was calculated as the product of these wage rates and estimated employment in each sector (Table A.3). Nonwage income is assumed to be zero.

Community Homer

WORKSHEET 9. EMPLOYMENT MULTIPLIER ASSUMPTIONS

Employment multipliers are calculated from the data from the year prior to the first projection year, using data from Worksheets 6, 7, and 8.

Multiplier	Variable Name	Formula	Value
Endogenous support employment multiplier	EMSUEGC1	EMSUEG / IN	.0084
Government-sponsored support employment multiplier	EMSUGOC1	EMSUGO / PO * STPCCE	.0217
Enclave-generated support employment multiplier	EMSUENC1	EMSUEN / EMEN	.05 (a)
Endogenous government employment multiplier	EMGOEGC1	EMGOEG / PO * STPCOE	.0159

(a) Assumed directly for Homer. See Table A.3 and acccompanying discussion.

Community Homer
Base Year for Real Dollars 1980

WORKSHEET 10. WAGE AND NONWAGE INCOME ASSUMPTIONS FOR PROJECTION PERIOD
(Real Dollars)

	Per Capita Nonwage Income (INNOWAPC)	Basic Sector Wage Rate (WABA)	Support Sector Wage Rate (WASU)	Government Sector Wage Rate (WAGO)
1980	0.0	28.6	24.6	23.5
1981	0.0	29.0	24.8	23.8
1982	0.0	29.5	25.0	24.1
1983	0.0	30.0	25.1	24.4
1984	0.0	30.5	25.3	24.7
1985	0.0	31.0	25.5	25.0
1986	0.0	31.5	25.7	25.3
1987	0.0	32.0	25.9	25.6
1988	0.0	32.5	26.1	26.0
1989	0.0	33.0	26.3	26.3
1990	0.0	33.6	26.4	26.6
1991	0.0	34.1	26.6	26.9
1992	0.0	34.7	26.8	27.3
1993	0.0	35.2	27.0	27.6
1994	0.0	35.8	27.2	28.0
1995	0.0	36.4	27.4	28.3
1996	0.0	37.0	27.6	28.7
1997	0.0	37.6	27.8	29.0
1998	0.0	38.2	28.0	29.4
1999	0.0	38.8	28.2	29.8
2000	0.0	39.4	28.4	30.1
2001	0.0	40.1	28.6	30.5
2002	0.0	40.7	28.8	30.9
2003	0.0	41.4	29.0	31.3
2004	0.0	42.1	29.2	31.7
2005	0.0	42.8	29.4	32.1
2006	0.0	43.4	29.7	32.5
2007	0.0	44.2	29.9	32.9
2008	0.0	44.9	30.1	33.3
2009	0.0	45.6	30.3	33.7
2010	0.0	46.3	30.5	34.1

SOURCE: Wage rate assumptions are assumed, starting from 1980 wage rates (see Worksheet 7), and changing to reflect any assumed changes in the structure of employment within sectors, or in statewide Alaskan wage levels. Per capita nonwage income is assumed in a similar manner.

HOMER

SOURCE: Basic, Support, and Government sector real wages assumed to increase at 1.625 percent, .72 percent, and 1.248 percent per year, respectively, based on ISER MAP Model projections done in February 1983 (DSET A83T2).

Community Homer

WORKSHEET 11. BASIC SECTOR EXOGENOUS EMPLOYMENT ASSUMPTIONS
(Full-time Equivalent Employment)

Year	Resident Fishing Employment (EMFI) (a)	Resident Fish-processing Employment (EMFP) (b)	Nonfishing Related Basic Employment (EMBANF) (c)	Nonproject Enclave Employment (EMEN)
1980	429	147	32	323
1981	429	147	33	323
1982	429	147	33	323
1983	429	147	34	323
1984	429	147	35	323
1985	429	147	35	323
1986	431	149	36	323
1987	432	150	37	323
1988	434	152	37	323
1989	436	153	38	323
1990	437	155	39	323
1991	439	157	40	323
1992	441	158	41	323
1993	441	160	41	323
1994	441	162	42	323
1995	441	163	43	323
1996	441	165	44	323
1997	441	167	45	323
1998	441	169	46	323
1999	441	170	47	323
2000	441	172	48	323
2001	441	172	49	323
2002	441	172	49	323
2003	441	172	50	323
2004	441	172	51	323
2005	441	172	53	323
2006	441	172	54	323
2007	441	172	55	323
2008	441	172	56	323
2009	441	172	57	323
2010	441	172	58	323

SOURCES: Exogenous employment in basic industries must be projected on the basis of assumptions about factors such as resource availability, resource prices, development of special projects, state subsidies, transportation development, and so forth. Sources and methods for developing these assumptions vary for individual communities.

WORKSHEET 11 NOTES

(a) Moderate growth in the bottomfish fishery causes a slight increase in resident fishing employment in the late 1980s and early 1990s. This increase is small because we assume that diversification of the larger boats in the Homer fleet occurs and accounts for most of the increasing catch by Homer residents.

(b) We assume that after 1986, resident fish processing employment increases gradually with the addition of one processor for splitting and salting bottomfish.

(c) We assume an annual growth of 2 percent in resident nonfishing related basic employment from 1980 to 2010, due mostly to production by local artisans.

Community Homer

WORKSHEET 12. SUPPORT AND GOVERNMENT SECTOR EXOGENOUS EMPLOYMENT ASSUMPTIONS

Year	Exogenous Support Employment	Exogenous Government Employment
1980	266	145
1981	277	145
1982	288	145
1983	300	145
1984	312	145
1985	325	145
1986	338	145
1987	351	145
1988	366	145
1989	381	145
1990	396	145
1991	412	145
1992	429	145
1993	446	145
1994	464	145
1995	483	145
1996	503	145
1997	523	145
1998	545	145
1999	567	145
2000	590	145
2001	614	145
2002	639	145
2003	664	145
2004	691	145
2005	720	145
2006	749	145
2007	779	145
2008	811	145
2009	844	145
2010	878	145

SOURCES: Sources and methods for developing these assumptions differ for individual communities. They are based on an analysis of support and government employment likely to take place in activities which are not geared towards serving the local community, such as export terminals, or National Park Service operations.

HOMER

SOURCES: Exogenous government employment is assumed to remain constant. Exogenous support employment is assumed to rise at 1.0406 percent per year due to increased tourism. This is in keeping with the growth rate in tourism for the state as a whole assumed in ISER's statewide MAP model.

Community Homer

WORKSHEET 13. LABOR FORCE PARTICIPATION RATE ASSUMPTIONS

	Non-Native		Native	
Age Group	Male	Female	Male	Female
15-19	0	0	0	0
20-34	1.00	.737	.729	.669
35-64	1.00	.737	.729	.669
65+	0	0	0	0

NOTE: Variable names are LFPRNNM3, . . ., 6; LFPRNNF3, . . ., 6; LFPRNAM3, . . ., 6; LFPRNAF3, . . ., 6.

SOURCE: Labor force participation rates are estimated from available census data and other data for the year prior to the first projection year.

HOMER

SOURCES: Labor force participation rates were assumed to be 0 for age groups 15-19 and 65+. This greatly simplifies the calculation of these rates. See Table A.8 and discussion in text for calculations.

Community Homer

WORKSHEET 14. ENDOGENOUS OUT-MIGRATION PARAMETERS ASSUMPTIONS

Variable	Variable Name	Value
Threshold maximum increase in unemployment before out-migration begins	HIUNRA	.05
Threshold maximum decrease in unemployment before in-migration begins	LWUNRA	-.05
Share of unemployed Native workers who leave once unemployment rises above threshold level	OULAPANA	.2
Share of unemployed non-Native workers who leave once unemployment rises above threshold level	OULAPANN	.4
Adjustment parameter for ratio of Native dependents who out-migrate to Native workers who out-migrate (a value of one indicates that this ratio is the same as the ratio of Native dependents to native workers in the population)	OUDEPANA	1
Adjustment parameter for ratio of non-Native dependents who out-migrate to non-Native workers who out-migrate	OUDEPANN	1

SOURCE: No really good data sources are available to measure these parameters. We assume values based on our best judgment.

HOMER
SOURCES: Assumed based on best judgment. Relatively low values assumed for OULAPANA and OULAPANN because Homer appears to be a relatively stable community.

Community Homer

WORKSHEET 15. ENDOGENOUS IMMIGRATION PARAMETERS ASSUMPTIONS: NUMBER OF PERSONS WHO IMMIGRATE IN EACH COHORT FOR EACH WORKER WHO IMMIGRATES

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	.05	.05	0	0
5-14	.05	.05	0	0
15-19	.05	.05	0	0
20-34	.41	.29	0	0
35-64	.29	.21	0	0
65+	0	0	0	0

NOTE: Variables are MGPANNM1, . . ., MGPANNM6; MGPANNF1, . . ., MGPANNF6; MGPANAM1, . . ., MGPANAM6; MGPANAFI, . . ., MGPANNF6.

SOURCE: Values are assumed on the basis of assumptions about the age-sex-race breakdown of workers, the number of dependents per worker, and the age-sex-race breakdown of dependents.

HOMER
SOURCES: Based on the following assumptions:

1. All immigrants are non-Natives.
2. Sixty percent of immigrant workers are male.
3. Each immigrant worker brings .5 dependents.
4. Dependents are evenly distributed among males and females in the first three age groups.

Community Homer

WORKSHEET 16. EXOGENOUS MIGRATION PARAMETER ASSUMPTIONS: SHARE OF EACH COHORT WHICH MIGRATES IN OR OUT EACH YEAR IN RESPONSE TO NON-ECONOMIC (EXOGENOUS) FACTORS

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	.005	.005	0	0
5-14	.005	.005	0	0
15-19	0	0	0	0
20-34	.03	.03	0	0
35-64	.02	.02	0	0
65+	-.01	-.01	0	0

NOTE: Variables are MXRANNM1, . . ., MXRANNM6; MXRANNF1, . . ., MXRANNF6; MXRANAM1, . . ., MXRANAM6; MXRANAFI, . . ., MXRANAF6.

SOURCE: Very little data is available on which to base these asssumptions. They are based on our best judgment.

HOMER
SOURCES: Homer's attractiveness to retirees and commuter workers employed at remote worksites causes some exogenous in-migration of non-Natives.

Community Homer

WORKSHEET 17. MISCELLANEOUS EXOGENOUS ASSUMPTIONS

	Enclave Military Population (Active Duty and Dependents) POML
1980	0
1981	0
1982	0
1983	0
1984	0
1985	0
1986	0
1987	0
1988	0
1989	0
1990	0
1991	0
1992	0
1993	0
1994	0
1995	0
1996	0
1997	0
1998	0
1999	0
2000	0
2001	0
2002	0
2003	0
2004	0
2005	0
2006	0
2007	0
2008	0
2009	0
2010	0

SOURCE: Military population is treated separately only if the population is distinct from the resident population, living in an enclave. In this case, the population is usually assumed to be constant over the projection period.

HOMER

SOURCES: Military population is included as residents for Homer runs.

APPENDIX M: WORKSHEETS FOR KENAI RAM MODEL ASSUMPTIONS

The following worksheets, together with those in Appendix M, provide a complete list of the assumptions we used to run the RAM model for Kenai.

Community Kenai Market Area
Year 1980

WORKSHEET 1. POPULATION ASSUMPTIONS
FOR YEAR PRIOR TO FIRST PROJECTION YEAR

Total Population (PO) 9289

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	445	414	10	13
5-14	820	818	64	58
15-19	408	386	36	36
20-34	1387	1324	55	46
35-64	1428	1240	51	62
65+	90	87	4	7

NOTE: Variable names for each column are
PONNM1, . . ., PONNM6; PONNF1, . . .,PONNF6;
PONAM1, . . .,PONAM6; PONAF1, . . ., PONAF6.

SOURCE: The best source of population data is usually the 1980 census. We obtain these data directly from census tapes stored at ISER.

Community Kenai Market Area
Year 1980

WORKSHEET 6. EMPLOYMENT IN YEAR PRIOR TO FIRST PROJECTION YEAR

(Full-time Equivalent Employment)

Variable	Variable Name	Value
Resident fishing employment	EMFI	159
Resident fish processing employment	EMFP	185
Nonfishing related basic employment	EMBANF	832
Exogenous support employment	EMSUEX	1232
Endogenous support employment	EMSUEG	669
Government-sponsored support employment	EMSUGO	223
Enclave-sponsored support employment	EMSUEN	14
Exogenous government employment	EMGOEX	194
Endogenous government employment	EMGOEG	485
Nonproject enclave employment	EMEN	277

NOTE: These figures are not used directly as model assumptions. Instead, they are used as the basis for calculation of model assumptions in subsequent worksheets.

SOURCE: 1980 Census, Alaska Department of Labor, and Alaska Consultants estimates for 1974 and 1977. See discussion in footnotes to Table E.5 of Appendix E.

Community Kenai Market Area
Year 1980
Base Year for Real Dollars 1980

WORKSHEET 7. WAGE RATES AND INCOME IN YEAR PRIOR TO FIRST PROJECTION YEAR

(Thousands of Real Dollars)

Variable	Variable Name	Value
Basic sector wage rate	WABA	24.243
Support sector wage rate	WASU	24.614
Government sector wage rate	WAGO	24.516
Total wage income	INWA	97,571.340
Nonwage income per capita	INNOWAPC	.920
Total income	IN	106,126.320

NOTE: These figures are not used directly as model assumptions. Instead, they are used as the basis for calculation of model assumptions in subsequent worksheets.

SOURCES: Wage rates are calculated on the basis of available data from the Department of Labor, which is usually available only at the census division level. Total wage income is calculated by multiplying employment in each category (see Worksheet 6) by the assumed wage rates.

Basic support and government sector wage rates based on Table E.7. Nonwage income was derived from transfer payments reported in the Bureau of Economic Analysis, Census-Division Tabulations on Personal Income by Major Source for 1980.

Community Kenai Market Area

WORKSHEET 9. EMPLOYMENT MULTIPLIER ASSUMPTIONS

Employment multipliers are calculated from the data from the year prior to the first projection year, using data from Worksheets 6, 7, and 8.

Multiplier	Variable Name	Formula	Value
Endogenous support employment multiplier	EMSUEGC1	EMSUEG / IN	.00630
Government-sponsored support employment multiplier	EMSUGOC1	EMSUGO / PO * STPCCE	.01310
Enclave-generated support employment multiplier	EMSUENC1	EMSUEN / EMEN	.05 (a)
Endogenous government employment multiplier	EMGOEGC1	EMGOEG / PO * STPCOE	.01239

(a) Assumed directly for the Kenai Market Area. This multiplier was assumed arbitrarily. However, it is comparable to the nonresident petroleum-related multiplier used in previous SCIMP model projections (.0549). See discussion in Goldsmith, et. al. (1982, Appendix C, p. C-15).

Community Kenai Market Area
Base Year for Real Dollars 1980

WORKSHEET 10. WAGE AND NONWAGE INCOME ASSUMPTIONS FOR PROJECTION PERIOD
(Thousands of 1980 Dollars)

	Per Capita Nonwage Income (INNOWAPC)	Basic Sector Wage Rate (WABA)	Support Sector Wage Rate (WASU)	Government Sector Wage Rate (WAGO)
1980	.920	24.243	24.614	24.516
1981	.920	24.637	24.791	24.822
1982	.920	25.037	24.970	25.132
1983	.920	25.444	25.149	25.445
1984	.920	25.858	25.331	25.763
1985	.920	26.278	25.513	26.084
1986	.920	26.705	25.697	26.410
1987	.920	27.139	25.882	26.740
1988	.920	27.580	26.068	27.073
1989	.920	28.028	26.256	27.411
1990	.920	28.483	26.445	27.753
1991	.920	28.946	26.635	28.099
1992	.920	29.416	26.827	28.450
1993	.920	29.894	27.020	28.805
1994	.920	30.380	27.215	29.165
1995	.920	30.874	27.411	29.529
1996	.920	31.375	27.608	29.897
1997	.920	31.885	27.807	30.270
1998	.920	32.403	28.007	30.648
1999	.920	32.930	28.208	31.030
2000	.920	33.465	28.412	31.418
2001	.920	34.009	28.616	31.810
2002	.920	34.561	28.822	32.207
2003	.920	35.123	29.030	32.609
2004	.920	35.694	29.239	33.016
2005	.920	36.274	29.449	33.428
2006	.920	36.863	29.661	33.845
2007	.920	37.462	29.875	34.267
2008	.920	38.071	30.090	34.695
2009	.920	38.690	30.307	35.128
2010	.920	39.318	30.525	35.566

SOURCES: Wage rate assumptions are assumed, starting from 1980 wage rates (see Worksheet 7), and changing to reflect any assumed changes in the structure of employment within sectors, or in statewide Alaskan wage levels. Per capita nonwage income is assumed in a similar manner. Basic, Support, and Government sector real wages assumed to increase at 1.625 percent, .72 percent, and 1.248 percent per year, respectively, based on ISER MAP Model projections done in February 1983 (DSET A83T2). Nonwage income was assumed to remain constant in real per capita terms.

Community Kenai Market Area

WORKSHEET 11. BASIC SECTOR EXOGENOUS EMPLOYMENT ASSUMPTIONS
(Full-time Equivalent Employment)

Year	Resident Fishing Employment (EMFI) (a)	Resident Fish-processing Employment (EMFP) (b)	Nonfishing Related Basic Employment (EMBANF) (c)	Nonproject Enclave Employment (EMEN) (d)
1980	159	185	832	277
1981	159	185	832	277
1982	159	185	832	277
1983	159	185	832	277
1984	159	185	832	277
1985	159	185	832	277
1986	159	185	832	277
1987	159	185	832	277
1988	159	185	832	277
1989	159	185	832	277
1990	159	185	832	277
1991	159	185	832	277
1992	159	185	832	277
1993	159	185	832	277
1994	159	185	832	277
1995	159	185	832	277
1996	159	185	832	277
1997	159	185	832	277
1998	159	185	832	277
1999	159	185	832	277
2000	159	185	832	277
2001	159	185	829	277
2002	159	185	825	277
2003	159	185	822	277
2004	159	185	818	277
2005	159	185	815	277
2006	159	185	811	277
2007	159	185	808	277
2008	159	185	805	277
2009	159	185	801	277
2010	159	185	798	277

WORKSHEET 11 NOTES

(a) Despite yearly fluctuations, we assume that average catch is constant at levels experienced in late 1970s and early 1980s for most species. A decline in some species will be offset by increase catch in other; fish harvesting technology and average crew size also assumed constant. Investment in bottomfish gear and processing equipment does not occur.

(b) Average yearly processing employment is assumed to remain constant. We assume that general shift toward less labor; intensive freezing capacity stabilizes at 1983 levels.

(c) Petroleum processing employment of 468 remains constant throughout forecast period. Declines in local feed stock supplies will be offset by those available from the North Slope. Other basic employment consists primarily of oil and gas mining workers (drill operators, roughnecks, etc.). This employment remains constant at 364 until 2000. After 2000, a 1 percent yearly decline occurs. By 2010, there would be 330 mining employees.

(d) Nonproject enclave employment remains constant at 277 full-time jobs throughout the entire forecast period. This variable reflects nonresident, itinerant, processing workers.

Community Kenai Market Area

WORKSHEET 12. SUPPORT AND GOVERNMENT SECTOR EXOGENOUS EMPLOYMENT ASSUMPTIONS

Year	Exogenous Support Employment (EMSUEX)	Exogenous Government Employment (EMGOEX)
1980	1232	194
1981	1232	194
1982	1232	194
1983	1232	194
1984	1232	194
1985	1232	194
1986	1232	194
1987	1232	194
1988	1232	194
1989	1232	194
1990	1232	194
1991	1232	194
1992	1232	194
1993	1232	194
1994	1232	194
1995	1232	194
1996	1232	194
1997	1232	194
1998	1232	194
1999	1232	194
2000	1232	194
2001	1232	194
2002	1232	194
2003	1232	194
2004	1232	194
2005	1232	194
2006	1232	194
2007	1232	194
2008	1232	194
2009	1232	194
2010	1232	194

SOURCES: These assumptions are based on an analysis of support and government employment likely to take place in activities which are not geared towards serving the local community, such as petroleum processing. Exogenous government and support employment is assumed to remain constant.

Community Kenai Market Area

WORKSHEET 13. LABOR FORCE PARTICIPATION RATE ASSUMPTIONS

	Non-Native		Native	
Age Group	Male	Female	Male	Female
15-19	0	0	0	0
20-34	.915	.595	1.000	.467
35-64	.915	.595	1.000	.467
65+	0	0	0	0

NOTE: Variable names are LFPRNNM3, . . ., 6; LFPRNNF3, . . ., 6; LFPRNAM3, . . ., 6; LFPRNAF3, . . ., 6.

SOURCES: Labor force participation rates were assumed to be 0 for age groups 15-19 and 65+. This greatly simplifies the calculation of these rates. See Table E.9 and discussion in Appendix E for calculations.

Community Kenai Market Area

WORKSHEET 14. ENDOGENOUS OUT-MIGRATION PARAMETERS ASSUMPTIONS

Variable	Variable Name	Value
Threshold increase in unemployment before out-migration begins	HIUNRA	.05
Threshold decrease in unemployment before in-migration begins	LWUNRA	-.05
Share of Native workers who leave once unemployment rises above threshold level	OULAPANA	.2
Share of Non-Native workers who leave once unemployment rises above threshold level	OULAPANN	.8
Adjustment parameter for ratio of Native dependents who out-migrate to Native workers who out-migrate (a value of one indicates that this ratio is the same as the ratio of Native dependents to Native workers in the population)	OUDEPANA	1
Adjustment parameter for ratio of Non-Native dependents who out-migrate to Non-Native workers who out-migrate	OUDEPANN	1

SOURCES: Assumed based on best judgment.

Community Kenai Market Area

WORKSHEET 15. ENDOGENOUS IMMIGRATION PARAMETERS ASSUMPTIONS: NUMBER OF PERSONS WHO IMMIGRATE IN EACH COHORT FOR EACH WORKER WHO IMMIGRATES

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	.05	.05	0	0
5-14	.05	.05	0	0
15-19	.05	.05	0	0
20-34	.41	.29	0	0
35-64	.29	.21	0	0
65+	0	0	0	0

NOTE: Variables are:
MGPANNM1, . . ., MGPANNM6; MGPANNF1, . . ., MGPANNF6;
MGPANAM1, . . ., MGPANAM6; MGPANAFI, . . ., MGPANNF6.

SOURCE: Values are assumed on the basis of assumptions about the age-sex-race breakdown of workers, the number of dependents per worker, and the age-sex-race breakdown of dependents. Specific assumptions are:

1. All immigrants are Non-Natives.

2. Sixty percent of immigrant workers are male.

3. Each immigrant worker brings .5 dependents.

4. Dependents are evenly distributed among males and females in the first three age groups.

Community Kenai Market Area

WORKSHEET 16. EXOGENOUS MIGRATION PARAMETER ASSUMPTIONS: SHARE OF EACH COHORT WHICH MIGRATES IN OR OUT EACH YEAR IN RESPONSE TO NON-ECONOMIC (EXOGENOUS) FACTORS

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	0	0	0	0
5-14	0	0	0	0
15-19	0	0	0	0
20-34	0	0	0	0
35-64	0	0	0	0
65+	-.10	-.10	0	0

NOTE: Variables are:
MXRANNM1, . . ., MXRANNM6; MXRANNF1, . . ., MXRANNF6;
MXRANAM1, . . ., MXRANAM6; MXRANAFI, . . ., MXRANAF6.

SOURCE: Estimates are based on judgement.

Community Kenai Market Area

WORKSHEET 17. MISCELLANEOUS EXOGENOUS ASSUMPTIONS

	Enclave Military Population	
	Active Duty (EMML)	Dependents of Active Duty Personnel (DEML)
1980	0	0
1981	0	0
1982	0	0
1983	0	0
1984	0	0
1985	0	0
1986	0	0
1987	0	0
1988	0	0
1989	0	0
1990	0	0
1991	0	0
1992	0	0
1993	0	0
1994	0	0
1995	0	0
1996	0	0
1997	0	0
1998	0	0
1999	0	0
2000	0	0
2001	0	0
2002	0	0
2003	0	0
2004	0	0
2005	0	0
2006	0	0
2007	0	0
2008	0	0
2009	0	0
2010	0	0

SOURCE: Military population is zero for the Kenai Market Area and assumed to remain constant over the projection period.

APPENDIX N: WORKSHEETS FOR KODIAK RAM MODEL ASSUMPTIONS

The following worksheets, together with those in Appendix K, provide a complete list of the assumptions we used to run the RAM model for Kodiak.

Community Kodiak
Year 1980

WORKSHEET 1. POPULATION ASSUMPTIONS FOR YEAR PRIOR TO FIRST PROJECTION YEAR

Total Population (PO) 4756

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	313	278	38	48
5-14	484	481	85	85
15-19	283	243	52	55
20-34	1378	1108	133	116
35-64	1063	756	143	120
65+	88	74	18	30

NOTE: Variable names for each column are:
PONNM1, . . ., PONNM6; PONNF1, . . .,PONNF6;
PONAM1, . . .,PONAM6; PONAF1, . . ., PONAF6.

SOURCE: The best source of population data is usually the 1980 census. We obtain these data directly from census tapes stored at ISER.

Community Kodiak
Year 1980

WORKSHEET 6. EMPLOYMENT IN YEAR PRIOR TO FIRST PROJECTION YEAR(a)

(Full-time Equivalent Employment)

Variable	Variable Name	Value
Resident fishing employment	EMFI	518
Resident fish processing employment	EMFP	893
Nonfishing related basic employment	EMBANF	107
Exogenous support employment	EMSUEX	756
Endogenous support employment	EMSUEG	524
Government-sponsored support employment	EMSUGO	174
Enclave-sponsored support employment	EMSUEN	25
Exogenous government employment	EMGOEX	515
Endogenous government employment	EMGOEG	483
Nonproject enclave employment	EMEN	497

NOTE: (a) These figures are not used directly as model assumptions. Instead, they are used as the basis for calculation of model assumptions in subsequent worksheets.

(b) Excludes 619 active duty military employment at Kodiak Coast Guard Station plus 238 employed dependents of military personnel. (See discussion in text of Appendix F and Table F.5, Footnote [f].)

SOURCES: Table F.5.

Community Kodiak
Year 1980
Base Year for Real Dollars 1980

WORKSHEET 7. WAGE RATES AND INCOME IN YEAR PRIOR TO FIRST PROJECTION YEAR(a)
(Thousands of Real Dollars)

Variable	Variable Name	Value
Basic sector wage rate	WABA	19.457
Support sector wage rate	WASU	17.460
Government sector wage rate	WAGO	22.944
Total wage income	INWA	78,257
Nonwage income per capita	INNOWAPC	0.914
Total income	IN	85,070

NOTE: (a)These figures are not used directly as model assumptions. Instead, they are used as the basis for calculation of model assumptions in subsequent worksheets.

SOURCES: Wage rates are calculated on the basis of available data from the Department of Labor, which is usually available only at the census division level (see Table F.7). Total wage income is calculated by multiplying civilian employment in each category (see Worksheet 6) by the assumed wage rates. Support and government sector wage rates based on Table F.6. Fishing wage rate data were not available. To account for higher wage fish harvesting employment, basic sector wages were estimated by calculating the weighted average of manufacturing wage rates and an assumed fish harvesting wage of $25,000. See discussion in Appendix F. The resulting basic sector wage is $19,457. Nonwage income was derived from transfer payments reported in the "Bureau of Economic Analysis, Census-Division Tabulations on Personal Income by Major Source for 1980." A portion of total transfer payments were allocated according to the proportion of total census-division population in the city of Kodiak.

Community Kodiak

WORKSHEET 9. EMPLOYMENT MULTIPLIER ASSUMPTIONS

Employment multipliers are calculated from the data from the year prior to the first projection year, using data from Worksheets 6, 7, and 8.

Multiplier	Variable Name	Formula	Value
Endogenous support employment multiplier	EMSUEGC1	EMSUEG / IN	.00616
Government-sponsored support employment multiplier	EMSUGOC1	EMSUGO / PO * STPCCE	.01272
Enclave-generated support employment multiplier	EMSUENC1	EMSUEN / EMEN	.05 (a)
Endogenous government employment multiplier	EMGOEGC1	EMGOEG / PO * STPCOE	.01535

NOTE: (a)Assumed directly for Kodiak. This multiplier was assumed arbitrarily. However, it is comparable to the nonresident petroleum-related multiplier used in previous SCIMP model projections (.0549). See discussion in Goldsmith, et al. (1982, Appendix C, p. C-15).

Community Kodiak
Base Year for Real Dollars 1980

WORKSHEET 10. WAGE AND NONWAGE INCOME ASSUMPTIONS FOR PROJECTION PERIOD (Real Dollars)

	Per Capita Nonwage Income (INNOWAPC)	Basic Sector Wage Rate (WABA)	Support Sector Wage Rate (WASU)	Government Sector Wage Rate (WAGO)
1980	914	19,457	17,460	22,944
1981	914	19,773	17,586	23,230
1982	914	20,094	17,712	23,520
1983	914	20,421	17,840	23,814
1984	914	20,753	17,968	24,111
1985	914	21,090	18,098	24,412
1986	914	21,433	18,228	24,717
1987	914	21,781	18,359	25,025
1988	914	22,135	18,491	25,337
1989	914	22,485	18,625	25,654
1990	914	22,860	18,759	25,974
1991	914	23,232	18,894	26,298
1992	914	23,609	19,030	26,626
1993	914	23,993	19,167	26,458
1994	914	24,383	19,305	27,285
1995	914	24,779	19,444	27,635
1996	914	25,181	19,584	27,980
1997	914	25,591	19,725	28,329
1998	914	26,006	19,867	28,683
1999	914	26,429	20,010	29,041
2000	914	26,858	20,154	29,403
2001	914	27,295	20,299	29,770
2002	914	27,738	20,445	30,142
2003	914	28,189	20,592	30,518
2004	914	28,647	20,741	30,899
2005	914	29,113	20,840	31,285
2006	914	29,586	21,040	31,675
2007	914	30,067	21,192	32,070
2008	914	30,555	21,344	32,471
2009	914	31,052	21,498	32,704
2010	914	31,556	21,653	33,113

SOURCE: Wage rate assumptions are assumed, starting from 1980 wage rates (see Worksheet 7), and changing to reflect any assumed changes in the structure of employment within sectors, or in statewide Alaskan wage levels. Per capita nonwage income is assumed in a similar manner. Basic, Support, and Government sector real wages assumed to increase at 1.625 percent, .72 percent, and 1.248 percent per year, respectively, based on ISER MAP Model projections done in February 1983 (DSET A83T2).

Community Kodiak

WORKSHEET 11. BASIC SECTOR EXOGENOUS EMPLOYMENT ASSUMPTIONS
(Full-time Equivalent Employment)

Year	Resident Fishing Employment (EMFI) (a)	Resident Fish-processing Employment (EMFP) (b)	Nonfishing Related Basic Employment (EMBANF) (c)	Nonproject Enclave Employment (EMEN) (d)
1980	518	893	107	497
1981	522	897	107	497
1982	526	903	107	497
1983	530	909	107	497
1984	534	915	107	497
1985	538	921	107	497
1986	542	928	107	497
1987	546	934	107	497
1988	550	940	107	497
1989	554	947	107	497
1990	558	953	107	497
1991	560	956	107	497
1992	562	959	107	497
1993	564	961	107	497
1994	566	964	107	497
1995	568	967	107	497
1996	570	970	107	497
1997	572	973	107	497
1998	574	975	107	497
1999	576	978	107	497
2000	578	981	107	497
2001	580	984	107	497
2002	582	988	107	497
2003	584	991	107	497
2004	586	994	107	497
2005	588	997	107	497
2006	590	1000	107	497
2007	592	1003	107	497
2008	594	1006	107	497
2009	596	1009	107	497
2010	598	1012	107	497

WORKSHEET 11 NOTES

(a) Despite yearly fluctuations, we assume that average catch of tradition salmon and shellfish species remains constant at levels experienced in the late 1970s and early 1980s. Fish harvesting technology and average crew size will also remain constant. The only source of employment expansion is through modest expansion of Kodiak bottomfish fleet. Assume 20 vessels by 1990 operating 6 months per year with average crew size of 4. The bottomfish fleet will gradually increase to 40 vessels by 2010. These assumptions may appear conservative when compared with various consultants' optimistic forecasts of commercial expansion of Alaska's domestic bottomfish fleet. (See, for example, the 1978 report by Arthur D. Little, Inc., entitled State of Alaska Bottomfish Development Program.) However, it is becoming increasingly evident that foreign competition, high cost, and the absence of an Alaskan fleet equipped for bottomfish harvesting will constrain new investments in harvesting gear and processing capacity. See, for example, Rogers' (1979) critique of the Arthur D. Little report.

(b) Traditional fish processing employment remains constant. The shift toward less labor-intensive freezing capacity remains constant. We assume modest expansion of shore-based bottomfish processing capacity. One new processor by 1990, plus one additional by 2010. Each processor employs 60 FTE personnel. All new processing employment is resident-based.

(c) The status of the wood products industry is not clear. We assume future employment in this sector remains constant at 1980 levels.

(d) Nonproject enclave employment (processing-related) remains constant at 497 jobs per year throughout the period.

Community Kodiak

WORKSHEET 12. SUPPORT AND GOVERNMENT SECTOR EXOGENOUS EMPLOYMENT ASSUMPTIONS

Year	Exogenous Support Employment (EMSUEX)	Exogenous Government Employment (EMGOEX)
1980	756	515
1981	764	515
1982	771	515
1983	779	515
1984	787	515
1985	795	515
1986	803	515
1987	811	515
1988	819	515
1989	827	515
1990	835	515
1991	843	515
1992	852	515
1993	860	515
1994	869	515
1995	878	515
1996	886	515
1997	895	515
1998	904	515
1999	913	515
2000	922	515
2001	932	515
2002	941	515
2003	950	515
2004	960	515
2005	970	515
2006	979	515
2007	989	515
2008	999	515
2009	1009	515
2010	1019	515

SOURCES: Sources and methods for developing these assumptions differ for individual communities. They are based on an analysis of support and government employment likely to take place in activities which are not geared towards serving the local community, such as export terminals, or National Park Service operations. We assume that exogenous government civilian employment remains constant, and that exogenous support employment rises at 1 percent per year due to increased tourism.

Community Kodiak

WORKSHEET 13. LABOR FORCE PARTICIPATION RATE ASSUMPTIONS

Age Group	Non-Native		Native	
	Male	Female	Male	Female
15-19	0	0	0	0
20-34	.978	.706	.652	.513
35-64	.978	.706	.652	.513
65+	0	0	0	0

NOTE: Variable names are: LFPRNNM3, . . ., 6; LFPRNNF3, . . ., 6; LFPRNAM3, . . ., 6; LFPRNAF3, . . ., 6.

SOURCE: Labor force participation rates were assumed to be 0 for age groups 15-19 and 65+. This greatly simplifies the calculation of these rates. See Table F.8 and discussion in text for calculations.

Community Kodiak

WORKSHEET 14. ENDOGENOUS OUT-MIGRATION PARAMETERS ASSUMPTIONS

Variable	Variable Name	Value
Threshold maximum increase in unemployment before out-migration begins	HIUNRA	.05
Threshold maximum decrease in unemployment before in-migration begins	LWUNRA	-.05
Share of unemployed Native workers who leave once unemployment rises above threshold level	OULAPANA	.2
Share of unemployed non-Native workers who leave once unemployment rises above threshold level	OULAPANN	.5
Adjustment parameter for ratio of Native dependents who out-migrate to Native workers who out-migrate (a value of one indicates that this ratio is the same as the ratio of Native dependents to Native workers in the population)	OUDEPANA	1
Adjustment parameter for ratio of non-Native dependents who out-migrate to non-Native workers who out-migrate	OUDEPANN	1

Community Kodiak

WORKSHEET 15. ENDOGENOUS IMMIGRATION PARAMETERS ASSUMPTIONS: NUMBER OF PERSONS WHO IMMIGRATE IN EACH COHORT FOR EACH WORKER WHO IMMIGRATES

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	.05	.05	0	0
5-14	.05	.05	0	0
15-19	.05	.05	0	0
20-34	.41	.29	0	0
35-64	.29	.21	0	0
65+	0	0	0	0

NOTE: Variables are: MGPANNM1, . . ., MGPANNM6; MGPANNF1, . . ., MGPANNF6; MGPANAM1, . . ., MGPANAM6; MGPANAFI, . . ., MGPANNF6.

SOURCE: Values are assumed on the basis of assumptions about the age-sex-race breakdown of workers, the number of dependents per worker, and the age-sex-race breakdown of dependents. Specific assumptions are:

1. All immigrants are non-Natives.
2. Sixty percent of immigrant workers are male.
3. Each immigrant worker brings .5 dependents.
4. Dependents are evenly distributed among males and females in the first three age groups.

Community Kodiak

WORKSHEET 16. EXOGENOUS MIGRATION PARAMETER ASSUMPTIONS: SHARE OF EACH COHORT WHICH MIGRATES IN OR OUT EACH YEAR IN RESPONSE TO NON-ECONOMIC (EXOGENOUS) FACTORS

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	0	0	0	0
5-14	0	0	0	0
15-19	0	0	0	0
20-34	0	0	0	0
35-64	0	0	0	0
65+	-0.1	-0.1	0	0

NOTE: Variables are MXRANNM1, . . ., MXRANNM6; MXRANNF1, . . ., MXRANNF6; MXRANAM1, . . ., MXRANAM6; MXRANAFI, . . ., MXRANAF6.

SOURCE: No data were available on exogenous migration for Kodiak. Estimates are based on judgment.

Community Kodiak

WORKSHEET 17. MISCELLANEOUS EXOGENOUS ASSUMPTIONS

	Enclave Military Population	
	Active Duty (EMML)	Dependents of Active Duty Personnel (DEML)
1980	619	751
1981	619	751
1982	619	751
1983	619	751
1984	619	751
1985	619	751
1986	619	751
1987	619	751
1988	619	751
1989	619	751
1990	619	751
1991	619	751
1992	619	751
1993	619	751
1994	619	751
1995	619	751
1996	619	751
1997	619	751
1998	619	751
1999	619	751
2000	619	751
2001	619	751
2002	619	751
2003	619	751
2004	619	751
2005	619	751
2006	619	751
2007	619	751
2008	619	751
2009	619	751
2010	619	751

SOURCE: Alaska Department of Labor. Alaska 1980 Population (1981) p. 11. We assume that the Kodiak military-related population remains constant.

APPENDIX O: WORKSHEETS FOR SEWARD

RAM MODEL ASSUMPTIONS

The following worksheets, together with those in Appendix K, provide a complete list of the assumptions we used to run the RAM model for Seward.

Community Seward
Year 1980

WORKSHEET 1. POPULATION ASSUMPTIONS
FOR YEAR PRIOR TO FIRST PROJECTION YEAR

Total Population (PO) 2493

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	84	77	8	4
5-14	150	116	26	20
15-19	85	88	22	22
20-34	427	311	65	43
35-64	363	291	43	53
65+	92	87	5	11

NOTE: Variable names for each column are
PONNM1, . . ., PONNM6; PONNF1, . . .,PONNF6;
PONAM1, . . .,PONAM6; PONAF1, . . ., PONAF6.

SOURCE: 1980 Census Tapes.

(a)To calculate population cohorts for the Seward census subarea, we assumed the same age/sex/race distribution as for Seward City. We multiplied the figures for Seward City shown in Table V-1 by 1.353 to estimate the population of the larger census subarea.

Community Seward
Year 1980

WORKSHEET 6. EMPLOYMENT IN YEAR PRIOR TO FIRST PROJECTION YEAR

(Full-time Equivalent Employment)

Variable	Variable Name	Value
Resident fishing employment	EMFI	120
Resident fish processing employment	EMFP	114
Nonfishing related basic employment	EMBANF	31
Exogenous support employment	EMSUEX	308
Endogenous support employment	EMSUEG	206
Government-sponsored support employment	EMSUGO	68
Enclave-sponsored support employment	EMSUEN	0
Exogenous government employment	EMGOEX	~~66~~ 83
Endogenous government employment	EMGOEG	219
Nonproject enclave employment	EMEN	0

NOTE: These figures are not used directly as model assumptions. Instead, they are used as the basis for calculation of model assumptions in subsequent worksheets.

SOURCE: Table G.4. We do not attempt to calculate enclave employment for these projections; thus, we assume that EMEN is 0. Thus, enclave-sponsored support employment (EMSUEN) is also 0.

Community Seward
Year 1980
Base Year for Real Dollars 1980

WORKSHEET 7. WAGE RATES AND INCOME IN YEAR PRIOR TO FIRST PROJECTION YEAR (Thousands of Real Dollars)

Variable	Variable Name	Value
Basic sector wage rate	WABA	25.0
Support sector wage rate	WASU	13.2
Government sector wage rate	WAGO	27.1
Total wage income	INWA	22,030.00
Nonwage income per capita	INNOWAPC	3.017
Total income	IN	29,551.00

NOTE: These figures are not used directly as model assumptions. Instead, they are used as the basis for calculation of model assumptions in subsequent worksheets.

SOURCES: Wage rates are calculated on the basis of available data from the Department of Labor, which is usually available only at the census division level. Total wage income is calculated by multiplying employment in each category (see Worksheet 6) by the assumed wage rates. If a total income figure is available from the Census or another source, nonwage income may be calculated by subtracting wage income from total income. Otherwise, nonwage income may be assumed on the basis of a statewide ratio of nonwage income to wage income. Per capita nonwage income is obtained by dividing nonwage income by population (see Worksheet 1). See further discussion in Appendix G.

Community Seward

WORKSHEET 9. EMPLOYMENT MULTIPLIER ASSUMPTIONS

Employment multipliers are calculated from the data from the year prior to the first projection year, using data from Worksheets 6, 7, and 8.

Multiplier	Variable Name	Formula	Value
Endogenous support employment multiplier	EMSUEGC1	EMSUEG / IN	.00697
Government-sponsored support employment multiplier	EMSUGOC1	EMSUGO / PO * STPCCE	.01490
Enclave-generated support employment multiplier	EMSUENC1	EMSUEN / EMEN	.05 (a)
Endogenous government employment multiplier	EMGOEGC1	EMGOEG / PO * STPCOE	.02087

(a) No enclave-generated employment is assumed.

Community Seward
Base Year for Real Dollars 1980

WORKSHEET 10. WAGE AND NONWAGE INCOME ASSUMPTIONS FOR PROJECTION PERIOD
(Thousands of Real Dollars)

	Per Capita Nonwage Income (INNOWAPC)	Basic Sector Wage Rate (WABA)	Support Sector Wage Rate (WASU)	Government Sector Wage Rate (WAGO)
1980	3.017	25.0	13.2	27.1
1981	3.017	25.4	13.3	27.4
1982	3.017	25.8	13.4	27.8
1983	3.017	26.2	13.5	28.1
1984	3.017	26.7	13.6	28.5
1985	3.017	27.1	13.7	28.8
1986	3.017	27.5	13.8	29.2
1987	3.017	28.0	13.9	29.6
1988	3.017	28.4	14.0	29.9
1989	3.017	28.9	14.1	30.3
1990	3.017	29.4	14.2	30.7
1991	3.017	29.9	14.3	31.1
1992	3.017	30.3	14.4	31.4
1993	3.017	30.8	14.5	31.8
1994	3.017	31.3	14.6	32.2
1995	3.017	31.8	14.7	32.6
1996	3.017	32.4	14.8	33.0
1997	3.017	32.9	14.9	33.5
1998	3.017	33.4	15.0	33.9
1999	3.017	34.0	15.1	34.3
2000	3.017	34.5	15.2	34.7
2001	3.017	35.1	15.3	35.2
2002	3.017	35.6	15.5	35.6
2003	3.017	36.2	15.6	36.0
2004	3.017	36.8	15.7	36.5
2005	3.017	37.4	15.8	37.0
2006	3.017	38.0	15.9	37.4
2007	3.017	38.6	16.0	37.9
2008	3.017	39.3	16.1	38.4
2009	3.017	39.9	16.3	38.8
2010	3.017	40.5	16.4	39.3

SOURCE: See Appendix G. Basic, Support, and Government sector real wages assumed to increase at 1.625 percent, .72 percent, and 1.248 percent per year, respectively, based on ISER MAP Model projections done in February 1983 (DSET A83T2).

Community Seward

WORKSHEET 11. BASIC SECTOR EXOGENOUS EMPLOYMENT ASSUMPTIONS
(Full-time Equivalent Employment)

Year	Resident Fishing Employment (EMFI) (a)	Resident Fish-processing Employment (EMFP) (a)	Nonfishing Related Basic Employment (EMBANF) (b)	Nonproject Enclave Employment (EMEN)
1980	120	114	31	0
1981	121	115	31	0
1982	122	116	31	0
1983	124	117	51	0
1984	125	119	71	0
1985	126	120	91	0
1986	127	121	111	0
1987	129	122	131	0
1988	130	123	131	0
1989	131	125	131	0
1990	133	126	131	0
1991	134	127	131	0
1992	135	128	131	0
1993	137	130	131	0
1994	138	131	131	0
1995	139	132	131	0
1996	141	134	131	0
1997	142	135	131	0
1998	144	136	131	0
1999	145	138	131	0
2000	146	139	131	0
2001	148	140	131	0
2002	149	142	131	0
2003	151	143	131	0
2004	152	145	131	0
2005	154	146	131	0
2006	155	148	131	0
2007	157	149	131	0
2008	159	151	131	0
2009	160	152	131	0
2010	162	154	131	0

See notes on following page.

WORKSHEET 11 NOTES

(a) Moderate growth in the bottomfish fishery causes a 1 percent annual growth in resident fishing and fish processing employment.

(b) We assume growth in employment of 20 per year over the period 1983-1987 in ship building and maintenance.

Community Seward

WORKSHEET 12. SUPPORT AND GOVERNMENT SECTOR EXOGENOUS EMPLOYMENT ASSUMPTIONS

Year	Exogenous Support Employment	Exogenous Government Employment
1980	308	83
1981	323	93
1982	340	103
1983	357	113
1984	374	123
1985	393	133
1986	413	143
1987	433	153
1988	455	163
1989	478	173
1990	502	183
1991	527	193
1992	553	203
1993	581	213
1994	610	223
1995	640	233
1996	672	233
1997	706	233
1998	741	233
1999	778	233
2000	817	233
2001	858	233
2002	901	233
2003	946	233
2004	993	233
2005	1,043	233
2006	1,095	233
2007	1,150	233
2008	1,207	233
2009	1,268	233
2010	1,331	233

SOURCES: Sources and methods for developing these assumptions differ for individual communities. They are based on an analysis of support and government employment likely to take place in activities which are not geared towards serving the local community, such as export terminals, or National Park Service operations.

WORKSHEET 12 NOTES

(a) We assume 5 percent annual growth in exogenous support employment due to expansion in tourism, export facilities, other port activity, and ship maintenance.

(b) We assume that exogenous government employment expands by 10 jobs per year over the period 1980-1995 due to expansion of the Seward Skills Center, the University's Institute of Marine Sciences, facilities of the Kenai Fjords National Park, and possibly a state prison.

Community Seward

WORKSHEET 13. LABOR FORCE PARTICIPATION RATE ASSUMPTIONS

Age Group	Non-Native		Native	
	Male	Female	Male	Female
15-19	0	0	0	0
20-34	.772	.740	.371	.384
35-64	.772	.740	.371	.384
65+	0	0	0	0

NOTE: Variable names are LFPRNNM3, . . ., 6; LFPRNNF3, . . ., 6; LFPRNAM3, . . ., 6; LFPRNAF3, . . ., 6.

SOURCES: Labor force participation rates were assumed to be 0 for age groups 15-19 and 65+. This greatly simplifies the calculation of these rates. See Table G.8 for calculations.

Community Seward

WORKSHEET 14. ENDOGENOUS OUT-MIGRATION PARAMETERS ASSUMPTIONS

Variable	Variable Name	Value
Threshold maximum increase in unemployment before out-migration begins	HIUNRA	.05
Threshold maximum decrease in unemployment before in-migration begins	LWUNRA	-.05
Share of unemployed Native workers who leave once unemployment rises above threshold level	OULAPANA	.2
Share of unemployed Non-Native workers who leave once unemployment rises above threshold level	OULAPANN	.4
Adjustment parameter for ratio of Native dependents who out-migrate to Native workers who out-migrate (a value of one indicates that this ratio is the same as the ratio of Native dependents to native workers in the population)	OUDEPANA	1
Adjustment parameter for ratio of Non-Native dependents who out-migrate to Non-Native workers who out-migrate	OUDEPANN	1

SOURCE: Assumed based on best judgment. Relatively low values assumed for OULAPANA and OULAPANN because Seward appears to be a relatively stable community.

Community Seward

WORKSHEET 15. ENDOGENOUS IMMIGRATION PARAMETERS ASSUMPTIONS: NUMBER OF PERSONS WHO IMMIGRATE IN EACH COHORT FOR EACH WORKER WHO IMMIGRATES

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	.05	.05	0	0
5-14	.05	.05	0	0
15-19	.05	.05	0	0
20-34	.41	.29	0	0
35-64	.29	.21	0	0
65+	0	0	0	0

NOTE: Variables are MGPANNM1, . . ., MGPANNM6; MGPANNF1, . . ., MGPANNF6; MGPANAM1, . . ., MGPANAM6; MGPANAFI, . . ., MGPANNF6.

SOURCES: Based on the following assumptions:

1. All immigrants are Non-Natives.

2. Sixty percent of immigrant workers are male.

3. Each immigrant worker brings .5 dependents.

4. Dependents are evenly distributed among males and females in the first three age groups.

Community Seward

WORKSHEET 16. EXOGENOUS MIGRATION PARAMETER ASSUMPTIONS: SHARE OF EACH COHORT WHICH MIGRATES IN OR OUT EACH YEAR IN RESPONSE TO NON-ECONOMIC (EXOGENOUS) FACTORS

Age Group	Non-Native		Native	
	Male	Female	Male	Female
0-4	0	0	0	0
5-14	0	0	0	0
15-19	0	0	0	0
20-34	0	0	0	0
35-64	0	0	0	0
65+	-.05	-.05	0	0

NOTE: Variables are MXRANNM1, . . ., MXRANNM6; MXRANNF1, . . ., MXRANNF6; MXRANAM1, . . ., MXRANAM6; MXRANAFI, . . ., MXRANAF6.

SOURCE: We arbitrarily assumed that 5 percent of persons over 65 leave every year in order to retire elsewhere.

Community Seward

WORKSHEET 17. MISCELLANEOUS EXOGENOUS ASSUMPTIONS

	Enclave Military Population (Active Duty and Dependents) POML
1980	0
1981	0
1982	0
1983	0
1984	0
1985	0
1986	0
1987	0
1988	0
1989	0
1990	0
1991	0
1992	0
1993	0
1994	0
1995	0
1996	0
1997	0
1998	0
1999	0
2000	0
2001	0
2002	0
2003	0
2004	0
2005	0
2006	0
2007	0
2008	0
2009	0
2010	0

SOURCE: Military population is treated separately only if the population is distinct from the resident population, living in an enclave. In this case, the population is usually assumed to be constant over the projection period. Military population is included as residents for Seward runs.

APPENDIX P: WORKSHEETS FOR YAKUTAT RAM MODEL ASSUMPTIONS

The following worksheets, together with those in Appendix K, provide a complete list of the assumptions we used to run the RAM model for Yakutat.

Community Yakutat
Year 1980

WORKSHEET 1. POPULATION ASSUMPTIONS
FOR YEAR PRIOR TO FIRST PROJECTION YEAR

Total Population (PO) 449

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	4	10	22	13
5-14	13	14	33	34
15-19	3	6	12	12
20-34	44	20	33	45
35-64	32	18	30	25
65+	3	3	6	14

NOTE: Variable names for each column are
PONNM1, . . ., PONNM6; PONNF1, . . .,PONNF6;
PONAM1, . . .,PONAM6; PONAF1, . . ., PONAF6.

SOURCE: The best source of population data is usually the 1980 census. We obtain these data directly from census tapes stored at ISER.

Community Yakutat
Year 1980

WORKSHEET 6. EMPLOYMENT IN YEAR PRIOR TO FIRST PROJECTION YEAR

(Full-time Equivalent Employment)

Variable	Variable Name	Value
Resident fishing employment	EMFI	38
Resident fish processing employment	EMFP	32
Nonfishing related basic employment	EMBANF	5
Exogenous support employment	EMSUEX	20
Endogenous support employment	EMSUEG	20
Government-sponsored support employment	EMSUGO	6
Enclave-sponsored support employment	EMSUEN	0
Exogenous government employment	EMGOEX	13
Endogenous government employment	EMGOEG	54
Nonproject enclave employment	EMEN	1

NOTE: These figures are not used directly as model assumptions. Instead, they are used as the basis for calculation of model assumptions in subsequent worksheets.

SOURCE: 1980 Census, Alaska Department of Labor, and Alaska Consultants estimates for 1974 and 1976. See discussion in footnotes to Table H.4.

Community Yakutat
Year 1980
Base Year for Real Dollars 1980

WORKSHEET 7. WAGE RATES AND INCOME IN YEAR PRIOR TO FIRST PROJECTION YEAR

(Real Dollars)

Variable	Variable Name	Value
Basic sector wage rate	WABA	25.000
Support sector wage rate	WASU	14.760
Government sector wage rate	WAGO	17.136
Total wage income	INWA	3.702
Nonwage income per capita	INNOWAPC	0.221
Total income	IN	3.801

NOTE: These figures are not used directly as model assumptions. Instead, they are used as the basis for calculation of model assumptions in subsequent worksheets.

SOURCES: Wage rates are calculated on the basis of available data from the Department of Labor, which is usually available only at the census division level. Total wage income is calculated by multiplying employment in each category (see Worksheet 6) by the assumed wage rates. If a total income figure is available from the Census or another source, nonwage income may be calculated by subtracting wage income from total income. Otherwise, nonwage income may be assumed on the basis of a statewide ratio of nonwage income to wage income. Per capita nonwage income is obtained by dividing nonwage income by population (see Worksheet 1).

Support and government sector wage rates based on Table H.6 in report. Since no fishing wage rate data were available, an annual wage rate of $25,000 was assumed for the basic sector based on the assumption that wages in fishing would be somewhat higher and wages in fish processing would be somewhat lower. Nonwage income was derived from transfer payments reported in the Bureau of Economic Analysis, Census-Division Tabulations on Personal Income by Major Source for 1980.

Community Yakutat

WORKSHEET 9. EMPLOYMENT MULTIPLIER ASSUMPTIONS

Employment multipliers are calculated from the data from the year prior to the first projection year, using data from Worksheets 6, 7, and 8.

Multiplier	Variable Name	Formula	Value
Endogenous support employment multiplier	EMSUEGC1	EMSUEG / IN	.00526
Government-sponsored support employment multiplier	EMSUGOC1	EMSUGO / PO * STPCCE	.00730
Enclave-generated support employment multiplier	EMSUENC1	EMSUEN / EMEN	.05 (a)
Endogenous government employment multiplier	EMGOEGC1	EMGOEG / PO * STPCOE	.02857

(a) Assumed directly for Yakutat. This multiplier was assumed arbitrarily. However, it is comparable to the nonresident petroleum-related multiplier used in previous SCIMP model projections (.0549). See discussion in Goldsmith, et. al. (1982, Appendix C, p. C-15).

Community Yakutat
Base Year for Real Dollars 1980

WORKSHEET 10. WAGE AND NONWAGE INCOME ASSUMPTIONS FOR PROJECTION PERIOD
(Thousands of 1980 Dollars)

	Per Capita Nonwage Income (INNOWAPC)	Basic Sector Wage Rate (WABA)	Support Sector Wage Rate (WASU)	Government Sector Wage Rate (WAGO)
1980	0.2	25.0	14.8	17.1
1981	0.2	25.4	14.9	17.3
1982	0.2	25.8	15.0	17.6
1983	0.2	26.2	15.1	17.8
1984	0.2	26.7	15.2	18.0
1985	0.2	27.1	15.3	18.2
1986	0.2	27.5	15.4	18.5
1987	0.2	28.0	15.5	18.7
1988	0.2	28.4	15.6	18.9
1989	0.2	28.9	15.7	19.2
1990	0.2	29.4	15.9	19.4
1991	0.2	29.8	16.0	19.6
1992	0.2	30.3	16.1	19.9
1993	0.2	30.8	16.2	20.1
1994	0.2	31.3	16.3	20.4
1995	0.2	31.8	16.4	20.6
1996	0.2	32.4	16.6	20.9
1997	0.2	32.9	16.7	21.2
1998	0.2	33.4	16.8	21.4
1999	0.2	34.0	16.9	21.7
2000	0.2	34.5	17.0	22.0
2001	0.2	35.1	17.2	22.2
2002	0.2	35.6	17.3	22.5
2003	0.2	36.2	17.4	22.8
2004	0.2	36.8	17.5	23.1
2005	0.2	37.4	17.7	23.4
2006	0.2	38.0	17.8	23.7
2007	0.2	38.6	17.9	24.0
2008	0.2	39.3	18.0	24.3
2009	0.2	39.9	18.2	24.6
2010	0.2	40.5	18.3	24.9

SOURCES: Wage rate assumptions are assumed, starting from 1980 wage rates (see Worksheet 7), and changing to reflect any assumed changes in the structure of employment within sectors, or in statewide Alaskan wage levels. Per capita nonwage income is assumed in a similar manner. Basic, Support, and Government sector real wages assumed to increase at 1.625%, .72%, and 1.248% per year, respectively, based on ISER MAP Model projections done in February 1983 (DSET A83T2). Nonwage income was assumed to remain constant in real per capita terms.

Community Yakutat

WORKSHEET 11. BASIC SECTOR EXOGENOUS EMPLOYMENT ASSUMPTIONS
(Full-time Equivalent Employment)

Year	Resident Fishing Employment (EMFI) (a)	Resident Fish-processing Employment (EMFP) (b)	Nonfishing Related Basic Employment (EMBANF) (c)	Nonproject Enclave Employment (EMEN) (d)
1980	38	32	5	1
1981	38	32	5	5
1982	38	32	5	10
1983	38	32	14	15
1984	38	32	15	15
1985	38	32	17	15
1986	38	32	20	15
1987	38	32	23	15
1988	38	32	23	10
1989	38	32	23	10
1990	38	32	30	10
1991	38	32	30	10
1992	38	32	30	10
1993	38	32	30	10
1994	38	32	30	10
1995	38	32	30	10
1996	38	32	30	10
1997	38	32	30	10
1998	38	32	30	10
1999	38	32	30	10
2000	38	32	30	10
2001	38	32	30	10
2002	38	32	30	10
2003	38	32	30	10
2004	38	32	30	10
2005	38	32	30	10
2006	38	32	30	10
2007	38	32	30	10
2008	38	32	30	10
2009	38	32	30	10
2010	38	32	30	10

NOTES (Worksheet 11)

(a) Despite yearly fluctuations, we assume that average catch is constant at levels experienced in late 1970s and early 1980s for most species. A decline in some species will be offset by increase catch in other; fish harvesting technology and average crew size also assumed constant. Investment in bottomfish gear and processing equipment does not occur.

(b) Average yearly processing employment is assumed to remain constant. We assume that general shift toward less labor; intensive freezing capacity stabilizes at 1983 levels.

(c) Start-year employment reflects wood products (4) and mining (1). Based on analysis by Alaska Consultants (1979, Technical Report 33, p. 23-3; and 1976, Comprehensive Development Plan, p. 82-6), we assume seasonal logging begins after 1983 and gradually increases; small sawmill on line by 1990, after which employment stabilizes. In addition to this, we assume one full-time ARCO employee plus eight full-time oil and gas supply/support employees located at the ARCO support base in Yakutat for offshore exploratory drilling operations 40 miles southeast of Yakutat. According to Gary Hammon, Director of Drilling Operators at ARCO Alaska, Inc. (personal conversation April 14, 1983), these nine jobs are filled by Yakutat residents. We assume the drilling program remains exploration only and continues for five years.

(d) Nonproject enclave employment increases to an average of ten throughout the projection period in fish processing and timber harvesting actjvities. In addition, enclave employment increases by 5 over the five-year oil exploration period from 1983-1987 (personal conversation with Gary Hammon of ARCO; see note (c) above).

Community Yakutat

WORKSHEET 12. SUPPORT AND GOVERNMENT SECTOR EXOGENOUS EMPLOYMENT ASSUMPTIONS

Year	Exogenous Support Employment (EMSUEX)	Exogenous Government Employment (EMGOEX)
1980	20	13
1981	20	13
1982	21	13
1983	21	13
1984	22	13
1985	22	13
1986	23	13
1987	23	13
1988	23	13
1989	24	13
1990	24	13
1991	25	13
1992	25	13
1993	26	13
1994	26	13
1995	27	13
1996	27	13
1997	28	13
1998	29	13
1999	29	13
2000	30	13
2001	30	13
2002	31	13
2003	32	13
2004	32	13
2005	33	13
2006	33	13
2007	34	13
2008	35	13
2009	36	13
2010	36	13

SOURCES: Sources and methods for developing these assumptions differ for individual communities. They are based on an analysis of support and government employment likely to take place in activities which are not geared towards serving the local community, such as export terminals, or National Park Service operations. Exogenous government employment is assumed to remain constant. Exogenous support employment is assumed to rise at 2 percent per year due to increased tourism.

Community Yakutat

WORKSHEET 13. LABOR FORCE PARTICIPATION RATE ASSUMPTIONS

Age Group	Non-Native		Native	
	Male	Female	Male	Female
15-19	0	0	0	0
20-34	.753	.842	.648	.671
35-64	.753	.842	.648	.671
65+	0	0	0	0

NOTE: Variable names are LFPRNNM3, . . ., 6; LFPRNNF3, . . ., 6; LFPRNAM3, . . ., 6; LFPRNAF3, . . ., 6.

SOURCES: Labor force participation rates were assumed to be 0 for age groups 15-19 and 65+. This greatly simplifies the calculation of these rates. See Table H.8 for discussion and calculations.

Community Yakutat

WORKSHEET 14. ENDOGENOUS OUT-MIGRATION PARAMETERS ASSUMPTIONS

Variable	Variable Name	Value
Threshold increase in unemployment before out-migration begins	HIUNRA	.05
Threshold decrease in unemployment before in-migration begins	LWUNRA	-.05
Share of native workers who leave once unemployment rises above threshold level	OULAPANA	.2
Share of non-native workers who leave once unemployment rises above threshold level	OULAPANN	.8
Adjustment parameter for ratio of native dependents who out-migrate to native workers who out-migrate (a value of one indicates that this ratio is the same as the ratio of native dependents to native workers in the population)	OUDEPANA	1
Adjustment parameter for ratio of non-native dependents who out-migrate to non-native workers who out-migrate	OUDEPANN	1

SOURCES: Assumed based on best judgment.

Community Yakutat

WORKSHEET 15. ENDOGENOUS IMMIGRATION PARAMETERS ASSUMPTIONS: NUMBER OF PERSONS WHO IMMIGRATE IN EACH COHORT FOR EACH WORKER WHO IMMIGRATES

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	.05	.05	0	0
5-14	.05	.05	0	0
15-19	.05	.05	0	0
20-34	.41	.29	0	0
35-64	.29	.21	0	0
65+	0	0	0	0

NOTE: Variables are:
MGPANNM1, . . ., MGPANNM6; MGPANNF1, . . ., MGPANNF6;
MGPANAM1, . . ., MGPANAM6; MGPANAFI, . . ., MGPANNF6.

SOURCE: Values are assumed on the basis of assumptions about the age-sex-race breakdown of workers, the number of dependents per worker, and the age-sex-race breakdown of dependents. Specific assumptions are:

1. All immigrants are Non-Natives.

2. Sixty percent of immigrant workers are male.

3. Each immigrant worker brings .5 dependents.

4. Dependents are evenly distributed among males and females in the first three age groups.

Community Yakutat

WORKSHEET 16. EXOGENOUS MIGRATION PARAMETER ASSUMPTIONS: SHARE OF EACH COHORT WHICH MIGRATES IN OR OUT EACH YEAR IN RESPONSE TO NON-ECONOMIC (EXOGENOUS) FACTORS

	Non-Native		Native	
Age Group	Male	Female	Male	Female
0-4	0	0	0	0
5-14	0	0	0	0
15-19	0	0	0	0
20-34	0	0	0	0
35-64	0	0	0	0
65+	-.10	-.10	0	0

NOTE: Variables are:
MXRANNM1, . . ., MXRANNM6; MXRANNF1, . . ., MXRANNF6;
MXRANAM1, . . ., MXRANAM6; MXRANAFI, . . ., MXRANAF6.

SOURCES: Assumed to be 0 for all cohorts. No data were available on exogenous migration for Yakutat. Estimates are based on judgement.

Community Yakutat

WORKSHEET 17. MISCELLANEOUS EXOGENOUS ASSUMPTIONS

	Enclave Military Population (Active Duty and Dependents) POML
1980	0
1981	0
1982	0
1983	0
1984	0
1985	0
1986	0
1987	0
1988	0
1989	0
1990	0
1991	0
1992	0
1993	0
1994	0
1995	0
1996	0
1997	0
1998	0
1999	0
2000	0
2001	0
2002	0
2003	0
2004	0
2005	0
2006	0
2007	0
2008	0
2009	0
2010	0

SOURCE: Military population is treated separately only if the population is distinct from the resident population, living in an enclave. In this case, the population is usually assumed to be constant over the projection period. Military population is zero for Yakutat.

TABLE S.1
RURAL ALASKA MODEL BASE CASE PROJECTIONS
HOMER

	RESIDENT POPULATION	NON-PROJECT ENCLAVE POPULATION	PROJECT ENCLAVE POPULATION	MILITARY ENCLAVE POPULATION	TOTAL POPULATION INCLUDING ENCLAVES AND MILITARY
1980	3140	323	0	0	3463
1981	3238	323	0	0	3561
1982	3434	323	0	0	3757
1983	3538	323	0	0	3861
1984	3642	323	0	0	3965
1985	3747	323	0	0	4070
1986	3871	323	0	0	4194
1987	3979	323	0	0	4302
1988	4114	323	0	0	4437
1989	4224	323	0	0	4547
1990	4336	323	0	0	4659
1991	4448	323	0	0	4771
1992	4562	323	0	0	4885
1993	4676	323	0	0	4999
1994	4792	323	0	0	5115
1995	4866	323	0	0	5189
1996	4914	323	0	0	5237
1997	4972	323	0	0	5295
1998	5034	323	0	0	5357
1999	5112	323	0	0	5435
2000	5197	323	0	0	5520
2001	5285	323	0	0	5608
2002	5377	323	0	0	5700
2003	5472	323	0	0	5795
2004	5572	323	0	0	5895
2005	5677	323	0	0	6000
2006	5787	323	0	0	6110
2007	5901	323	0	0	6224
2008	6021	323	0	0	6344
2009	6146	323	0	0	6469
2010	6276	323	0	0	6599

SOURCE: VARIABLES PO, EMENNOPJ, EMENPJ, POML, AND POTO
DSET HM.BC.MD--CREATED 7/6/83

TABLE S.2
RURAL ALASKA MODEL BASE CASE PROJECTIONS
HOMER

	RESIDENT POPULATION	NATIVE POPULATION	NON-NATIVE POPULATION	NATIVE MALE POPULATION	NATIVE FEMALE POPULATION	NON-NATIVE MALE POPULATION	NON-NATIVE FEMALE POPULATION
1980	3140	94	3046	36	58	1632	1414
1981	3238	98	3140	38	60	1679	1461
1982	3434	102	3333	40	62	1783	1550
1983	3538	106	3432	42	64	1833	1600
1984	3642	109	3533	44	66	1883	1650
1985	3747	113	3634	46	67	1934	1700
1986	3871	117	3755	47	69	1995	1759
1987	3979	120	3858	49	71	2047	1811
1988	4114	124	3990	51	73	2114	1876
1989	4224	128	4096	53	75	2167	1929
1990	4336	132	4204	55	77	2220	1984
1991	4448	135	4313	57	78	2274	2039
1992	4562	139	4422	59	80	2328	2095
1993	4676	143	4533	61	82	2382	2151
1994	4792	147	4645	63	84	2437	2208
1995	4866	151	4715	65	86	2470	2246
1996	4914	154	4761	66	87	2490	2271
1997	4972	157	4815	68	89	2514	2301
1998	5034	160	4874	70	91	2541	2333
1999	5112	164	4949	71	92	2576	2373
2000	5197	167	5030	73	94	2614	2416
2001	5285	171	5114	75	96	2653	2461
2002	5377	175	5201	77	98	2695	2507
2003	5472	179	5292	79	100	2738	2555
2004	5572	184	5388	82	102	2783	2605
2005	5677	188	5489	84	104	2831	2658
2006	5787	193	5594	86	107	2881	2713
2007	5901	197	5704	88	109	2934	2770
2008	6021	202	5819	91	111	2989	2830
2009	6146	207	5939	93	114	3046	2893
2010	6276	212	6064	96	116	3106	2957

SOURCE: VARIABLES PO, PONA, PONN, PONAMA, PONAFE,
PONNMA, AND PONNFE
DSET HM.BC.MD--CREATED 7/6/83

TABLE S.3
RURAL ALASKA MODEL BASE CASE PROJECTIONS
HOMER

	RESIDENT POPULATION	PRE-SCHOOL AGE (0-4)	SCHOOL AGE (5-18)	ADULT (19-64)	SENIOR (65+)
1980	3140	284	726	1983	147
1981	3238	297	736	2044	161
1982	3434	315	760	2184	176
1983	3538	327	773	2247	192
1984	3642	337	788	2309	208
1985	3747	347	804	2372	224
1986	3871	357	823	2450	241
1987	3979	366	841	2514	257
1988	4114	377	863	2600	274
1989	4224	385	882	2665	292
1990	4336	394	902	2730	309
1991	4448	403	922	2796	327
1992	4562	411	943	2863	344
1993	4676	420	964	2930	362
1994	4792	428	986	2999	380
1995	4866	433	999	3040	394
1996	4914	436	1007	3067	405
1997	4972	439	1017	3099	417
1998	5034	443	1028	3134	429
1999	5112	449	1042	3180	443
2000	5197	455	1057	3229	456
2001	5285	461	1073	3280	470
2002	5377	468	1090	3334	485
2003	5472	475	1108	3390	499
2004	5572	482	1127	3449	514
2005	5677	491	1146	3512	529
2006	5787	499	1167	3577	544
2007	5901	508	1189	3645	560
2008	6021	517	1211	3717	576
2009	6146	527	1235	3792	592
2010	6276	538	1260	3869	609

SOURCE: VARIABLES PO, POKD, POSL, POAT, AND POGE
DSET HM.BC.MD--CREATED 7/6/83

TABLE S.4
RURAL ALASKA MODEL BASE CASE PROJECTIONS
HOMER

	RESIDENT POPULATION	CHANGE IN RESIDENT POPULATION	NATURAL INCREASE	NET MIGRATION	NET MIGRATION OF WORKERS	NET MIGRATION OF DEPENDENTS
1980	3140	-	-	-	-	-
1981	3238	98	53	0	0	0
1982	3434	197	54	85	66	20
1983	3538	103	57	0	0	0
1984	3642	104	57	0	0	0
1985	3747	105	57	0	0	0
1986	3871	125	57	16	13	4
1987	3979	107	58	0	0	0
1988	4114	135	58	23	18	5
1989	4224	110	59	0	0	0
1990	4336	111	59	0	0	0
1991	4448	112	60	0	0	0
1992	4562	114	60	0	0	0
1993	4676	115	61	0	0	0
1994	4792	116	61	0	0	0
1995	4866	74	62	-42	-23	-19
1996	4914	48	62	-67	-37	-30
1997	4972	58	61	-57	-32	-26
1998	5034	62	62	-53	-29	-24
1999	5112	78	62	-38	-21	-17
2000	5197	85	62	-33	-18	-15
2001	5285	88	63	-30	-16	-14
2002	5377	92	63	-28	-15	-13
2003	5472	95	64	-26	-14	-12
2004	5572	100	64	-22	-12	-10
2005	5677	105	65	-18	-10	-8
2006	5787	110	66	-15	-8	-7
2007	5901	115	67	-12	-7	-6
2008	6021	120	68	-9	-5	-4
2009	6146	125	69	-6	-3	-3
2010	6276	130	70	-3	-1	-1

SOURCE: VARIABLES PO, CHPO, NTIC, IM, IMLA, AND IMDE
DSET HM.BC.MD--CREATED 7/6/83

TABLE S.5
RURAL ALASKA MODEL BASE CASE PROJECTIONS
HOMER

	RESIDENT EMPLOYMENT	NON-PROJECT ENCLAVE EMPLOYMENT	PROJECT ENCLAVE EMPLOYMENT (ONSHORE ONLY)	MILITARY ENCLAVE EMPLOYMENT	TOTAL EMPLOYMENT INCLUDING ENCLAVES AND MILITARY
1980	1746	323	0	0	2069
1981	1782	323	0	0	2105
1982	1910	323	0	0	2233
1983	1878	323	0	0	2201
1984	1987	323	0	0	2310
1985	1969	323	0	0	2292
1986	2150	323	0	0	2473
1987	2152	323	0	0	2475
1988	2281	323	0	0	2604
1989	2304	323	0	0	2627
1990	2354	323	0	0	2677
1991	2409	323	0	0	2732
1992	2346	323	0	0	2669
1993	2354	323	0	0	2677
1994	2382	323	0	0	2705
1995	2374	323	0	0	2697
1996	2372	323	0	0	2695
1997	2405	323	0	0	2728
1998	2436	323	0	0	2759
1999	2484	323	0	0	2807
2000	2527	323	0	0	2850
2001	2569	323	0	0	2892
2002	2613	323	0	0	2936
2003	2658	323	0	0	2981
2004	2707	323	0	0	3030
2005	2759	323	0	0	3082
2006	2812	323	0	0	3135
2007	2868	323	0	0	3191
2008	2926	323	0	0	3249
2009	2987	323	0	0	3310
2010	3050	323	0	0	3373

SOURCE: VARIABLES EMRETO, EMENNOPJ, EMENPJ, EMML, AND EMTO
DSET HM.BC.MD--CREATED 7/6/83

TABLE S.6
RURAL ALASKA MODEL BASE CASE PROJECTIONS
HOMER

	TOTAL RESIDENT EMPLOYMENT	RESIDENT BASIC EMPLOYMENT	RESIDENT SUPPORT EMPLOYMENT	RESIDENT GOVERNMENT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT
1980	1746	608	783	355	0
1981	1782	609	811	362	0
1982	1910	609	896	405	-0
1983	1878	610	864	404	0
1984	1987	611	934	443	0
1985	1969	611	907	451	0
1986	2150	616	1074	460	-0
1987	2152	619	1084	449	0
1988	2281	623	1166	491	-0
1989	2304	627	1189	488	0
1990	2354	631	1229	495	0
1991	2409	636	1270	503	0
1992	2346	640	1245	462	0
1993	2354	642	1261	450	0
1994	2382	645	1288	449	0
1995	2374	647	1297	429	0
1996	2372	650	1310	412	0
1997	2405	653	1342	410	0
1998	2436	656	1374	406	0
1999	2484	658	1417	409	0
2000	2527	661	1457	409	0
2001	2569	662	1498	409	0
2002	2613	662	1541	409	0
2003	2658	663	1585	409	0
2004	2707	664	1633	410	0
2005	2759	665	1682	411	0
2006	2812	667	1733	412	0
2007	2868	668	1787	413	0
2008	2926	669	1843	415	0
2009	2987	670	1901	416	0
2010	3050	671	1961	418	0

SOURCE: VARIABLES EMRETO, EMBA, EMSU, EMGO, AND EMREPJ
DSET HM.BC.MD--CREATED 7/6/83

TABLE S.7
RURAL ALASKA MODEL BASE CASE PROJECTIONS
HOMER

	TOTAL RESIDENT BASIC EMPLOYMENT	RESIDENT FISHING EMPLOYMENT	RESIDENT FISH PROCESSING EMPLOYMENT	OTHER RESIDENT BASIC EMPLOYMENT
1980	608	429	147	32
1981	609	429	147	33
1982	609	429	147	33
1983	610	429	147	34
1984	611	429	147	35
1985	611	429	147	35
1986	616	431	149	36
1987	619	432	150	37
1988	623	434	152	37
1989	627	436	153	38
1990	631	437	155	39
1991	636	439	157	40
1992	640	441	158	41
1993	642	441	160	41
1994	645	441	162	42
1995	647	441	163	43
1996	650	441	165	44
1997	653	441	167	45
1998	656	441	169	46
1999	658	441	170	47
2000	661	441	172	48
2001	662	441	172	49
2002	662	441	172	49
2003	663	441	172	50
2004	664	441	172	51
2005	665	441	172	52
2006	667	441	172	54
2007	668	441	172	55
2008	669	441	172	56
2009	670	441	172	57
2010	671	441	172	58

SOURCE: VARIABLES EMBA, EMFI, EMFP, AND EMBANF
DSET HM.BC.MD--CREATED 7/6/83

TABLE S.8
RURAL ALASKA MODEL BASE CASE PROJECTIONS
HOMER

	TOTAL RESIDENT SUPPORT EMPLOYMENT	ENDOGENOUS RESIDENT SUPPORT EMPLOYMENT	GOVERNMENT SPONSORED RESIDENT SUPPORT EMPLOYMENT	EXOGENOUS RESIDENT SUPPORT EMPLOYMENT	ENCLAVE SPONSORED RESIDENT SUPPORT EMPLOYMENT
1980	783	376	125	266	16
1981	811	390	129	277	16
1982	896	421	171	288	16
1983	864	419	129	300	16
1984	934	447	159	312	16
1985	907	448	118	325	16
1986	1074	493	228	338	16
1987	1084	499	218	351	16
1988	1166	533	252	366	16
1989	1189	544	248	381	16
1990	1229	561	255	396	16
1991	1270	580	262	412	16
1992	1245	573	227	429	16
1993	1261	581	218	446	16
1994	1288	594	213	464	16
1995	1297	599	200	483	16
1996	1310	605	186	503	16
1997	1342	620	183	523	16
1998	1374	634	180	544	16
1999	1417	652	182	567	16
2000	1457	670	181	590	16
2001	1498	688	181	614	16
2002	1541	706	181	638	16
2003	1585	725	180	664	16
2004	1633	745	180	691	16
2005	1682	766	181	719	16
2006	1733	787	181	749	16
2007	1787	810	182	779	16
2008	1843	834	182	811	16
2009	1901	858	183	844	16
2010	1961	884	184	878	16

SOURCE: VARIABLES EMSU, EMSUEG, EMSUGO, EMSUEX, AND EMSUEN
DSET HM.BC.MD--CREATED 7/6/83

TABLE S.9
RURAL ALASKA MODEL BASE CASE PROJECTIONS
HOMER

	TOTAL CIVILIAN GOVERNMENT EMPLOYMENT	ENDOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT	EXOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT
1980	355	210	145
1981	362	217	145
1982	405	260	145
1983	404	259	145
1984	443	298	145
1985	451	306	145
1986	460	315	145
1987	449	304	145
1988	491	346	145
1989	488	343	145
1990	495	350	145
1991	503	358	145
1992	462	317	145
1993	450	305	145
1994	449	304	145
1995	429	284	145
1996	412	267	145
1997	410	265	145
1998	406	261	145
1999	409	264	145
2000	409	264	145
2001	409	264	145
2002	409	264	145
2003	409	264	145
2004	410	265	145
2005	411	266	145
2006	412	267	145
2007	413	268	145
2008	415	270	145
2009	416	271	145
2010	418	273	145

SOURCE: VARIABLES EMGO, EMGOEG, AND EMGOEX
DSET HM.BC.MD--CREATED 7/6/83

TABLE S.10
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER

	RESIDENT POPULATION	NON-PROJECT ENCLAVE POPULATION	PROJECT ENCLAVE POPULATION	MILITARY ENCLAVE POPULATION	TOTAL POPULATION INCLUDING ENCLAVES AND MILITARY
1980	3140	323	0	0	3463
1981	3238	323	0	0	3561
1982	3434	323	0	0	3757
1983	3538	323	0	0	3861
1984	3642	323	0	0	3965
1985	3747	323	3	0	4073
1986	3910	323	11	0	4244
1987	4019	323	32	0	4374
1988	4185	323	38	0	4546
1989	4299	323	58	0	4679
1990	4413	323	28	0	4764
1991	4528	323	0	0	4851
1992	4644	323	2	0	4970
1993	4762	323	2	0	5087
1994	4881	323	1	0	5205
1995	5000	323	1	0	5325
1996	5122	323	1	0	5446
1997	5244	323	1	0	5568
1998	5368	323	1	0	5692
1999	5494	323	1	0	5818
2000	5620	323	1	0	5944
2001	5737	323	1	0	6061
2002	5849	323	1	0	6173
2003	5959	323	1	0	6283
2004	6069	323	1	0	6393
2005	6181	323	1	0	6505
2006	6240	323	1	0	6563
2007	6319	323	1	0	6642
2008	6413	323	1	0	6736
2009	6520	323	1	0	6843
2010	6637	323	1	0	6961

SOURCE: VARIABLES PO, EMENNOPJ, EMENPJ, POML, AND POTO
DSET HM.IM.MD--CREATED 7/7/83

TABLE S.11
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER

	RESIDENT POPULATION	NATIVE POPULATION	NON-NATIVE POPULATION	NATIVE MALE POPULATION	NATIVE FEMALE POPULATION	NON-NATIVE MALE POPULATION	NON-NATIVE FEMALE POPULATION
1980	3140	94	3046	36	58	1632	1414
1981	3238	98	3140	38	60	1679	1461
1982	3434	102	3333	40	62	1783	1550
1983	3538	106	3432	42	64	1833	1600
1984	3642	109	3533	44	66	1883	1650
1985	3747	113	3634	46	67	1934	1700
1986	3910	117	3793	47	69	2017	1776
1987	4019	120	3899	49	71	2070	1829
1988	4185	124	4061	51	73	2155	1907
1989	4299	128	4171	53	75	2209	1962
1990	4413	132	4281	55	77	2264	2018
1991	4528	135	4393	57	78	2319	2074
1992	4644	139	4505	59	80	2374	2131
1993	4762	143	4619	61	82	2430	2189
1994	4881	147	4733	63	84	2486	2247
1995	5000	151	4849	65	86	2543	2306
1996	5122	155	4966	67	88	2600	2366
1997	5244	160	5085	69	91	2658	2427
1998	5368	164	5205	71	93	2716	2489
1999	5494	168	5326	73	95	2775	2551
2000	5620	173	5448	76	97	2834	2614
2001	5737	177	5560	78	99	2888	2673
2002	5849	181	5668	80	101	2939	2729
2003	5959	186	5773	82	104	2989	2784
2004	6069	190	5879	84	106	3039	2839
2005	6181	195	5986	87	108	3090	2896
2006	6240	198	6041	89	110	3114	2927
2007	6319	202	6117	91	112	3149	2968
2008	6413	207	6206	93	114	3190	3016
2009	6520	211	6308	95	116	3239	3070
2010	6637	216	6421	98	119	3292	3129

SOURCE: VARIABLES PO, PONA, PONN, PONAMA, PONAFE, PONNMA, AND PONNFE
DSET HM.IM.MD--CREATED 7/7/83

TABLE S.12
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER

	RESIDENT POPULATION	PRE-SCHOOL AGE (0-4)	SCHOOL AGE (5-18)	ADULT (19-64)	SENIOR (65+)
1980	3140	284	726	1983	147
1981	3238	297	736	2044	161
1982	3434	315	760	2184	176
1983	3538	327	773	2247	192
1984	3642	337	788	2309	208
1985	3747	347	804	2372	224
1986	3910	360	828	2482	241
1987	4019	369	846	2546	258
1988	4185	382	871	2657	275
1989	4299	392	891	2723	293
1990	4413	401	911	2789	312
1991	4528	410	932	2856	330
1992	4644	419	954	2924	348
1993	4762	427	976	2992	366
1994	4881	436	998	3062	384
1995	5000	445	1021	3132	403
1996	5122	454	1044	3202	421
1997	5244	463	1068	3274	439
1998	5368	472	1091	3347	457
1999	5494	482	1115	3421	476
2000	5620	491	1139	3496	494
2001	5737	500	1162	3565	511
2002	5849	508	1183	3631	528
2003	5959	516	1203	3695	544
2004	6069	525	1224	3760	560
2005	6181	533	1245	3827	576
2006	6240	537	1256	3860	587
2007	6319	543	1270	3907	599
2008	6413	550	1288	3962	613
2009	6520	558	1308	4026	628
2010	6637	568	1330	4096	644

SOURCE: VARIABLES PO, POKD, POSL, POAT, AND POGE
DSET HM.IM.MD--CREATED 7/7/83

TABLE S.13
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER

	RESIDENT POPULATION	CHANGE IN RESIDENT POPULATION	NATURAL INCREASE	NET MIGRATION	NET MIGRATION OF WORKERS	NET MIGRATION OF DEPENDENTS
1980	3140	-	-	-	-	-
1981	3238	98	53	0	0	0
1982	3434	197	54	85	66	20
1983	3538	103	57	0	0	0
1984	3642	104	57	0	0	0
1985	3747	105	57	0	0	0
1986	3910	163	57	50	38	11
1987	4019	109	59	0	0	0
1988	4185	166	59	49	38	11
1989	4299	113	61	0	0	0
1990	4413	114	61	0	0	0
1991	4528	115	61	0	0	0
1992	4644	116	62	0	0	0
1993	4762	117	62	0	0	0
1994	4881	119	63	0	0	0
1995	5000	120	63	0	0	0
1996	5122	121	64	0	0	0
1997	5244	123	65	0	0	0
1998	5368	124	65	0	0	0
1999	5494	126	66	0	0	0
2000	5620	126	67	-1	-1	-0
2001	5737	117	68	-12	-6	-5
2002	5849	112	68	-18	-10	-8
2003	5959	109	69	-22	-12	-10
2004	6069	110	70	-23	-12	-10
2005	6181	112	70	-22	-12	-10
2006	6240	59	71	-76	-41	-35
2007	6319	79	71	-56	-30	-26
2008	6413	94	72	-43	-23	-20
2009	6520	107	73	-32	-17	-15
2010	6637	117	73	-23	-12	-11

SOURCE: VARIABLES PO, CHPO, NTIC, IM, IMLA, AND IMDE
DSET HM.IM.MD--CREATED 7/7/83

TABLE S.14
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER

	RESIDENT EMPLOYMENT	NON-PROJECT ENCLAVE EMPLOYMENT	PROJECT ENCLAVE EMPLOYMENT (ONSHORE ONLY)	MILITARY ENCLAVE EMPLOYMENT	TOTAL EMPLOYMENT INCLUDING ENCLAVES AND MILITARY
1980	1746	323	0	0	2069
1981	1782	323	0	0	2105
1982	1910	323	0	0	2233
1983	1878	323	0	0	2201
1984	1987	323	0	0	2310
1985	1981	323	3	0	2307
1986	2176	323	11	0	2511
1987	2184	323	32	0	2539
1988	2332	323	38	0	2693
1989	2373	323	58	0	2754
1990	2428	323	28	0	2779
1991	2460	323	0	0	2783
1992	2399	323	2	0	2724
1993	2540	323	2	0	2865
1994	2583	323	1	0	2907
1995	2585	323	1	0	2909
1996	2593	323	1	0	2917
1997	2631	323	1	0	2956
1998	2671	323	1	0	2995
1999	2725	323	1	0	3049
2000	2772	323	1	0	3096
2001	2817	323	1	0	3141
2002	2864	323	1	0	3188
2003	2910	323	1	0	3234
2004	2960	323	1	0	3284
2005	3012	323	1	0	3336
2006	2991	323	1	0	3314
2007	3043	323	1	0	3366
2008	3097	323	1	0	3420
2009	3155	323	1	0	3479
2010	3217	323	1	0	3541

SOURCE: VARIABLES EMRETO, EMENNOPJ, EMENPJ, EMML, AND EMTO
DSET HM.IM.MD--CREATED 7/7/83

TABLE S.15
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER

	TOTAL RESIDENT EMPLOYMENT	RESIDENT BASIC EMPLOYMENT	RESIDENT SUPPORT EMPLOYMENT	RESIDENT GOVERNMENT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT
1980	1746	608	783	355	0
1981	1782	609	811	362	0
1982	1910	609	896	405	-0
1983	1878	610	864	404	0
1984	1987	611	934	443	0
1985	1981	611	911	451	8
1986	2176	616	1085	463	12
1987	2184	619	1098	452	15
1988	2332	623	1188	497	23
1989	2373	627	1218	494	34
1990	2428	631	1258	501	38
1991	2460	636	1291	510	24
1992	2399	640	1266	467	26
1993	2540	642	1329	456	113
1994	2583	645	1361	455	122
1995	2585	647	1376	437	126
1996	2593	650	1393	424	127
1997	2631	653	1429	424	125
1998	2671	656	1465	423	127
1999	2725	658	1511	429	127
2000	2772	661	1554	430	127
2001	2817	662	1597	432	127
2002	2864	662	1641	432	128
2003	2910	663	1686	433	128
2004	2960	664	1734	434	128
2005	3012	665	1784	435	128
2006	2991	667	1807	433	84
2007	3043	668	1858	432	84
2008	3097	669	1912	432	83
2009	3155	670	1969	433	83
2010	3217	671	2029	434	83

SOURCE: VARIABLES EMRETO, EMBA, EMSU, EMGO, AND EMREPJ
DSET HM.IM.MD--CREATED 7/7/83

TABLE S.16
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER

	TOTAL RESIDENT BASIC EMPLOYMENT	RESIDENT FISHING EMPLOYMENT	RESIDENT FISH PROCESSING EMPLOYMENT	OTHER RESIDENT BASIC EMPLOYMENT
1980	608	429	147	32
1981	609	429	147	33
1982	609	429	147	33
1983	610	429	147	34
1984	611	429	147	35
1985	611	429	147	35
1986	616	431	149	36
1987	619	432	150	37
1988	623	434	152	37
1989	627	436	153	38
1990	631	437	155	39
1991	636	439	157	40
1992	640	441	158	41
1993	642	441	160	41
1994	645	441	162	42
1995	647	441	163	43
1996	650	441	165	44
1997	653	441	167	45
1998	656	441	169	46
1999	658	441	170	47
2000	661	441	172	48
2001	662	441	172	49
2002	662	441	172	49
2003	663	441	172	50
2004	664	441	172	51
2005	665	441	172	52
2006	667	441	172	54
2007	668	441	172	55
2008	669	441	172	56
2009	670	441	172	57
2010	671	441	172	58

SOURCE: VARIABLES EMBA, EMFI, EMFP, AND EMBANF
DSET HM.IM.MD--CREATED 7/7/83

TABLE S.17
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER

	TOTAL RESIDENT SUPPORT EMPLOYMENT	ENDOGENOUS RESIDENT SUPPORT EMPLOYMENT	GOVERNMENT SPONSORED RESIDENT SUPPORT EMPLOYMENT	EXOGENOUS RESIDENT SUPPORT EMPLOYMENT	ENCLAVE SPONSORED RESIDENT SUPPORT EMPLOYMENT
1980	783	376	125	266	16
1981	811	390	129	277	16
1982	896	421	171	288	16
1983	864	419	129	300	16
1984	934	447	159	312	16
1985	911	452	118	325	16
1986	1085	501	230	338	17
1987	1098	509	220	351	18
1988	1188	548	256	366	18
1989	1218	566	253	381	19
1990	1258	585	260	396	18
1991	1291	596	266	412	16
1992	1266	590	232	429	16
1993	1329	645	222	446	16
1994	1361	663	217	464	16
1995	1376	671	205	483	16
1996	1393	680	194	503	16
1997	1429	696	193	523	16
1998	1465	713	192	544	16
1999	1511	733	196	567	16
2000	1554	752	196	590	16
2001	1597	771	197	614	16
2002	1641	790	196	638	16
2003	1686	809	196	664	16
2004	1734	830	196	691	16
2005	1784	851	197	719	16
2006	1807	847	195	749	16
2007	1858	869	194	779	16
2008	1912	891	194	811	16
2009	1969	915	194	844	16
2010	2029	941	194	878	16

SOURCE: VARIABLES EMSU, EMSUEG, EMSUGO, EMSUEX, AND EMSUEN
DSET HM.IM.MD--CREATED 7/7/83

TABLE S.18
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER

	TOTAL CIVILIAN GOVERNMENT EMPLOYMENT	ENDOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT	EXOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT
1980	355	210	145
1981	362	217	145
1982	405	260	145
1983	404	259	145
1984	443	298	145
1985	451	306	145
1986	463	318	145
1987	452	307	145
1988	497	352	145
1989	494	349	145
1990	501	356	145
1991	510	365	145
1992	467	322	145
1993	456	311	145
1994	455	310	145
1995	437	292	145
1996	424	279	145
1997	424	279	145
1998	423	278	145
1999	429	284	145
2000	430	285	145
2001	432	287	145
2002	432	287	145
2003	433	288	145
2004	434	289	145
2005	435	290	145
2006	433	288	145
2007	432	287	145
2008	432	287	145
2009	433	288	145
2010	434	289	145

SOURCE: VARIABLES EMGO, EMGOEG, AND EMGOEX
DSET HM.IM.MD--CREATED 7/7/83

TABLE S.19
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER

	ONSHORE SHORT-TERM SKILLED PROJECT EMPLOYMENT	ONSHORE SHORT-TERM NONSKILLED PROJECT EMPLOYMENT	ONSHORE LONG-TERM SKILLED PROJECT EMPLOYMENT	ONSHORE LONG-TERM NONSKILLED PROJECT EMPLOYMENT	TOTAL ONSHORE PROJECT EMPLOYMENT
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	5	0	0	0	5
1986	15	0	0	0	15
1987	36	0	0	0	36
1988	46	0	0	0	46
1989	63	6	0	0	69
1990	32	6	0	0	38
1991	0	0	0	0	0
1992	3	0	0	0	3
1993	0	0	12	0	12
1994	0	0	12	0	12
1995	0	0	12	0	12
1996	0	0	12	0	12
1997	0	0	12	0	12
1998	0	0	12	0	12
1999	0	0	12	0	12
2000	0	0	12	0	12
2001	0	0	12	0	12
2002	0	0	12	0	12
2003	0	0	12	0	12
2004	0	0	12	0	12
2005	0	0	12	0	12
2006	0	0	6	0	6
2007	0	0	6	0	6
2008	0	0	6	0	6
2009	0	0	6	0	6
2010	0	0	6	0	6

SOURCE: VARIABLES EMPSONSK, EMPSONNS, EMPLONSK, EMPLONNS, AND EMPJON
DSET HM.IM.MD--CREATED 7/7/83

TABLE S.20
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER

	OFFSHORE SHORT-TERM SKILLED PROJECT EMPLOYMENT	OFFSHORE SHORT-TERM NONSKILLED PROJECT EMPLOYMENT	OFFSHORE LONG-TERM SKILLED PROJECT EMPLOYMENT	OFFSHORE LONG-TERM NONSKILLED PROJECT EMPLOYMENT	TOTAL OFFSHORE PROJECT EMPLOYMENT
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	14	0	0	0	14
1986	41	0	0	0	41
1987	96	0	0	0	96
1988	124	0	0	0	124
1989	235	0	0	0	235
1990	169	1	0	0	170
1991	75	4	0	0	79
1992	67	13	0	0	80
1993	0	0	96	28	124
1994	0	0	96	28	124
1995	0	0	99	28	127
1996	0	0	100	28	128
1997	0	0	98	28	126
1998	0	0	100	28	128
1999	0	0	100	28	128
2000	0	0	100	28	128
2001	0	0	100	28	128
2002	0	0	101	28	129
2003	0	0	101	28	129
2004	0	0	101	28	129
2005	0	0	101	28	129
2006	0	0	63	24	87
2007	0	0	63	24	87
2008	0	0	62	24	86
2009	0	0	62	24	86
2010	0	0	62	24	86

SOURCE: VARIABLES EMPSOFSK, EMPSOFNS, EMPLOFSK, EMPLOFNS, AND EMPJOF
DSET HM.IM.MD--CREATED 7/7/83

TABLE S.21
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER

	RESIDENT PROJECT EMPLOYMENT	ENCLAVE PROJECT EMPLOYMENT	COMMUTER PROJECT EMPLOYMENT	TOTAL PROJECT EMPLOYMENT
1980	0	0	0	0
1981	0	0	0	0
1982	-0	0	0	0
1983	0	0	0	0
1984	0	0	0	0
1985	8	3	8	19
1986	12	11	33	56
1987	15	32	85	132
1988	23	38	109	170
1989	34	58	213	304
1990	38	28	142	208
1991	24	0	55	79
1992	26	2	55	83
1993	113	2	21	136
1994	122	1	13	136
1995	126	1	12	139
1996	127	1	12	140
1997	125	1	12	138
1998	127	1	12	140
1999	127	1	12	140
2000	127	1	12	140
2001	127	1	12	140
2002	128	1	12	141
2003	128	1	12	141
2004	128	1	12	141
2005	128	1	12	141
2006	84	1	8	93
2007	84	1	8	93
2008	83	1	8	92
2009	83	1	8	92
2010	83	1	8	92

SOURCE: VARIABLES EMREPJ, EMENPJ, EMCOPJ, AND EMPJ
DSET HM.IM.MD--CREATED 7/7/83

TABLE S.22
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER

	TOTAL PROJECT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT	SKILLED PROJECT EMPLOYMENT	NONSKILLED PROJECT EMPLOYMENT	RESIDENT SKILLED PROJECT EMPLOYMENT	RESIDENT NONSKILLED PROJECT EMPLOYMENT
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	-0	0	0	0	-0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	19	8	19	0	8	-0
1986	56	12	56	0	11	1
1987	132	15	132	0	13	2
1988	170	23	170	0	18	5
1989	304	34	298	6	25	9
1990	208	38	201	7	31	7
1991	79	24	75	4	23	1
1992	83	26	70	13	22	4
1993	136	113	108	28	35	77
1994	136	122	108	28	88	34
1995	139	126	111	28	97	29
1996	140	127	112	28	100	26
1997	138	125	110	28	100	25
1998	140	127	112	28	102	25
1999	140	127	112	28	102	25
2000	140	127	112	28	102	25
2001	140	127	112	28	102	25
2002	141	128	113	28	102	26
2003	141	128	113	28	103	25
2004	141	128	113	28	103	25
2005	141	128	113	28	103	25
2006	93	84	69	24	63	22
2007	93	84	69	24	63	22
2008	92	83	68	24	62	22
2009	92	83	68	24	62	22
2010	92	83	68	24	62	22

SOURCE: VARIABLES EMPJ, EMREPJ, EMPJSK, EMPJNS, EMREPJSK, AND EMREPJNS
DSET HM.IM.MD--CREATED 7/7/83

TABLE S.23
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER
TOTAL POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	3463	3463	0	0.00
1981	3561	3561	0	0.00
1982	3757	3757	-0	-0.00
1983	3861	3861	-0	-0.00
1984	3965	3965	-0	-0.00
1985	4070	4073	3	0.07
1986	4194	4244	50	1.19
1987	4302	4374	72	1.67
1988	4437	4546	110	2.47
1989	4547	4679	132	2.90
1990	4659	4764	105	2.26
1991	4771	4851	80	1.68
1992	4885	4970	85	1.74
1993	4999	5087	88	1.76
1994	5115	5205	90	1.75
1995	5189	5325	136	2.61
1996	5237	5446	209	3.98
1997	5295	5568	273	5.16
1998	5357	5692	335	6.26
1999	5435	5818	383	7.04
2000	5520	5944	424	7.69
2001	5608	6061	453	8.08
2002	5700	6173	473	8.30
2003	5795	6283	488	8.42
2004	5895	6393	498	8.44
2005	6000	6505	505	8.41
2006	6110	6563	453	7.42
2007	6224	6642	418	6.72
2008	6344	6736	392	6.18
2009	6469	6843	374	5.79
2010	6599	6961	362	5.48

VARIABLE: POTO
SOURCE: DSETS HM.BC.MD--CREATED 7/7/83 AND
HM.IM.MD--CREATED 7/7/83

TABLE S.24
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER
RESIDENT POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	3140	3140	0	0.00
1981	3238	3238	0	0.00
1982	3434	3434	-0	-0.00
1983	3538	3538	-0	-0.00
1984	3642	3642	-0	-0.00
1985	3747	3747	-0	-0.00
1986	3871	3910	38	0.99
1987	3979	4019	40	1.01
1988	4114	4185	72	1.74
1989	4224	4299	74	1.76
1990	4336	4413	77	1.78
1991	4448	4528	80	1.80
1992	4562	4644	83	1.82
1993	4676	4762	86	1.83
1994	4792	4881	88	1.84
1995	4866	5000	135	2.76
1996	4914	5122	208	4.22
1997	4972	5244	272	5.47
1998	5034	5368	334	6.64
1999	5112	5494	382	7.47
2000	5197	5620	423	8.14
2001	5285	5737	452	8.55
2002	5377	5849	472	8.78
2003	5472	5959	487	8.89
2004	5572	6069	497	8.92
2005	5677	6181	504	8.87
2006	5787	6240	453	7.83
2007	5901	6319	417	7.07
2008	6021	6413	392	6.51
2009	6146	6520	374	6.08
2010	6276	6637	361	5.76

VARIABLE: PO
SOURCE: DSETS HM.BC.MD--CREATED 7/7/83 AND
HM.IM.MD--CREATED 7/7/83

TABLE S.25
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER
SCHOOL-AGE POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	726	726	0	0.00
1981	736	736	0	0.00
1982	760	760	0	0.00
1983	773	773	0	0.00
1984	788	788	0	0.00
1985	804	804	0	0.00
1986	823	828	5	0.56
1987	841	846	5	0.56
1988	863	871	8	0.98
1989	882	891	9	1.00
1990	902	911	9	1.03
1991	922	932	10	1.08
1992	943	954	11	1.14
1993	964	976	12	1.20
1994	986	998	12	1.26
1995	999	1021	22	2.22
1996	1007	1044	37	3.72
1997	1017	1068	51	5.01
1998	1028	1091	64	6.21
1999	1042	1115	74	7.07
2000	1057	1139	82	7.78
2001	1073	1162	88	8.22
2002	1090	1183	92	8.48
2003	1108	1203	95	8.61
2004	1127	1224	97	8.65
2005	1146	1245	99	8.62
2006	1167	1256	89	7.59
2007	1189	1270	81	6.85
2008	1211	1288	76	6.30
2009	1235	1308	73	5.88
2010	1260	1330	70	5.56

VARIABLE: POSL
SOURCE: DSETS HM.BC.MD--CREATED 7/7/83 AND
HM.IM.MD--CREATED 7/7/83

TABLE S.26
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER
RESIDENT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	1746	1746	0	0.00
1981	1782	1782	0	0.00
1982	1910	1910	-0	-0.00
1983	1878	1878	-0	-0.00
1984	1987	1987	0	0.00
1985	1969	1981	12	0.61
1986	2150	2176	26	1.19
1987	2152	2184	32	1.49
1988	2281	2332	51	2.22
1989	2304	2373	69	3.00
1990	2354	2428	74	3.13
1991	2409	2460	51	2.11
1992	2346	2399	53	2.27
1993	2354	2540	186	7.91
1994	2382	2583	201	8.42
1995	2374	2585	212	8.91
1996	2372	2593	221	9.34
1997	2405	2631	226	9.41
1998	2436	2671	236	9.67
1999	2484	2725	241	9.71
2000	2527	2772	245	9.72
2001	2569	2817	248	9.66
2002	2613	2864	251	9.61
2003	2658	2910	252	9.49
2004	2707	2960	253	9.34
2005	2759	3012	253	9.17
2006	2812	2991	179	6.36
2007	2868	3043	175	6.09
2008	2926	3097	170	5.82
2009	2987	3155	168	5.63
2010	3050	3217	167	5.46

VARIABLE: EMRETO
SOURCE: DSETS HM.BC.MD--CREATED 7/7/83 AND
HM.IM.MD--CREATED 7/7/83

TABLE S.27
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER
RESIDENT SUPPORT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	783	783	0	0.00
1981	811	811	0	0.00
1982	896	896	-0	-0.00
1983	864	864	-0	-0.00
1984	934	934	0	0.00
1985	907	911	4	0.47
1986	1074	1085	11	1.00
1987	1084	1098	14	1.28
1988	1166	1188	22	1.88
1989	1189	1218	29	2.46
1990	1229	1258	30	2.43
1991	1270	1291	21	1.64
1992	1245	1266	21	1.71
1993	1261	1329	68	5.40
1994	1288	1361	73	5.68
1995	1297	1376	78	6.02
1996	1310	1393	83	6.35
1997	1342	1429	87	6.44
1998	1374	1465	91	6.63
1999	1417	1511	94	6.66
2000	1457	1554	97	6.64
2001	1498	1597	98	6.57
2002	1541	1641	100	6.48
2003	1585	1686	101	6.34
2004	1633	1734	101	6.19
2005	1682	1784	101	6.02
2006	1733	1807	74	4.25
2007	1787	1858	71	4.00
2008	1843	1912	69	3.76
2009	1901	1969	68	3.59
2010	1961	2029	67	3.44

VARIABLE: EMSU
SOURCE: DSETS HM.BC.MD--CREATED 7/7/83 AND
HM.IM.MD--CREATED 7/7/83

TABLE S.28
RURAL ALASKA MODEL IMPACT PROJECTIONS
HOMER
RESIDENT GOVERNMENT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	355	355	0	0.00
1981	362	362	0	0.00
1982	405	405	0	0.00
1983	404	404	0	0.00
1984	443	443	0	0.00
1985	451	451	0	0.00
1986	460	463	3	0.68
1987	449	452	3	0.68
1988	491	497	6	1.23
1989	488	494	6	1.24
1990	495	501	6	1.26
1991	503	510	6	1.28
1992	462	467	6	1.25
1993	450	456	6	1.24
1994	449	455	6	1.25
1995	429	437	8	1.83
1996	412	424	11	2.74
1997	410	424	15	3.54
1998	406	423	17	4.27
1999	409	429	20	4.82
2000	409	430	21	5.26
2001	409	432	23	5.52
2002	409	432	23	5.67
2003	409	433	23	5.74
2004	410	434	24	5.76
2005	411	435	24	5.74
2006	412	433	21	5.07
2007	413	432	19	4.59
2008	415	432	18	4.23
2009	416	433	17	3.96
2010	418	434	16	3.76

VARIABLE: EMGO
SOURCE: DSETS HM.BC.MD--CREATED 7/7/83 AND
HM.IM.MD--CREATED 7/7/83

TABLE S.29
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: HOMER
TOTAL POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	-0	-0	-0
1983	-0	-0	-0
1984	-0	-0	-0
1985	4	3	2
1986	35	50	110
1987	54	72	146
1988	106	110	415
1989	129	132	484
1990	104	105	564
1991	72	80	586
1992	78	85	541
1993	83	88	537
1994	84	90	514
1995	130	136	496
1996	203	209	483
1997	261	273	474
1998	302	335	472
1999	333	383	474
2000	355	424	477
2001	370	453	481
2002	381	473	487
2003	389	488	492
2004	394	498	497
2005	398	505	501
2006	356	453	445
2007	328	418	407
2008	307	392	380
2009	293	374	361
2010	283	362	349

SOURCE: BASE CASE DSET HM.BC.MD, IMPACT CASE DSETS HM.IM.LW,
HM.IM.MD, AND HM.IM.HG
VARIABLE POTO

TABLE S.30
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: HOMER
RESIDENT POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	-0	-0	-0
1983	-0	-0	-0
1984	-0	-0	-0
1985	-0	-0	-0
1986	21	38	127
1987	22	40	133
1988	65	72	447
1989	67	74	466
1990	70	77	564
1991	72	80	586
1992	75	83	541
1993	78	86	537
1994	80	88	514
1995	126	135	496
1996	199	208	483
1997	257	272	474
1998	299	334	472
1999	329	382	474
2000	351	423	477
2001	366	452	481
2002	377	472	487
2003	385	487	492
2004	391	497	497
2005	395	504	501
2006	354	453	445
2007	326	417	407
2008	306	392	380
2009	291	374	361
2010	281	361	349

SOURCE: BASE CASE DSET HM.BC.MD, IMPACT CASE DSETS HM.IM.LW, HM.IM.MD, AND HM.IM.HG
VARIABLE PO

TABLE S.31
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: HOMER
SCHOOL-AGE POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	3	5	15
1987	3	5	15
1988	8	8	53
1989	8	9	55
1990	8	9	67
1991	9	10	71
1992	10	11	63
1993	10	12	64
1994	11	12	61
1995	21	22	60
1996	36	37	61
1997	48	51	62
1998	57	64	64
1999	63	74	67
2000	68	82	70
2001	71	88	73
2002	73	92	76
2003	75	95	79
2004	76	97	81
2005	77	99	83
2006	69	89	73
2007	63	81	66
2008	59	76	62
2009	56	73	59
2010	54	70	57

SOURCE: BASE CASE DSET HM.BC.MD, IMPACT CASE DSETS HM.IM.LW, HM.IM.MD, AND HM.IM.HG
VARIABLE POSL

TABLE S.32
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: HOMER
RESIDENT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	-0	-0	-0
1983	-0	-0	-0
1984	0	0	0
1985	3	12	15
1986	14	26	108
1987	28	32	150
1988	43	51	342
1989	58	69	420
1990	38	74	421
1991	13	51	227
1992	14	53	212
1993	137	186	288
1994	151	201	282
1995	163	212	279
1996	175	221	275
1997	182	226	270
1998	187	236	271
1999	192	241	272
2000	194	245	271
2001	195	248	271
2002	197	251	273
2003	197	252	273
2004	198	253	273
2005	198	253	273
2006	140	179	192
2007	136	175	187
2008	133	170	182
2009	131	168	180
2010	130	167	179

SOURCE: BASE CASE DSET HM.BC.MD, IMPACT CASE DSETS HM.IM.LW,
HM.IM.MD, AND HM.IM.HG
VARIABLE EMRETO

TABLE S.33
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: HOMER
RESIDENT SUPPORT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	-0	-0	-0
1983	-0	-0	-0
1984	0	0	0
1985	1	4	5
1986	6	11	41
1987	12	14	57
1988	19	22	135
1989	25	29	165
1990	17	30	168
1991	7	21	101
1992	7	21	91
1993	51	68	117
1994	55	73	114
1995	61	78	111
1996	67	83	109
1997	70	87	106
1998	73	91	107
1999	76	94	107
2000	77	97	107
2001	78	98	107
2002	78	100	108
2003	79	101	108
2004	79	101	108
2005	79	101	108
2006	58	74	78
2007	56	71	76
2008	54	69	73
2009	53	68	72
2010	53	67	72

SOURCE: BASE CASE DSET HM.BC.MD, IMPACT CASE DSETS HM.IM.LW,
HM.IM.MD, AND HM.IM.HG
VARIABLE EMSU

TABLE S.34
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: HOMER
RESIDENT GOVERNMENT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	2	3	10
1987	2	3	10
1988	5	6	38
1989	5	6	38
1990	6	6	46
1991	6	6	47
1992	5	6	38
1993	5	6	35
1994	5	6	33
1995	7	8	29
1996	11	11	26
1997	14	15	25
1998	15	17	24
1999	17	20	24
2000	18	21	24
2001	18	23	24
2002	19	23	24
2003	19	23	24
2004	19	24	24
2005	19	24	24
2006	16	21	21
2007	15	19	18
2008	14	18	17
2009	13	17	16
2010	12	16	15

SOURCE: BASE CASE DSET HM.BC.MD, IMPACT CASE DSETS HM.IM.LW, HM.IM.MD, AND HM.IM.HG
VARIABLE EMGO

TABLE T.1
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KENAI

	RESIDENT POPULATION	NON-PROJECT ENCLAVE POPULATION	PROJECT ENCLAVE POPULATION	MILITARY ENCLAVE POPULATION	TOTAL POPULATION INCLUDING ENCLAVES AND MILITARY
1980	9289	277	0	0	9566
1981	9297	277	0	0	9574
1982	9440	277	0	0	9717
1983	9528	277	0	0	9805
1984	9655	277	0	0	9932
1985	9777	277	0	0	10054
1986	9893	277	0	0	10170
1987	10005	277	0	0	10282
1988	10112	277	0	0	10389
1989	10216	277	0	0	10493
1990	10316	277	0	0	10593
1991	10413	277	0	0	10690
1992	10403	277	0	0	10680
1993	10298	277	0	0	10575
1994	10230	277	0	0	10507
1995	10083	277	0	0	10360
1996	9941	277	0	0	10218
1997	9891	277	0	0	10168
1998	9860	277	0	0	10137
1999	9875	277	0	0	10152
2000	9883	277	0	0	10160
2001	9880	277	0	0	10157
2002	9871	277	0	0	10148
2003	9862	277	0	0	10139
2004	9855	277	0	0	10132
2005	9851	277	0	0	10128
2006	9845	277	0	0	10122
2007	9841	277	0	0	10118
2008	9840	277	0	0	10117
2009	9836	277	0	0	10113
2010	9834	277	0	0	10111

SOURCE: VARIABLES PO, EMENNOPJ, EMENPJ, POML, AND POTO
DSET KN.BC.MD--CREATED 7/6/83

TABLE T.2
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KENAI

	RESIDENT POPULATION	NATIVE POPULATION	NON-NATIVE POPULATION	NATIVE MALE POPULATION	NATIVE FEMALE POPULATION	NON-NATIVE MALE POPULATION	NON-NATIVE FEMALE POPULATION
1980	9289	442	8847	220	222	4578	4269
1981	9297	454	8844	226	228	4571	4273
1982	9440	467	8972	232	235	4632	4341
1983	9528	480	9048	239	242	4665	4383
1984	9655	494	9161	245	249	4718	4444
1985	9777	508	9269	252	256	4767	4502
1986	9893	522	9371	258	264	4814	4558
1987	10005	536	9469	265	271	4858	4611
1988	10112	550	9562	272	278	4900	4663
1989	10216	564	9652	278	286	4940	4712
1990	10316	578	9738	285	293	4978	4760
1991	10413	592	9821	292	301	5015	4806
1992	10403	605	9798	297	308	4998	4800
1993	10298	616	9682	303	314	4934	4748
1994	10230	628	9602	308	320	4888	4714
1995	10083	639	9444	313	326	4803	4641
1996	9941	650	9291	318	332	4721	4570
1997	9891	663	9229	324	339	4685	4544
1998	9860	676	9184	330	346	4658	4525
1999	9875	690	9185	336	353	4655	4530
2000	9883	704	9179	343	361	4648	4530
2001	9880	718	9162	350	369	4637	4525
2002	9871	732	9139	356	376	4622	4517
2003	9862	747	9115	363	384	4606	4508
2004	9855	762	9093	370	392	4592	4500
2005	9851	777	9074	377	400	4580	4494
2006	9845	792	9053	384	408	4567	4486
2007	9841	808	9034	391	417	4555	4479
2008	9840	824	9016	399	425	4543	4472
2009	9836	840	8996	406	434	4531	4465
2010	9834	857	8978	414	443	4520	4458

SOURCE: VARIABLES PO, PONA, PONN, PONAMA, PONAFE,
PONNMA, AND PONNFE
DSET KN.BC.MD--CREATED 7/6/83

TABLE T.3
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KENAI

	RESIDENT POPULATION	PRE-SCHOOL AGE (0-4)	SCHOOL AGE (5-18)	ADULT (19-64)	SENIOR (65+)
1980	9289	882	2452	5766	188
1981	9297	901	2417	5738	242
1982	9440	927	2424	5796	293
1983	9528	943	2425	5822	338
1984	9655	960	2440	5875	380
1985	9777	974	2458	5926	418
1986	9893	986	2479	5975	454
1987	10005	995	2500	6023	486
1988	10112	1004	2522	6070	516
1989	10216	1011	2545	6117	543
1990	10316	1017	2568	6162	569
1991	10413	1023	2590	6208	592
1992	10403	1019	2587	6190	608
1993	10298	1005	2560	6118	615
1994	10230	996	2542	6068	624
1995	10083	979	2506	5973	626
1996	9941	963	2470	5881	627
1997	9891	955	2457	5846	634
1998	9860	950	2448	5821	641
1999	9875	950	2450	5825	650
2000	9883	948	2451	5825	658
2001	9880	947	2449	5819	665
2002	9871	944	2445	5810	671
2003	9862	942	2441	5801	677
2004	9855	941	2438	5794	682
2005	9851	940	2436	5789	687
2006	9845	938	2433	5782	691
2007	9841	938	2431	5778	695
2008	9840	937	2429	5774	700
2009	9836	936	2427	5769	703
2010	9834	936	2426	5766	707

SOURCE: VARIABLES PO, POKD, POSL, POAT, AND POGE
DSET KN.BC.MD--CREATED 7/6/83

TABLE T.4
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KENAI

	RESIDENT POPULATION	CHANGE IN RESIDENT POPULATION	NATURAL INCREASE	NET MIGRATION	NET MIGRATION OF WORKERS	NET MIGRATION OF DEPENDENTS
1980	9289	-	-	-	-	-
1981	9297	-2	174	-140	-66	-74
1982	9440	142	171	0	0	0
1983	9528	88	169	-45	-21	-24
1984	9655	128	165	0	0	0
1985	9777	122	163	0	0	0
1986	9893	116	161	0	0	0
1987	10005	112	160	0	0	0
1988	10112	107	158	0	0	0
1989	10216	104	157	0	0	0
1990	10316	100	156	0	0	0
1991	10413	97	155	0	0	0
1992	10403	-10	155	-103	-46	-57
1993	10298	-105	152	-194	-86	-108
1994	10230	-68	149	-155	-68	-86
1995	10083	-147	147	-230	-101	-129
1996	9941	-143	143	-223	-98	-125
1997	9891	-49	140	-128	-56	-72
1998	9860	-32	139	-109	-48	-61
1999	9875	15	138	-61	-26	-34
2000	9883	7	138	-67	-29	-38
2001	9880	-2	137	-76	-33	-43
2002	9871	-9	137	-82	-36	-46
2003	9862	-9	136	-81	-35	-46
2004	9855	-7	135	-78	-34	-44
2005	9851	-4	135	-74	-32	-42
2006	9845	-6	135	-76	-33	-43
2007	9841	-3	134	-73	-32	-41
2008	9840	-2	134	-71	-31	-40
2009	9836	-4	134	-72	-31	-41
2010	9834	-2	134	-70	-30	-40

SOURCE: VARIABLES PO, CHPO, NTIC, IM, IMLA, AND IMDE
DSET KN.BC.MD--CREATED 7/6/83

TABLE T.5
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KENAI

	RESIDENT EMPLOYMENT	NON-PROJECT ENCLAVE EMPLOYMENT	PROJECT ENCLAVE EMPLOYMENT (ONSHORE ONLY)	MILITARY ENCLAVE EMPLOYMENT	TOTAL EMPLOYMENT INCLUDING ENCLAVES AND MILITARY
1980	3993	277	0	0	4270
1981	4002	277	0	0	4279
1982	4167	277	0	0	4444
1983	4074	277	0	0	4351
1984	4221	277	0	0	4498
1985	4157	277	0	0	4434
1986	4371	277	0	0	4648
1987	4318	277	0	0	4595
1988	4460	277	0	0	4737
1989	4437	277	0	0	4714
1990	4455	277	0	0	4732
1991	4476	277	0	0	4753
1992	4307	277	0	0	4584
1993	4240	277	0	0	4517
1994	4210	277	0	0	4487
1995	4130	277	0	0	4407
1996	4066	277	0	0	4343
1997	4054	277	0	0	4331
1998	4038	277	0	0	4315
1999	4047	277	0	0	4324
2000	4045	277	0	0	4322
2001	4039	277	0	0	4316
2002	4030	277	0	0	4307
2003	4023	277	0	0	4300
2004	4017	277	0	0	4294
2005	4014	277	0	0	4291
2006	4008	277	0	0	4285
2007	4004	277	0	0	4281
2008	4001	277	0	0	4278
2009	3997	277	0	0	4274
2010	3994	277	0	0	4271

SOURCE: VARIABLES EMRETO, EMENNOPJ, EMENPJ, EMML, AND EMTO
DSET KN.BC.MD--CREATED 7/6/83

TABLE T.6
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KENAI

	TOTAL RESIDENT EMPLOYMENT	RESIDENT BASIC EMPLOYMENT	RESIDENT SUPPORT EMPLOYMENT	RESIDENT GOVERNMENT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT
1980	3993	1176	2138	679	0
1981	4002	1176	2147	679	0
1982	4167	1176	2241	750	0
1983	4074	1176	2160	737	0
1984	4221	1176	2236	809	0
1985	4157	1176	2165	815	0
1986	4371	1176	2373	822	0
1987	4318	1176	2352	789	0
1988	4460	1176	2427	857	0
1989	4437	1176	2421	840	0
1990	4455	1176	2436	843	0
1991	4476	1176	2452	848	0
1992	4307	1176	2374	757	0
1993	4240	1176	2346	718	0
1994	4210	1176	2334	700	0
1995	4130	1176	2302	653	0
1996	4066	1176	2274	615	0
1997	4054	1176	2273	605	0
1998	4038	1176	2270	592	0
1999	4047	1176	2280	591	0
2000	4045	1176	2284	585	0
2001	4039	1173	2287	579	0
2002	4030	1169	2290	572	0
2003	4023	1166	2292	565	0
2004	4017	1162	2296	559	0
2005	4014	1159	2301	554	0
2006	4008	1155	2305	548	0
2007	4004	1152	2309	543	0
2008	4001	1149	2315	538	0
2009	3997	1145	2319	533	0
2010	3994	1142	2325	527	0

SOURCE: VARIABLES EMRETO, EMBA, EMSU, EMGO, AND EMREPJ
DSET KN.BC.MD--CREATED 7/6/83

TABLE T.7
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KENAI

	TOTAL RESIDENT BASIC EMPLOYMENT	RESIDENT FISHING EMPLOYMENT	RESIDENT FISH PROCESSING EMPLOYMENT	OTHER RESIDENT BASIC EMPLOYMENT
1980	1176	159	185	832
1981	1176	159	185	832
1982	1176	159	185	832
1983	1176	159	185	832
1984	1176	159	185	832
1985	1176	159	185	832
1986	1176	159	185	832
1987	1176	159	185	832
1988	1176	159	185	832
1989	1176	159	185	832
1990	1176	159	185	832
1991	1176	159	185	832
1992	1176	159	185	832
1993	1176	159	185	832
1994	1176	159	185	832
1995	1176	159	185	832
1996	1176	159	185	832
1997	1176	159	185	832
1998	1176	159	185	832
1999	1176	159	185	832
2000	1176	159	185	832
2001	1173	159	185	829
2002	1169	159	185	825
2003	1166	159	185	822
2004	1162	159	185	818
2005	1159	159	185	815
2006	1155	159	185	811
2007	1152	159	185	808
2008	1149	159	185	805
2009	1145	159	185	801
2010	1142	159	185	798

SOURCE: VARIABLES EMBA, EMFI, EMFP, AND EMBANF
DSET KN.BC.MD--CREATED 7/6/83

TABLE T.8
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KENAI

	TOTAL RESIDENT SUPPORT EMPLOYMENT	ENDOGENOUS RESIDENT SUPPORT EMPLOYMENT	GOVERNMENT SPONSORED RESIDENT SUPPORT EMPLOYMENT	EXOGENOUS RESIDENT SUPPORT EMPLOYMENT	ENCLAVE SPONSORED RESIDENT SUPPORT EMPLOYMENT
1980	2138	669	223	1232	14
1981	2147	678	223	1232	14
1982	2241	712	284	1232	14
1983	2160	704	210	1232	14
1984	2236	736	255	1232	14
1985	2165	733	186	1232	14
1986	2373	776	351	1232	14
1987	2352	776	331	1232	14
1988	2427	808	374	1232	14
1989	2421	812	363	1232	14
1990	2436	824	366	1232	14
1991	2452	836	370	1232	14
1992	2374	815	313	1232	14
1993	2346	811	290	1232	14
1994	2334	813	275	1232	14
1995	2302	806	250	1232	14
1996	2274	802	227	1232	14
1997	2273	807	220	1232	14
1998	2270	812	212	1232	14
1999	2280	822	212	1232	14
2000	2284	830	208	1232	14
2001	2287	837	204	1232	14
2002	2290	843	200	1232	14
2003	2292	850	196	1232	14
2004	2296	858	193	1232	14
2005	2301	865	189	1232	14
2006	2305	873	186	1232	14
2007	2309	881	183	1232	14
2008	2315	889	180	1232	14
2009	2319	897	177	1232	14
2010	2325	905	174	1232	14

SOURCE: VARIABLES EMSU, EMSUEG, EMSUGO, EMSUEX, AND EMSUEN
DSET KN.BC.MD--CREATED 7/6/83

TABLE T.9
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KENAI

	TOTAL CIVILIAN GOVERNMENT EMPLOYMENT	ENDOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT	EXOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT
1980	679	485	194
1981	679	485	194
1982	750	556	194
1983	737	543	194
1984	809	615	194
1985	815	621	194
1986	822	628	194
1987	789	595	194
1988	857	663	194
1989	840	646	194
1990	843	649	194
1991	848	654	194
1992	757	563	194
1993	718	524	194
1994	700	506	194
1995	653	459	194
1996	615	421	194
1997	605	411	194
1998	592	398	194
1999	591	397	194
2000	585	391	194
2001	579	385	194
2002	572	378	194
2003	565	371	194
2004	559	365	194
2005	554	360	194
2006	548	354	194
2007	543	349	194
2008	538	344	194
2009	533	339	194
2010	527	333	194

SOURCE: VARIABLES EMGO, EMGOEG, AND EMGOEX
DSET KN.BC.MD--CREATED 7/6/83

TABLE T.10
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KENAI

	RESIDENT POPULATION	NON-PROJECT ENCLAVE POPULATION	PROJECT ENCLAVE POPULATION	MILITARY ENCLAVE POPULATION	TOTAL POPULATION INCLUDING ENCLAVES AND MILITARY
1980	9289	277	0	0	9566
1981	9297	277	0	0	9574
1982	9440	277	0	0	9717
1983	9528	277	0	0	9805
1984	9655	277	0	0	9932
1985	9777	277	6	0	10060
1986	9893	277	19	0	10189
1987	10005	277	44	0	10326
1988	10112	277	57	0	10446
1989	10230	277	96	0	10603
1990	10330	277	58	0	10665
1991	10428	277	0	0	10705
1992	10472	277	6	0	10756
1993	10564	277	2	0	10844
1994	10655	277	2	0	10934
1995	10730	277	2	0	11010
1996	10648	277	2	0	10927
1997	10610	277	2	0	10889
1998	10587	277	2	0	10867
1999	10608	277	2	0	10887
2000	10615	277	2	0	10895
2001	10611	277	2	0	10891
2002	10603	277	2	0	10882
2003	10592	277	2	0	10872
2004	10584	277	2	0	10863
2005	10579	277	2	0	10859
2006	10390	277	1	0	10668
2007	10331	277	1	0	10610
2008	10310	277	1	0	10588
2009	10300	277	1	0	10579
2010	10296	277	1	0	10575

SOURCE: VARIABLES PO, EMENNOPJ, EMENPJ, POML, AND POTO
DSET KN.IM.MD--CREATED 7/1/83

TABLE T.11
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KENAI

	RESIDENT POPULATION	NATIVE POPULATION	NON-NATIVE POPULATION	NATIVE MALE POPULATION	NATIVE FEMALE POPULATION	NON-NATIVE MALE POPULATION	NON-NATIVE FEMALE POPULATION
1980	9289	442	8847	220	222	4578	4269
1981	9297	454	8844	226	228	4571	4273
1982	9440	467	8972	232	235	4632	4341
1983	9528	480	9048	239	242	4665	4383
1984	9655	494	9161	245	249	4718	4444
1985	9777	508	9269	252	256	4767	4502
1986	9893	522	9371	258	264	4814	4558
1987	10005	536	9469	265	271	4858	4611
1988	10112	550	9562	272	278	4900	4663
1989	10230	564	9666	278	286	4948	4718
1990	10330	578	9752	285	293	4986	4766
1991	10428	592	9835	292	301	5023	4812
1992	10472	606	9866	298	308	5034	4833
1993	10564	620	9944	305	316	5068	4876
1994	10655	635	10020	311	323	5101	4918
1995	10730	649	10081	318	331	5128	4953
1996	10648	662	9986	324	338	5075	4911
1997	10610	675	9935	330	345	5044	4891
1998	10587	688	9899	336	352	5022	4877
1999	10608	703	9905	343	360	5021	4885
2000	10615	717	9898	349	368	5014	4885
2001	10611	731	9880	356	375	5000	4879
2002	10603	746	9857	363	383	4985	4871
2003	10592	761	9832	370	391	4969	4862
2004	10584	776	9808	377	399	4954	4854
2005	10579	791	9788	384	408	4941	4847
2006	10390	803	9587	389	414	4837	4750
2007	10331	818	9513	396	422	4797	4716
2008	10310	834	9476	403	431	4776	4700
2009	10300	850	9450	411	439	4760	4690
2010	10296	867	9429	419	448	4748	4682

SOURCE: VARIABLES PO, PONA, PONN, PONAMA, PONAFE,
PONNMA, AND PONNFE
DSET KN.IM.MD--CREATED 7/1/83

TABLE T.12
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KENAI

	RESIDENT POPULATION	PRE-SCHOOL AGE (0-4)	SCHOOL AGE (5-18)	ADULT (19-64)	SENIOR (65+)
1980	9289	882	2452	5766	188
1981	9297	901	2417	5738	242
1982	9440	927	2424	5796	293
1983	9528	943	2425	5822	338
1984	9655	960	2440	5875	380
1985	9777	974	2458	5926	418
1986	9893	986	2479	5975	454
1987	10005	995	2500	6023	486
1988	10112	1004	2522	6070	516
1989	10230	1012	2547	6128	543
1990	10330	1018	2569	6174	569
1991	10428	1024	2592	6219	593
1992	10472	1025	2602	6234	612
1993	10564	1031	2623	6278	632
1994	10655	1036	2645	6323	651
1995	10730	1040	2662	6360	669
1996	10648	1029	2641	6303	674
1997	10610	1023	2631	6274	682
1998	10587	1018	2625	6255	689
1999	10608	1018	2628	6262	699
2000	10615	1017	2629	6262	708
2001	10611	1015	2626	6255	715
2002	10603	1012	2623	6246	721
2003	10592	1010	2619	6237	726
2004	10584	1008	2615	6229	732
2005	10579	1007	2613	6223	737
2006	10390	989	2566	6108	728
2007	10331	983	2550	6070	728
2008	10310	980	2543	6055	731
2009	10300	979	2540	6047	735
2010	10296	979	2538	6042	738

SOURCE: VARIABLES PO, POKD, POSL, POAT, AND POGE
DSET KN.IM.MD--CREATED 7/1/83

TABLE T.13
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KENAI

	RESIDENT POPULATION	CHANGE IN RESIDENT POPULATION	NATURAL INCREASE	NET MIGRATION	NET MIGRATION OF WORKERS	NET MIGRATION OF DEPENDENTS
1980	9289	-	-	-	-	-
1981	9297	-2	174	-140	-66	-74
1982	9440	142	171	0	0	0
1983	9528	88	169	-45	-21	-24
1984	9655	128	165	0	0	0
1985	9777	122	163	0	0	0
1986	9893	116	161	0	0	0
1987	10005	112	160	0	0	0
1988	10112	107	158	0	0	0
1989	10230	118	157	12	9	3
1990	10330	100	157	0	0	0
1991	10428	98	156	0	0	0
1992	10472	44	155	-50	-22	-28
1993	10564	92	154	0	0	0
1994	10655	90	154	0	0	0
1995	10730	76	153	-12	-5	-7
1996	10648	-83	153	-168	-74	-94
1997	10610	-38	150	-121	-53	-68
1998	10587	-23	149	-104	-46	-59
1999	10608	21	148	-60	-26	-34
2000	10615	7	148	-72	-31	-41
2001	10611	-4	147	-82	-36	-46
2002	10603	-9	146	-86	-37	-49
2003	10592	-10	146	-87	-38	-49
2004	10584	-8	145	-84	-37	-47
2005	10579	-5	145	-80	-35	-45
2006	10390	-190	144	-264	-114	-149
2007	10331	-59	140	-132	-57	-74
2008	10310	-21	140	-93	-40	-53
2009	10300	-10	140	-81	-35	-46
2010	10296	-4	140	-75	-33	-43

SOURCE: VARIABLES PO, CHPO, NTIC, IM, IMLA, AND IMDE
DSET KN.IM.MD--CREATED 7/1/83

TABLE T.14
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KENAI

	RESIDENT EMPLOYMENT	NON-PROJECT ENCLAVE EMPLOYMENT	PROJECT ENCLAVE EMPLOYMENT (ONSHORE ONLY)	MILITARY ENCLAVE EMPLOYMENT	TOTAL EMPLOYMENT INCLUDING ENCLAVES AND MILITARY
1980	3993	277	0	0	4270
1981	4002	277	0	0	4279
1982	4167	277	0	0	4444
1983	4074	277	0	0	4351
1984	4221	277	0	0	4498
1985	4174	277	6	0	4458
1986	4425	277	19	0	4721
1987	4443	277	44	0	4764
1988	4622	277	57	0	4956
1989	4727	277	96	0	5100
1990	4642	277	58	0	4978
1991	4500	277	0	0	4777
1992	4347	277	6	0	4630
1993	4514	277	2	0	4793
1994	4499	277	2	0	4778
1995	4442	277	2	0	4721
1996	4380	277	2	0	4659
1997	4364	277	2	0	4644
1998	4352	277	2	0	4631
1999	4361	277	2	0	4641
2000	4358	277	2	0	4638
2001	4351	277	2	0	4630
2002	4343	277	2	0	4623
2003	4335	277	2	0	4615
2004	4329	277	2	0	4608
2005	4325	277	2	0	4604
2006	4214	277	1	0	4492
2007	4205	277	1	0	4484
2008	4199	277	1	0	4478
2009	4194	277	1	0	4473
2010	4191	277	1	0	4469

SOURCE: VARIABLES EMRETO, EMENNOPJ, EMENPJ, EMML, AND EMTO
DSET KN.IM.MD--CREATED 7/1/83

TABLE T.15
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KENAI

	TOTAL RESIDENT EMPLOYMENT	RESIDENT BASIC EMPLOYMENT	RESIDENT SUPPORT EMPLOYMENT	RESIDENT GOVERNMENT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT
1980	3993	1176	2138	679	0
1981	4002	1176	2147	679	0
1982	4167	1176	2241	750	0
1983	4074	1176	2160	737	0
1984	4221	1176	2236	809	0
1985	4174	1176	2170	815	13
1986	4425	1176	2389	822	38
1987	4443	1176	2389	789	89
1988	4622	1176	2474	857	115
1989	4727	1176	2505	841	205
1990	4642	1176	2491	844	132
1991	4500	1176	2459	849	16
1992	4347	1176	2387	760	23
1993	4514	1176	2428	732	178
1994	4499	1176	2423	721	178
1995	4442	1176	2402	682	182
1996	4380	1176	2375	645	183
1997	4364	1176	2374	635	180
1998	4352	1176	2372	621	183
1999	4361	1176	2382	621	183
2000	4358	1176	2385	614	183
2001	4351	1173	2388	607	183
2002	4343	1169	2391	600	184
2003	4335	1166	2393	592	184
2004	4329	1162	2397	586	184
2005	4325	1159	2401	581	184
2006	4214	1155	2372	568	118
2007	4205	1152	2375	560	118
2008	4199	1149	2379	554	117
2009	4194	1145	2383	549	117
2010	4191	1142	2388	543	117

SOURCE: VARIABLES EMRETO, EMBA, EMSU, EMGO, AND EMREPJ
DSET KN.IM.MD--CREATED 7/1/83

TABLE T.16
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KENAI

	TOTAL RESIDENT BASIC EMPLOYMENT	RESIDENT FISHING EMPLOYMENT	RESIDENT FISH PROCESSING EMPLOYMENT	OTHER RESIDENT BASIC EMPLOYMENT
1980	1176	159	185	832
1981	1176	159	185	832
1982	1176	159	185	832
1983	1176	159	185	832
1984	1176	159	185	832
1985	1176	159	185	832
1986	1176	159	185	832
1987	1176	159	185	832
1988	1176	159	185	832
1989	1176	159	185	832
1990	1176	159	185	832
1991	1176	159	185	832
1992	1176	159	185	832
1993	1176	159	185	832
1994	1176	159	185	832
1995	1176	159	185	832
1996	1176	159	185	832
1997	1176	159	185	832
1998	1176	159	185	832
1999	1176	159	185	832
2000	1176	159	185	832
2001	1173	159	185	829
2002	1169	159	185	825
2003	1166	159	185	822
2004	1162	159	185	818
2005	1159	159	185	815
2006	1155	159	185	811
2007	1152	159	185	808
2008	1149	159	185	805
2009	1145	159	185	801
2010	1142	159	185	798

SOURCE: VARIABLES EMBA, EMFI, EMFP, AND EMBANF
DSET KN.IM.MD--CREATED 7/1/83

TABLE T.17
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KENAI

	TOTAL RESIDENT SUPPORT EMPLOYMENT	ENDOGENOUS RESIDENT SUPPORT EMPLOYMENT	GOVERNMENT SPONSORED RESIDENT SUPPORT EMPLOYMENT	EXOGENOUS RESIDENT SUPPORT EMPLOYMENT	ENCLAVE SPONSORED RESIDENT SUPPORT EMPLOYMENT
1980	2138	669	223	1232	14
1981	2147	678	223	1232	14
1982	2241	712	284	1232	14
1983	2160	704	210	1232	14
1984	2236	736	255	1232	14
1985	2170	738	186	1232	14
1986	2389	791	351	1232	15
1987	2389	810	331	1232	16
1988	2474	852	374	1232	17
1989	2505	891	363	1232	19
1990	2491	875	367	1232	17
1991	2459	843	370	1232	14
1992	2387	826	315	1232	14
1993	2428	885	297	1232	14
1994	2423	891	286	1232	14
1995	2402	890	266	1232	14
1996	2375	887	243	1232	14
1997	2374	891	236	1232	14
1998	2372	897	228	1232	14
1999	2382	908	228	1232	14
2000	2385	916	224	1232	14
2001	2388	923	219	1232	14
2002	2391	930	215	1232	14
2003	2393	937	211	1232	14
2004	2397	944	207	1232	14
2005	2401	952	203	1232	14
2006	2372	930	196	1232	14
2007	2375	937	192	1232	14
2008	2379	944	188	1232	14
2009	2383	952	185	1232	14
2010	2388	961	182	1232	14

SOURCE: VARIABLES EMSU, EMSUEG, EMSUGO, EMSUEX, AND EMSUEN
DSET KN.IM.MD--CREATED 7/1/83

TABLE T.18
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KENAI

	TOTAL CIVILIAN GOVERNMENT EMPLOYMENT	ENDOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT	EXOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT
1980	679	485	194
1981	679	485	194
1982	750	556	194
1983	737	543	194
1984	809	615	194
1985	815	621	194
1986	822	628	194
1987	789	595	194
1988	857	663	194
1989	841	647	194
1990	844	650	194
1991	849	655	194
1992	760	566	194
1993	732	538	194
1994	721	527	194
1995	682	488	194
1996	645	451	194
1997	635	441	194
1998	621	427	194
1999	621	427	194
2000	614	420	194
2001	607	413	194
2002	600	406	194
2003	592	398	194
2004	586	392	194
2005	581	387	194
2006	568	374	194
2007	560	366	194
2008	554	360	194
2009	549	355	194
2010	543	349	194

SOURCE: VARIABLES EMGO, EMGOEG, AND EMGOEX
DSET KN.IM.MD--CREATED 7/1/83

TABLE T.19
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KENAI

	ONSHORE SHORT-TERM SKILLED PROJECT EMPLOYMENT	ONSHORE SHORT-TERM NONSKILLED PROJECT EMPLOYMENT	ONSHORE LONG-TERM SKILLED PROJECT EMPLOYMENT	ONSHORE LONG-TERM NONSKILLED PROJECT EMPLOYMENT	TOTAL ONSHORE PROJECT EMPLOYMENT
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	16	0	0	0	16
1986	49	0	0	0	49
1987	114	0	0	0	114
1988	147	0	0	0	147
1989	210	25	0	0	235
1990	112	25	0	0	137
1991	0	0	0	0	0
1992	9	1	0	0	10
1993	0	0	29	0	29
1994	0	0	29	0	29
1995	0	0	29	0	29
1996	0	0	29	0	29
1997	0	0	29	0	29
1998	0	0	29	0	29
1999	0	0	29	0	29
2000	0	0	29	0	29
2001	0	0	29	0	29
2002	0	0	29	0	29
2003	0	0	29	0	29
2004	0	0	29	0	29
2005	0	0	29	0	29
2006	0	0	14	0	14
2007	0	0	14	0	14
2008	0	0	14	0	14
2009	0	0	14	0	14
2010	0	0	14	0	14

SOURCE: VARIABLES EMPSONSK, EMPSONNS, EMPLONSK, EMPLONNS, AND EMPJON
DSET KN.IM.MD--CREATED 7/1/83

TABLE T.20
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KENAI

	OFFSHORE SHORT-TERM SKILLED PROJECT EMPLOYMENT	OFFSHORE SHORT-TERM NONSKILLED PROJECT EMPLOYMENT	OFFSHORE LONG-TERM SKILLED PROJECT EMPLOYMENT	OFFSHORE LONG-TERM NONSKILLED PROJECT EMPLOYMENT	TOTAL OFFSHORE PROJECT EMPLOYMENT
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	5	0	0	0	5
1986	14	0	0	0	14
1987	32	0	0	0	32
1988	41	0	0	0	41
1989	120	0	0	0	120
1990	104	1	0	0	105
1991	51	3	0	0	54
1992	45	9	0	0	54
1993	0	0	128	38	166
1994	0	0	128	38	166
1995	0	0	132	38	170
1996	0	0	133	38	171
1997	0	0	130	38	168
1998	0	0	133	38	171
1999	0	0	133	38	171
2000	0	0	133	38	171
2001	0	0	133	38	171
2002	0	0	134	38	172
2003	0	0	134	38	172
2004	0	0	134	38	172
2005	0	0	134	38	172
2006	0	0	83	33	116
2007	0	0	83	33	116
2008	0	0	82	33	115
2009	0	0	82	33	115
2010	0	0	82	33	115

SOURCE: VARIABLES EMPSOFSK, EMPSOFNS, EMPLOFSK, EMPLOFNS, AND EMPJOF
DSET KN.IM.MD--CREATED 7/1/83

TABLE T.21
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KENAI

	RESIDENT PROJECT EMPLOYMENT	ENCLAVE PROJECT EMPLOYMENT	COMMUTER PROJECT EMPLOYMENT	TOTAL PROJECT EMPLOYMENT
1980	0	0	0	0
1981	0	0	0	0
1982	0	0	0	0
1983	0	0	0	0
1984	0	0	0	0
1985	13	6	2	21
1986	38	19	5	63
1987	89	44	12	146
1988	115	57	16	188
1989	205	96	53	355
1990	132	58	51	242
1991	16	0	38	54
1992	23	6	34	64
1993	178	2	14	195
1994	178	2	14	195
1995	182	2	15	199
1996	183	2	15	200
1997	180	2	14	197
1998	183	2	15	200
1999	183	2	15	200
2000	183	2	15	200
2001	183	2	15	200
2002	184	2	15	201
2003	184	2	15	201
2004	184	2	15	201
2005	184	2	15	201
2006	118	1	10	130
2007	118	1	10	130
2008	117	1	10	129
2009	117	1	10	129
2010	117	1	10	129

SOURCE: VARIABLES EMREPJ, EMENPJ, EMCOPJ, AND EMPJ
DSET KN.IM.MD--CREATED 7/1/83

TABLE T.22
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KENAI

	TOTAL PROJECT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT	SKILLED PROJECT EMPLOYMENT	NONSKILLED PROJECT EMPLOYMENT	RESIDENT SKILLED PROJECT EMPLOYMENT	RESIDENT NONSKILLED PROJECT EMPLOYMENT
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	21	13	21	0	13	0
1986	63	38	63	0	38	0
1987	146	89	146	0	89	0
1988	188	115	188	0	115	0
1989	355	205	330	25	183	22
1990	242	132	216	26	110	23
1991	54	16	51	3	15	1
1992	64	23	54	10	20	4
1993	195	178	157	38	144	34
1994	195	178	157	38	144	34
1995	199	182	161	38	148	34
1996	200	183	162	38	149	34
1997	197	180	159	38	146	34
1998	200	183	162	38	149	34
1999	200	183	162	38	149	34
2000	200	183	162	38	149	34
2001	200	183	162	38	149	34
2002	201	184	163	38	150	34
2003	201	184	163	38	150	34
2004	201	184	163	38	150	34
2005	201	184	163	38	150	34
2006	130	118	97	33	89	30
2007	130	118	97	33	89	30
2008	129	117	96	33	88	30
2009	129	117	96	33	88	30
2010	129	117	96	33	88	30

SOURCE: VARIABLES EMPJ, EMREPJ, EMPJSK, EMPJNS, EMREPJSK, AND EMREPJNS
DSET KN.IM.MD--CREATED 7/1/83

TABLE T.23
RURAL ALASKA MODEL IMPACT MODEL PROJECTIONS
KENAI
TOTAL POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	9566	9566	0	0.00
1981	9574	9574	0	0.00
1982	9717	9717	0	0.00
1983	9805	9805	0	0.00
1984	9932	9932	0	0.00
1985	10054	10060	6	0.06
1986	10170	10189	19	0.19
1987	10282	10326	44	0.43
1988	10389	10446	57	0.55
1989	10493	10603	110	1.05
1990	10593	10665	73	0.69
1991	10690	10705	15	0.14
1992	10680	10756	76	0.71
1993	10575	10844	268	2.54
1994	10507	10934	427	4.06
1995	10360	11010	649	6.27
1996	10218	10927	709	6.94
1997	10168	10889	721	7.09
1998	10137	10867	730	7.20
1999	10152	10887	735	7.24
2000	10160	10895	735	7.24
2001	10157	10891	734	7.22
2002	10148	10882	734	7.23
2003	10139	10872	733	7.23
2004	10132	10863	732	7.22
2005	10128	10859	731	7.21
2006	10122	10668	546	5.40
2007	10118	10610	491	4.85
2008	10117	10588	472	4.66
2009	10113	10579	465	4.60
2010	10111	10575	463	4.58

VARIABLE: POTO
SOURCE: DSETS KN.BC.MD--CREATED 7/6/83 AND
KN.IM.MD--CREATED 7/6/83

TABLE T.24
RURAL ALASKA MODEL IMPACT MODEL PROJECTIONS
KENAI
RESIDENT POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	9289	9289	0	0.00
1981	9297	9297	0	0.00
1982	9440	9440	0	0.00
1983	9528	9528	0	0.00
1984	9655	9655	0	0.00
1985	9777	9777	0	0.00
1986	9893	9893	0	0.00
1987	10005	10005	0	0.00
1988	10112	10112	0	0.00
1989	10216	10230	14	0.14
1990	10316	10330	15	0.14
1991	10413	10428	15	0.14
1992	10403	10472	69	0.66
1993	10298	10564	266	2.58
1994	10230	10655	424	4.15
1995	10083	10730	647	6.42
1996	9941	10648	707	7.11
1997	9891	10610	719	7.26
1998	9860	10587	728	7.38
1999	9875	10608	733	7.42
2000	9883	10615	733	7.41
2001	9880	10611	731	7.40
2002	9871	10603	732	7.41
2003	9862	10592	731	7.41
2004	9855	10584	729	7.40
2005	9851	10579	728	7.39
2006	9845	10390	545	5.54
2007	9841	10331	490	4.98
2008	9840	10310	470	4.78
2009	9836	10300	464	4.72
2010	9834	10296	462	4.70

VARIABLE: PO
SOURCE: DSETS KN.BC.MD--CREATED 7/6/83 AND
KN.IM.MD--CREATED 7/6/83

TABLE T.25
RURAL ALASKA MODEL IMPACT MODEL PROJECTIONS
KENAI
SCHOOL-AGE POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	2452	2452	0	0.00
1981	2417	2417	0	0.00
1982	2424	2424	0	0.00
1983	2425	2425	0	0.00
1984	2440	2440	0	0.00
1985	2458	2458	0	0.00
1986	2479	2479	0	0.00
1987	2500	2500	0	0.00
1988	2522	2522	0	0.00
1989	2545	2547	2	0.07
1990	2568	2569	2	0.07
1991	2590	2592	2	0.07
1992	2587	2602	15	0.59
1993	2560	2623	63	2.48
1994	2542	2645	102	4.02
1995	2506	2662	157	6.26
1996	2470	2641	172	6.95
1997	2457	2631	175	7.11
1998	2448	2625	177	7.23
1999	2450	2628	178	7.27
2000	2451	2629	178	7.27
2001	2449	2626	178	7.26
2002	2445	2623	178	7.28
2003	2441	2619	178	7.27
2004	2438	2615	177	7.27
2005	2436	2613	177	7.26
2006	2433	2566	132	5.45
2007	2431	2550	119	4.90
2008	2429	2543	114	4.70
2009	2427	2540	113	4.64
2010	2426	2538	112	4.62

VARIABLE: POSL
SOURCE: DSETS KN.BC.MD--CREATED 7/6/83 AND
KN.IM.MD--CREATED 7/6/83

TABLE T.26
RURAL ALASKA MODEL IMPACT MODEL PROJECTIONS
KENAI
RESIDENT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	3993	3993	0	0.00
1981	4002	4002	-0	-0.00
1982	4167	4167	0	0.00
1983	4074	4074	0	0.00
1984	4221	4221	0	0.00
1985	4157	4174	18	0.43
1986	4371	4425	54	1.24
1987	4318	4443	126	2.91
1988	4460	4622	162	3.63
1989	4437	4727	291	6.55
1990	4455	4642	188	4.21
1991	4476	4500	24	0.54
1992	4307	4347	40	0.93
1993	4240	4514	274	6.45
1994	4210	4499	289	6.86
1995	4130	4442	311	7.54
1996	4066	4380	314	7.72
1997	4054	4364	310	7.66
1998	4038	4352	313	7.76
1999	4047	4361	314	7.76
2000	4045	4358	313	7.74
2001	4039	4351	312	7.73
2002	4030	4343	313	7.76
2003	4023	4335	312	7.76
2004	4017	4329	312	7.75
2005	4014	4325	311	7.75
2006	4008	4214	206	5.13
2007	4004	4205	201	5.02
2008	4001	4199	198	4.95
2009	3997	4194	197	4.94
2010	3994	4191	197	4.93

VARIABLE: EMRETO
SOURCE: DSETS KN.BC.MD--CREATED 7/6/83 AND
KN.IM.MD--CREATED 7/6/83

TABLE T.27
RURAL ALASKA MODEL IMPACT MODEL PROJECTIONS
KENAI
RESIDENT SUPPORT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	2138	2138	0	0.00
1981	2147	2147	-0	-0.00
1982	2241	2241	0	0.00
1983	2160	2160	0	0.00
1984	2236	2236	0	0.00
1985	2165	2170	5	0.24
1986	2373	2389	16	0.66
1987	2352	2389	36	1.54
1988	2427	2474	47	1.93
1989	2421	2505	84	3.48
1990	2436	2491	54	2.24
1991	2452	2459	7	0.29
1992	2374	2387	13	0.55
1993	2346	2428	82	3.48
1994	2334	2423	89	3.83
1995	2302	2402	100	4.34
1996	2274	2375	101	4.45
1997	2273	2374	100	4.41
1998	2270	2372	101	4.46
1999	2280	2382	102	4.45
2000	2284	2385	101	4.44
2001	2287	2388	101	4.42
2002	2290	2391	101	4.42
2003	2292	2393	101	4.40
2004	2296	2397	101	4.38
2005	2301	2401	100	4.37
2006	2305	2372	68	2.93
2007	2309	2375	65	2.83
2008	2315	2379	64	2.77
2009	2319	2383	64	2.75
2010	2325	2388	64	2.74

VARIABLE: EMSU
SOURCE: DSETS KN.BC.MD--CREATED 7/6/83 AND
KN.IM.MD--CREATED 7/6/83

TABLE T.28
RURAL ALASKA MODEL IMPACT MODEL PROJECTIONS
KENAI
RESIDENT GOVERNMENT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	679	679	0	0.00
1981	679	679	0	0.00
1982	750	750	0	0.00
1983	737	737	0	0.00
1984	809	809	0	0.00
1985	815	815	0	0.00
1986	822	822	0	0.00
1987	789	789	0	0.00
1988	857	857	0	0.00
1989	840	841	1	0.11
1990	843	844	1	0.11
1991	848	849	1	0.11
1992	757	760	4	0.49
1993	718	732	14	1.88
1994	700	721	21	3.00
1995	653	682	29	4.51
1996	615	645	30	4.87
1997	605	635	30	4.93
1998	592	621	29	4.96
1999	591	621	29	4.99
2000	585	614	29	4.96
2001	579	607	28	4.92
2002	572	600	28	4.90
2003	565	592	27	4.86
2004	559	586	27	4.83
2005	554	581	27	4.80
2006	548	568	20	3.58
2007	543	560	17	3.20
2008	538	554	16	3.06
2009	533	549	16	3.00
2010	527	543	16	2.97

VARIABLE: EMGO
SOURCE: DSETS KN.BC.MD--CREATED 7/6/83 AND
KN.IM.MD--CREATED 7/6/83

TABLE T.29
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: KENAI
TOTAL POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	11	6	0
1986	34	19	0
1987	78	44	4
1988	101	57	4
1989	172	110	286
1990	104	73	397
1991	0	15	405
1992	22	76	198
1993	217	268	399
1994	375	427	560
1995	526	649	646
1996	567	709	675
1997	574	721	684
1998	581	730	700
1999	585	735	714
2000	584	735	721
2001	583	734	727
2002	583	734	734
2003	582	733	739
2004	581	732	743
2005	580	731	746
2006	432	546	552
2007	389	491	496
2008	373	472	478
2009	368	465	474
2010	366	463	474

SOURCE: BASE CASE DSET KN.BC.MD, IMPACT CASE DSETS KN.IM.LW,
KN.IM.MD, AND KN.IM.HG
VARIABLE POTO

TABLE T.30
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: KENAI
RESIDENT POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	0	14	389
1990	0	15	397
1991	0	15	405
1992	13	69	198
1993	209	266	399
1994	367	424	560
1995	518	647	646
1996	559	707	675
1997	566	719	684
1998	573	728	700
1999	576	733	714
2000	576	733	721
2001	575	731	727
2002	575	732	734
2003	574	731	739
2004	573	729	743
2005	572	728	746
2006	429	545	552
2007	385	490	496
2008	369	470	478
2009	364	464	474
2010	362	462	474

SOURCE: BASE CASE DSET KN.BC.MD, IMPACT CASE DSETS KN.IM.LW,
KN.IM.MD, AND KN.IM.HG
VARIABLE PO

TABLE T.31
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: KENAI
SCHOOL-AGE POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	0	2	47
1990	0	2	47
1991	0	2	49
1992	3	15	1
1993	51	63	52
1994	90	102	94
1995	127	157	118
1996	137	172	129
1997	139	175	134
1998	140	177	141
1999	141	178	147
2000	141	178	151
2001	140	178	155
2002	140	178	159
2003	140	178	162
2004	140	177	164
2005	139	177	167
2006	105	132	121
2007	94	119	109
2008	90	114	105
2009	89	113	105
2010	88	112	106

SOURCE: BASE CASE DSET KN.BC.MD, IMPACT CASE DSETS KN.IM.LW,
KN.IM.MD, AND KN.IM.HG
VARIABLE POSL

TABLE T.32
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: KENAI
RESIDENT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	-0	-0	-0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	9	18	29
1986	29	54	87
1987	67	126	195
1988	87	162	252
1989	140	291	661
1990	82	188	383
1991	0	24	125
1992	7	40	110
1993	214	274	310
1994	230	289	325
1995	245	311	335
1996	246	314	335
1997	243	310	330
1998	246	313	335
1999	246	314	336
2000	245	313	336
2001	245	312	336
2002	245	313	337
2003	244	312	336
2004	244	312	336
2005	243	311	336
2006	161	206	222
2007	157	201	218
2008	155	198	215
2009	154	197	214
2010	154	197	214

SOURCE: BASE CASE DSET KN.BC.MD, IMPACT CASE DSETS KN.IM.LW,
KN.IM.MD, AND KN.IM.HG
VARIABLE EMRETO

TABLE T.33
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: KENAI
RESIDENT SUPPORT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	-0	-0	-0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	3	5	8
1986	9	16	24
1987	22	36	53
1988	28	47	69
1989	46	84	187
1990	27	54	116
1991	0	7	46
1992	3	13	35
1993	64	82	95
1994	72	89	102
1995	79	100	106
1996	80	101	106
1997	79	100	105
1998	80	101	106
1999	80	102	107
2000	80	101	107
2001	79	101	107
2002	80	101	108
2003	79	101	108
2004	79	101	108
2005	79	100	108
2006	53	68	72
2007	51	65	70
2008	50	64	69
2009	50	64	69
2010	50	64	69

SOURCE: BASE CASE DSET KN.BC.MD, IMPACT CASE DSETS KN.IM.LW,
KN.IM.MD, AND KN.IM.HG
VARIABLE EMSU

TABLE T.34
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: KENAI
RESIDENT GOVERNMENT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	0	1	25
1990	0	1	25
1991	0	1	25
1992	1	4	11
1993	11	14	20
1994	18	21	28
1995	24	29	29
1996	24	30	29
1997	24	30	28
1998	23	29	28
1999	23	29	29
2000	23	29	29
2001	22	28	28
2002	22	28	28
2003	22	27	28
2004	21	27	28
2005	21	27	27
2006	15	20	20
2007	14	17	18
2008	13	16	17
2009	13	16	16
2010	12	16	16

SOURCE: BASE CASE DSET KN.BC.MD, IMPACT CASE DSETS KN.IM.LW,
KN.IM.MD, AND KN.IM.HG
VARIABLE EMGO

TABLE U.1
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KODIAK

	RESIDENT POPULATION	NON-PROJECT ENCLAVE POPULATION	PROJECT ENCLAVE POPULATION	MILITARY ENCLAVE POPULATION	TOTAL POPULATION INCLUDING ENCLAVES AND MILITARY
1980	7472	497	0	1370	9339
1981	7605	497	0	1370	9472
1982	7730	497	0	1370	9597
1983	7849	497	0	1370	9716
1984	7975	497	-0	1370	9842
1985	8082	497	0	1370	9949
1986	8437	497	-0	1370	10304
1987	8539	497	0	1370	10406
1988	8804	497	-0	1370	10671
1989	8901	497	0	1370	10768
1990	9006	497	0	1370	10873
1991	9140	497	-0	1370	11007
1992	9227	497	0	1370	11094
1993	9311	497	0	1370	11178
1994	9392	497	0	1370	11259
1995	9471	497	0	1370	11338
1996	9548	497	0	1370	11415
1997	9624	497	0	1370	11491
1998	9699	497	0	1370	11566
1999	9773	497	0	1370	11640
2000	9846	497	0	1370	11713
2001	9919	497	0	1370	11786
2002	9991	497	0	1370	11858
2003	10063	497	0	1370	11930
2004	10136	497	0	1370	12003
2005	10208	497	0	1370	12075
2006	10281	497	0	1370	12148
2007	10354	497	0	1370	12221
2008	10428	497	0	1370	12295
2009	10502	497	0	1370	12369
2010	10577	497	0	1370	12444

SOURCE: VARIABLES PO, EMENNOPJ, EMENPJ, POML, AND POTO
DSET KD.BC.MD--CREATED 7/12/83

TABLE U.2
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KODIAK

	RESIDENT POPULATION	NATIVE POPULATION	NON-NATIVE POPULATION	NATIVE MALE POPULATION	NATIVE FEMALE POPULATION	NON-NATIVE MALE POPULATION	NON-NATIVE FEMALE POPULATION
1980	7472	923	6549	469	454	3609	2940
1981	7605	949	6656	481	468	3658	2997
1982	7730	975	6755	494	482	3703	3052
1983	7849	1001	6848	506	495	3745	3103
1984	7975	1027	6949	517	509	3790	3158
1985	8082	1052	7030	529	523	3825	3205
1986	8437	1077	7360	541	537	4000	3359
1987	8539	1103	7437	552	551	4032	3405
1988	8804	1128	7676	564	564	4156	3520
1989	8901	1154	7747	575	578	4184	3563
1990	9006	1179	7827	587	592	4217	3609
1991	9140	1205	7935	598	607	4267	3668
1992	9227	1231	7996	610	621	4290	3706
1993	9311	1257	8053	622	635	4311	3743
1994	9392	1284	8108	634	650	4330	3778
1995	9471	1311	8160	646	665	4348	3811
1996	9548	1339	8209	659	680	4365	3844
1997	9624	1367	8257	671	696	4382	3876
1998	9699	1396	8303	684	712	4397	3906
1999	9773	1425	8348	697	728	4412	3936
2000	9846	1454	8391	711	744	4426	3965
2001	9919	1485	8434	724	760	4440	3994
2002	9991	1516	8475	738	777	4454	4022
2003	10063	1547	8516	753	795	4467	4049
2004	10136	1580	8556	767	812	4480	4076
2005	10208	1612	8596	782	830	4493	4103
2006	10281	1646	8635	798	848	4506	4129
2007	10354	1680	8674	813	867	4519	4155
2008	10428	1716	8712	830	886	4532	4180
2009	10502	1752	8750	846	905	4545	4206
2010	10577	1788	8789	863	925	4558	4231

SOURCE: VARIABLES PO, PONA, PONN, PONAMA, PONAFE, PONNMA, AND PONNFE
DSET KD.BC.MD--CREATED 7/12/83

TABLE U.3
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KODIAK

	RESIDENT POPULATION	PRE-SCHOOL AGE (0-4)	SCHOOL AGE (5-18)	ADULT (19-64)	SENIOR (65+)
1980	7472	677	1768	4817	210
1981	7605	726	1651	4980	248
1982	7730	763	1673	5011	284
1983	7849	790	1703	5038	318
1984	7975	812	1740	5073	350
1985	8082	828	1778	5094	381
1986	8437	856	1850	5321	411
1987	8539	868	1891	5339	441
1988	8804	888	1953	5494	469
1989	8901	897	1995	5512	498
1990	9006	904	2038	5540	524
1991	9140	912	2083	5595	549
1992	9227	917	2122	5615	573
1993	9311	921	2159	5635	596
1994	9392	925	2194	5656	617
1995	9471	929	2228	5678	637
1996	9548	933	2260	5701	655
1997	9624	937	2290	5726	673
1998	9699	941	2318	5751	689
1999	9773	945	2345	5778	704
2000	9846	950	2371	5806	719
2001	9919	956	2395	5835	733
2002	9991	961	2419	5865	746
2003	10063	967	2442	5896	759
2004	10136	974	2464	5927	771
2005	10208	980	2485	5960	782
2006	10281	987	2507	5993	794
2007	10354	995	2528	6027	804
2008	10428	1002	2549	6062	815
2009	10502	1010	2569	6097	825
2010	10577	1018	2590	6133	835

SOURCE: VARIABLES PO, POKD, POSL, POAT, AND POGE
DSET KD.BC.MD--CREATED 7/12/83

TABLE U.4
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KODIAK

	RESIDENT POPULATION	CHANGE IN RESIDENT POPULATION	NATURAL INCREASE	NET MIGRATION	NET MIGRATION OF WORKERS	NET MIGRATION OF DEPENDENTS
1980	7472	-	-	-	-	-
1981	7605	133	151	0	0	0
1982	7730	125	149	0	0	0
1983	7849	119	145	0	0	0
1984	7975	126	142	12	9	3
1985	8082	107	139	0	0	0
1986	8437	355	136	220	169	51
1987	8539	102	140	0	0	0
1988	8804	265	137	145	112	34
1989	8901	97	139	0	0	0
1990	9006	105	136	11	8	3
1991	9140	134	135	39	30	9
1992	9227	87	135	0	0	0
1993	9311	84	134	0	0	0
1994	9392	81	133	0	0	0
1995	9471	79	132	0	0	0
1996	9548	77	132	0	0	0
1997	9624	76	132	0	0	0
1998	9699	75	132	0	0	0
1999	9773	74	132	0	0	0
2000	9846	73	132	0	0	0
2001	9919	73	133	0	0	0
2002	9991	72	133	0	0	0
2003	10063	72	134	0	0	0
2004	10136	72	135	0	0	0
2005	10208	72	136	0	0	0
2006	10281	73	137	0	0	0
2007	10354	73	138	0	0	0
2008	10428	74	139	0	0	0
2009	10502	74	140	0	0	0
2010	10577	75	141	0	0	0

SOURCE: VARIABLES PO, CHPO, NTIC, IM, IMLA, AND IMDE
DSET KD.BC.MD--CREATED 7/12/83

TABLE U.5
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KODIAK

	RESIDENT EMPLOYMENT	NON-PROJECT ENCLAVE EMPLOYMENT	PROJECT ENCLAVE EMPLOYMENT (ONSHORE ONLY)	MILITARY ENCLAVE EMPLOYMENT	TOTAL EMPLOYMENT INCLUDING ENCLAVES AND MILITARY
1980	3995	497	0	619	5111
1981	4033	497	0	619	5149
1982	4200	497	0	619	5316
1983	4152	497	0	619	5268
1984	4308	497	-0	619	5424
1985	4283	497	0	619	5399
1986	4505	497	-0	619	5621
1987	4476	497	0	619	5592
1988	4654	497	-0	619	5770
1989	4653	497	0	619	5769
1990	4693	497	0	619	5809
1991	4734	497	-0	619	5850
1992	4598	497	0	619	5714
1993	4567	497	0	619	5683
1994	4567	497	0	619	5683
1995	4523	497	0	619	5639
1996	4491	497	0	619	5607
1997	4505	497	0	619	5621
1998	4512	497	0	619	5628
1999	4542	497	0	619	5658
2000	4560	497	0	619	5676
2001	4578	497	0	619	5694
2002	4598	497	0	619	5714
2003	4617	497	0	619	5733
2004	4638	497	0	619	5754
2005	4659	497	0	619	5775
2006	4681	497	0	619	5797
2007	4703	497	0	619	5819
2008	4725	497	0	619	5841
2009	4748	497	0	619	5864
2010	4771	497	0	619	5887

SOURCE: VARIABLES EMRETO, EMENNOPJ, EMENPJ, EMML, AND EMTO
DSET KD.BC.MD--CREATED 7/12/83

TABLE U.6
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KODIAK

	TOTAL RESIDENT EMPLOYMENT	RESIDENT BASIC EMPLOYMENT	RESIDENT SUPPORT EMPLOYMENT	RESIDENT GOVERNMENT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT
1980	3995	1518	1479	998	0
1981	4033	1526	1501	1006	0
1982	4200	1536	1584	1080	0
1983	4152	1546	1536	1069	0
1984	4308	1556	1608	1144	0
1985	4283	1566	1565	1151	0
1986	4505	1577	1750	1178	0
1987	4476	1587	1744	1144	0
1988	4654	1597	1827	1230	0
1989	4653	1608	1833	1212	0
1990	4693	1618	1858	1217	-0
1991	4734	1623	1885	1226	0
1992	4598	1628	1836	1133	0
1993	4567	1632	1832	1102	0
1994	4567	1637	1840	1091	0
1995	4523	1642	1832	1049	0
1996	4491	1647	1828	1017	0
1997	4505	1652	1843	1010	0
1998	4512	1656	1856	1000	0
1999	4542	1661	1878	1002	0
2000	4560	1666	1896	998	0
2001	4578	1671	1914	993	0
2002	4598	1677	1932	989	0
2003	4617	1682	1951	984	0
2004	4638	1687	1970	980	0
2005	4659	1692	1990	977	0
2006	4681	1697	2010	973	0
2007	4703	1702	2031	970	0
2008	4725	1707	2052	966	0
2009	4748	1712	2073	963	0
2010	4771	1717	2095	959	0

SOURCE: VARIABLES EMRETO, EMBA, EMSU, EMGO, AND EMREPJ
DSET KD.BC.MD--CREATED 7/12/83

TABLE U.7
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KODIAK

	TOTAL RESIDENT BASIC EMPLOYMENT	RESIDENT FISHING EMPLOYMENT	RESIDENT FISH PROCESSING EMPLOYMENT	OTHER RESIDENT BASIC EMPLOYMENT
1980	1518	48	893	107
1981	1526	522	897	107
1982	1536	526	903	107
1983	1546	530	909	107
1984	1556	534	915	107
1985	1566	538	921	107
1986	1577	542	928	107
1987	1587	546	934	107
1988	1597	550	940	107
1989	1608	554	947	107
1990	1618	558	953	107
1991	1623	560	956	107
1992	1628	562	959	107
1993	1632	564	961	107
1994	1637	566	964	107
1995	1642	568	967	107
1996	1647	570	970	107
1997	1652	572	973	107
1998	1656	574	975	107
1999	1661	576	978	107
2000	1666	578	981	107
2001	1671	580	984	107
2002	1677	582	988	107
2003	1682	584	991	107
2004	1687	586	994	107
2005	1692	588	997	107
2006	1697	590	1000	107
2007	1702	592	1003	107
2008	1707	594	1006	107
2009	1712	596	1009	107
2010	1717	598	1012	107

SOURCE: VARIABLES EMBA, EMFI, EMFP, AND EMBANF
DSET KD.BC.MD--CREATED 7/12/83

TABLE U.8
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KODIAK

	TOTAL RESIDENT SUPPORT EMPLOYMENT	ENDOGENOUS RESIDENT SUPPORT EMPLOYMENT	GOVERNMENT SPONSORED RESIDENT SUPPORT EMPLOYMENT	EXOGENOUS RESIDENT SUPPORT EMPLOYMENT	ENCLAVE SPONSORED RESIDENT SUPPORT EMPLOYMENT
1980	1479	524	174	756	25
1981	1501	535	177	764	25
1982	1584	563	225	771	25
1983	1536	564	168	779	25
1984	1608	592	204	787	25
1985	1565	597	149	795	25
1986	1750	632	291	803	25
1987	1744	635	274	811	25
1988	1827	667	316	819	25
1989	1833	675	307	827	25
1990	1858	688	310	835	25
1991	1885	702	315	843	25
1992	1836	690	270	852	25
1993	1832	693	254	860	25
1994	1840	701	245	869	25
1995	1832	702	228	878	25
1996	1828	705	212	886	25
1997	1843	715	208	895	25
1998	1856	724	203	904	25
1999	1878	736	204	913	25
2000	1896	747	202	922	25
2001	1914	758	199	932	25
2002	1932	770	197	941	25
2003	1951	781	194	950	25
2004	1970	793	192	960	25
2005	1990	805	191	970	25
2006	2010	818	189	979	25
2007	2031	830	187	989	25
2008	2052	843	185	999	25
2009	2073	856	183	1009	25
2010	2095	869	181	1019	25

SOURCE: VARIABLES EMSU, EMSUEG, EMSUGO, EMSUEX, AND EMSUEN
DSET KD.BC.MD--CREATED 7/12/83

TABLE U.9
RURAL ALASKA MODEL BASE CASE PROJECTIONS
KODIAK

	TOTAL CIVILIAN GOVERNMENT EMPLOYMENT	ENDOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT	EXOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT
1980	988	483	515
1981	1006	491	515
1982	1080	565	515
1983	1069	554	515
1984	1144	629	515
1985	1151	636	515
1986	1178	663	515
1987	1144	629	515
1988	1230	715	515
1989	1212	697	515
1990	1217	702	515
1991	1226	711	515
1992	1133	618	515
1993	1102	587	515
1994	1091	576	515
1995	1049	534	515
1996	1017	502	515
1997	1010	495	515
1998	1000	485	515
1999	1002	487	515
2000	998	483	515
2001	993	478	515
2002	989	474	515
2003	984	469	515
2004	980	465	515
2005	977	462	515
2006	973	458	515
2007	970	455	515
2008	966	451	515
2009	963	448	515
2010	959	444	515

SOURCE: VARIABLES EMGO, EMGOEG, AND EMGOEX
DSET KD.BC.MD--CREATED 7/12/83

TABLE U-10
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KODIAK

	RESIDENT POPULATION	NON-PROJECT ENCLAVE POPULATION	PROJECT ENCLAVE POPULATION	MILITARY ENCLAVE POPULATION	TOTAL POPULATION INCLUDING ENCLAVES AND MILITARY
1980	7472	497	0	1370	9339
1981	7605	497	0	1370	9472
1982	7730	497	0	1370	9597
1983	7849	497	0	1370	9716
1984	7975	497	-0	1370	9842
1985	8082	497	2	1370	9951
1986	8460	497	8	1370	10335
1987	8563	497	21	1370	10450
1988	8842	497	26	1370	10735
1989	8939	497	29	1370	10836
1990	9064	497	11	1370	10941
1991	9200	497	0	1370	11067
1992	9288	497	1	1370	11155
1993	9372	497	6	1370	11245
1994	9454	497	3	1370	11324
1995	9534	497	2	1370	11403
1996	9612	497	2	1370	11481
1997	9688	497	1	1370	11557
1998	9763	497	1	1370	11632
1999	9837	497	1	1370	11706
2000	9911	497	1	1370	11779
2001	9984	497	1	1370	11852
2002	10057	497	1	1370	11925
2003	10129	497	1	1370	11997
2004	10202	497	1	1370	12070
2005	10274	497	1	1370	12143
2006	10347	497	1	1370	12215
2007	10421	497	1	1370	12288
2008	10494	497	1	1370	12362
2009	10569	497	1	1370	12437
2010	10644	497	1	1370	12512

SOURCE: VARIABLES PO, EMENNOPJ, EMENPJ, POML, AND POTO
DSET KD.IM.MD--CREATED 7/12/83

TABLE U-11
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KODIAK

	RESIDENT POPULATION	NATIVE POPULATION	NON-NATIVE POPULATION	NATIVE MALE POPULATION	NATIVE FEMALE POPULATION	NON-NATIVE MALE POPULATION	NON-NATIVE FEMALE POPULATION
1980	7472	923	6549	469	454	3609	2940
1981	7605	949	6656	481	468	3658	2997
1982	7730	975	6755	494	482	3703	3052
1983	7849	1001	6848	506	495	3745	3103
1984	7975	1027	6949	517	509	3790	3158
1985	8082	1052	7030	529	523	3825	3205
1986	8460	1077	7383	541	537	4013	3369
1987	8563	1103	7460	552	551	4045	3415
1988	8842	1128	7714	564	564	4177	3537
1989	8939	1154	7786	575	578	4206	3580
1990	9064	1179	7884	587	592	4250	3634
1991	9200	1205	7995	598	607	4301	3694
1992	9288	1231	8057	610	621	4324	3733
1993	9372	1257	8115	622	635	4345	3770
1994	9454	1284	8170	634	650	4365	3805
1995	9534	1311	8223	646	665	4383	3839
1996	9612	1339	8273	659	680	4401	3872
1997	9688	1367	8321	671	696	4417	3904
1998	9763	1396	8368	684	712	4432	3935
1999	9837	1425	8413	697	728	4447	3965
2000	9911	1454	8456	711	744	4462	3995
2001	9984	1485	8499	724	760	4476	4023
2002	10057	1516	8541	738	777	4489	4052
2003	10129	1547	8582	753	795	4503	4079
2004	10202	1580	8622	767	812	4516	4106
2005	10274	1612	8662	782	830	4529	4133
2006	10347	1646	8701	798	848	4542	4160
2007	10421	1680	8740	813	867	4555	4186
2008	10494	1716	8779	830	886	4568	4211
2009	10569	1752	8817	846	905	4581	4237
2010	10644	1788	8856	863	925	4594	4262

SOURCE: VARIABLES PO, PONA, PONN, PONAMA, PONAFE,
PONNMA, AND PONNFE
DSET KD.IM.MD--CREATED 7/12/83

TABLE U-12
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KODIAK

	RESIDENT POPULATION	PRE-SCHOOL AGE (0-4)	SCHOOL AGE (5-18)	ADULT (19-64)	SENIOR (65+)
1980	7472	677	1768	4817	210
1981	7605	726	1651	4980	248
1982	7730	763	1673	5011	284
1983	7849	790	1703	5038	318
1984	7975	812	1740	5073	350
1985	8082	828	1778	5094	381
1986	8460	858	1852	5339	411
1987	8563	870	1894	5358	441
1988	8842	891	1958	5524	470
1989	8939	900	2000	5541	498
1990	9064	909	2045	5585	525
1991	9200	918	2091	5641	551
1992	9288	923	2130	5660	575
1993	9372	927	2168	5679	598
1994	9454	931	2204	5700	619
1995	9534	935	2238	5722	640
1996	9612	939	2270	5745	658
1997	9688	943	2300	5769	676
1998	9763	947	2329	5794	693
1999	9837	951	2357	5821	708
2000	9911	956	2383	5849	723
2001	9984	961	2408	5877	737
2002	10057	967	2432	5907	751
2003	10129	973	2455	5938	763
2004	10202	979	2477	5969	776
2005	10274	986	2499	6002	787
2006	10347	993	2521	6035	798
2007	10421	1001	2542	6069	809
2008	10494	1008	2563	6104	820
2009	10569	1016	2584	6139	830
2010	10644	1024	2605	6175	840

SOURCE: VARIABLES PO, POKD, POSL, POAT, AND POGE
DSET KD.IM.MD--CREATED 7/12/83

TABLE U-13
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KODIAK

	RESIDENT POPULATION	CHANGE IN RESIDENT POPULATION	NATURAL INCREASE	NET MIGRATION	NET MIGRATION OF WORKERS	NET MIGRATION OF DEPENDENTS
1980	7472	-	-	-	-	-
1981	7605	133	151	0	0	0
1982	7730	125	149	0	0	0
1983	7849	119	145	0	0	0
1984	7975	126	142	12	9	3
1985	8082	107	139	0	0	0
1986	8460	378	136	240	184	55
1987	8563	103	140	0	0	0
1988	8842	279	137	158	121	36
1989	8939	97	140	0	0	0
1990	9064	124	137	27	21	6
1991	9200	137	136	40	31	9
1992	9288	88	136	0	0	0
1993	9372	85	135	0	0	0
1994	9454	82	134	0	0	0
1995	9534	80	133	0	0	0
1996	9612	78	133	0	0	0
1997	9688	76	132	0	0	0
1998	9763	75	132	0	0	0
1999	9837	74	133	0	0	0
2000	9911	73	133	0	0	0
2001	9984	73	133	0	0	0
2002	10057	73	134	0	0	0
2003	10129	73	135	0	0	0
2004	10202	73	136	0	0	0
2005	10274	73	137	0	0	0
2006	10347	73	137	0	0	0
2007	10421	73	138	0	0	0
2008	10494	74	140	0	0	0
2009	10569	74	141	0	0	0
2010	10644	75	142	0	0	0

SOURCE: VARIABLES PO, CHPO, NTIC, IM, IMLA, AND IMDE
DSET KD.IM.MD--CREATED 7/12/83

TABLE U-14
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KODIAK

	RESIDENT EMPLOYMENT	NON-PROJECT ENCLAVE EMPLOYMENT	PROJECT ENCLAVE EMPLOYMENT (ONSHORE ONLY)	MILITARY ENCLAVE EMPLOYMENT	TOTAL EMPLOYMENT INCLUDING ENCLAVES AND MILITARY
1980	3995	497	0	619	5111
1981	4033	497	0	619	5149
1982	4200	497	0	619	5316
1983	4152	497	0	619	5268
1984	4308	497	-0	619	5424
1985	4293	497	2	619	5411
1986	4520	497	8	619	5644
1987	4494	497	21	619	5631
1988	4679	497	26	619	5821
1989	4685	497	29	619	5830
1990	4730	497	11	619	5857
1991	4773	497	0	619	5889
1992	4640	497	1	619	5757
1993	4669	497	6	619	5791
1994	4687	497	3	619	5807
1995	4652	497	2	619	5770
1996	4624	497	2	619	5742
1997	4639	497	1	619	5756
1998	4647	497	1	619	5764
1999	4677	497	1	619	5795
2000	4696	497	1	619	5813
2001	4714	497	1	619	5832
2002	4734	497	1	619	5852
2003	4753	497	1	619	5870
2004	4774	497	1	619	5892
2005	4796	497	1	619	5913
2006	4773	497	1	619	5890
2007	4795	497	1	619	5912
2008	4817	497	1	619	5933
2009	4840	497	1	619	5956
2010	4862	497	1	619	5979

SOURCE: VARIABLES EMRETO, EMENNOPJ, EMENPJ, EMML, AND EMTO
DSET KD.IM.MD--CREATED 7/12/83

TABLE U-15
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KODIAK

	TOTAL RESIDENT EMPLOYMENT	RESIDENT BASIC EMPLOYMENT	RESIDENT SUPPORT EMPLOYMENT	RESIDENT GOVERNMENT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT
1980	3995	1518	1479	998	0
1981	4033	1526	1501	1006	0
1982	4200	1536	1584	1080	0
1983	4152	1546	1536	1069	0
1984	4308	1556	1608	1144	0
1985	4293	1566	1565	1151	10
1986	4520	1577	1752	1180	11
1987	4494	1587	1747	1146	14
1988	4679	1597	1831	1234	18
1989	4685	1608	1837	1215	25
1990	4730	1618	1862	1221	29
1991	4773	1623	1889	1231	31
1992	4640	1628	1839	1137	36
1993	4669	1632	1836	1106	95
1994	4687	1637	1843	1095	113
1995	4652	1642	1835	1052	122
1996	4624	1647	1831	1020	127
1997	4639	1652	1846	1013	128
1998	4647	1656	1858	1003	129
1999	4677	1661	1881	1005	130
2000	4696	1666	1899	1001	130
2001	4714	1671	1917	997	130
2002	4734	1677	1935	992	131
2003	4753	1682	1953	987	131
2004	4774	1687	1973	984	131
2005	4796	1692	1993	980	131
2006	4773	1697	2013	976	87
2007	4795	1702	2033	973	87
2008	4817	1707	2054	969	86
2009	4840	1712	2076	966	86
2010	4862	1717	2097	962	86

SOURCE: VARIABLES EMRETO, EMBA, EMSU, EMGO, AND EMREPJ
DSET KD.IM.MD--CREATED 7/12/83

TABLE U-16
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KODIAK

	TOTAL RESIDENT BASIC EMPLOYMENT	RESIDENT FISHING EMPLOYMENT	RESIDENT FISH PROCESSING EMPLOYMENT	OTHER RESIDENT BASIC EMPLOYMENT
1980	1518	518	893	107
1981	1526	522	897	107
1982	1536	526	903	107
1983	1546	530	909	107
1984	1556	534	915	107
1985	1566	538	921	107
1986	1577	542	928	107
1987	1587	546	934	107
1988	1597	550	940	107
1989	1608	554	947	107
1990	1618	558	953	107
1991	1623	560	956	107
1992	1628	562	959	107
1993	1632	564	961	107
1994	1637	566	964	107
1995	1642	568	967	107
1996	1647	570	970	107
1997	1652	572	973	107
1998	1656	574	975	107
1999	1661	576	978	107
2000	1666	578	981	107
2001	1671	580	984	107
2002	1677	582	988	107
2003	1682	584	991	107
2004	1687	586	994	107
2005	1692	588	997	107
2006	1697	590	1000	107
2007	1702	592	1003	107
2008	1707	594	1006	107
2009	1712	596	1009	107
2010	1717	598	1012	107

SOURCE: VARIABLES EMBA, EMFI, EMFP, AND EMBANF
DSET KD.IM.MD--CREATED 7/12/83

TABLE U-17
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KODIAK

	TOTAL RESIDENT SUPPORT EMPLOYMENT	ENDOGENOUS RESIDENT SUPPORT EMPLOYMENT	GOVERNMENT SPONSORED RESIDENT SUPPORT EMPLOYMENT	EXOGENOUS RESIDENT SUPPORT EMPLOYMENT	ENCLAVE SPONSORED RESIDENT SUPPORT EMPLOYMENT
1980	1479	524	174	756	25
1981	1501	535	177	764	25
1982	1584	563	225	771	25
1983	1536	564	168	779	25
1984	1608	592	204	787	25
1985	1565	597	149	795	25
1986	1752	632	292	803	25
1987	1747	635	275	811	26
1988	1831	669	317	819	26
1989	1837	676	308	827	26
1990	1862	689	312	835	25
1991	1889	703	317	843	25
1992	1839	691	271	852	25
1993	1836	694	256	860	25
1994	1843	702	247	869	25
1995	1835	703	229	878	25
1996	1831	706	213	886	25
1997	1846	716	209	895	25
1998	1858	725	204	904	25
1999	1881	738	205	913	25
2000	1899	748	203	922	25
2001	1917	760	201	932	25
2002	1935	771	198	941	25
2003	1953	782	195	950	25
2004	1973	794	194	960	25
2005	1993	807	192	970	25
2006	2013	819	190	979	25
2007	2033	831	188	989	25
2008	2054	844	186	999	25
2009	2076	857	184	1009	25
2010	2097	871	183	1019	25

SOURCE: VARIABLES EMSU, EMSUEG, EMSUGO, EMSUEX, AND EMSUEN
DSET KD.IM.MD--CREATED 7/12/83

TABLE U-18
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KODIAK

	TOTAL CIVILIAN GOVERNMENT EMPLOYMENT	ENDOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT	EXOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT
1980	988	483	515
1981	1006	491	515
1982	1080	565	515
1983	1069	554	515
1984	1144	629	515
1985	1151	636	515
1986	1180	665	515
1987	1146	631	515
1988	1234	719	515
1989	1215	700	515
1990	1221	706	515
1991	1231	716	515
1992	1137	622	515
1993	1106	591	515
1994	1095	580	515
1995	1052	537	515
1996	1020	505	515
1997	1013	498	515
1998	1003	488	515
1999	1005	490	515
2000	1001	486	515
2001	997	482	515
2002	992	477	515
2003	987	472	515
2004	984	469	515
2005	980	465	515
2006	976	461	515
2007	973	458	515
2008	969	454	515
2009	966	451	515
2010	962	447	515

SOURCE: VARIABLES EMGO, EMGOEG, AND EMGOEX
DSET KD.IM.MD--CREATED 7/12/83

TABLE U-19
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KODIAK

	ONSHORE SHORT-TERM SKILLED PROJECT EMPLOYMENT	ONSHORE SHORT-TERM NONSKILLED PROJECT EMPLOYMENT	ONSHORE LONG-TERM SKILLED PROJECT EMPLOYMENT	ONSHORE LONG-TERM NONSKILLED PROJECT EMPLOYMENT	TOTAL ONSHORE PROJECT EMPLOYMENT
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	3	0	0	0	3
1986	9	0	0	0	9
1987	22	0	0	0	22
1988	28	0	0	0	28
1989	31	0	0	0	31
1990	12	0	0	0	12
1991	0	0	0	0	0
1992	1	0	0	0	1
1993	0	0	15	0	15
1994	0	0	15	0	15
1995	0	0	15	0	15
1996	0	0	15	0	15
1997	0	0	15	0	15
1998	0	0	15	0	15
1999	0	0	15	0	15
2000	0	0	15	0	15
2001	0	0	15	0	15
2002	0	0	15	0	15
2003	0	0	15	0	15
2004	0	0	15	0	15
2005	0	0	15	0	15
2006	0	0	8	0	8
2007	0	0	8	0	8
2008	0	0	8	0	8
2009	0	0	8	0	8
2010	0	0	8	0	8

SOURCE: VARIABLES EMPSONSK, EMPSONNS, EMPLONSK, EMPLONNS, AND EMPJON
DSET KD.IM.MD--CREATED 7/12/83

TABLE U-20
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KODIAK

	OFFSHORE SHORT-TERM SKILLED PROJECT EMPLOYMENT	OFFSHORE SHORT-TERM NONSKILLED PROJECT EMPLOYMENT	OFFSHORE LONG-TERM SKILLED PROJECT EMPLOYMENT	OFFSHORE LONG-TERM NONSKILLED PROJECT EMPLOYMENT	TOTAL OFFSHORE PROJECT EMPLOYMENT
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	27	0	0	0	27
1986	82	0	0	0	82
1987	192	0	0	0	192
1988	247	0	0	0	247
1989	428	0	0	0	428
1990	291	2	0	0	293
1991	126	7	0	0	133
1992	112	22	0	0	134
1993	0	0	96	28	124
1994	0	0	96	28	124
1995	0	0	99	28	127
1996	0	0	100	28	128
1997	0	0	98	28	126
1998	0	0	100	28	128
1999	0	0	100	28	128
2000	0	0	100	28	128
2001	0	0	100	28	128
2002	0	0	101	28	129
2003	0	0	101	28	129
2004	0	0	101	28	129
2005	0	0	101	28	129
2006	0	0	63	25	88
2007	0	0	63	25	88
2008	0	0	62	25	87
2009	0	0	62	25	87
2010	0	0	62	25	87

SOURCE: VARIABLES EMPSOFSK, EMPSOFNS, EMPLOFSK, EMPLOFNS, AND EMPJOF
DSET KD.IM.MD--CREATED 7/12/83

TABLE U-21
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KODIAK

	RESIDENT PROJECT EMPLOYMENT	ENCLAVE PROJECT EMPLOYMENT	COMMUTER PROJECT EMPLOYMENT	TOTAL PROJECT EMPLOYMENT
1980	0	0	0	0
1981	0	0	0	0
1982	0	0	0	0
1983	0	0	0	0
1984	0	-0	0	0
1985	10	2	18	30
1986	11	8	72	91
1987	14	21	179	214
1988	18	26	231	275
1989	25	29	405	459
1990	29	11	265	305
1991	31	0	102	133
1992	36	1	99	135
1993	95	6	38	139
1994	113	3	23	139
1995	122	2	18	142
1996	127	2	14	143
1997	128	1	12	141
1998	129	1	12	143
1999	130	1	12	143
2000	130	1	12	143
2001	130	1	12	143
2002	131	1	12	144
2003	131	1	12	144
2004	131	1	12	144
2005	131	1	12	144
2006	87	1	8	96
2007	87	1	8	96
2008	86	1	8	95
2009	86	1	8	95
2010	86	1	8	95

SOURCE: VARIABLES EMREPJ, EMENPJ, EMCOPJ, AND EMPJ
DSET KD.IM.MD--CREATED 7/12/83

TABLE U-22
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
KODIAK

	TOTAL PROJECT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT	SKILLED PROJECT EMPLOYMENT	NONSKILLED PROJECT EMPLOYMENT	RESIDENT SKILLED PROJECT EMPLOYMENT	RESIDENT NONSKILLED PROJECT EMPLOYMENT
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	0	0	0
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	30	10	30	0	10	0
1986	91	11	91	0	11	0
1987	214	14	214	0	14	0
1988	275	18	275	0	18	0
1989	459	25	459	0	25	0
1990	305	29	303	2	28	1
1991	133	31	126	7	29	2
1992	135	36	113	22	29	7
1993	139	95	111	28	33	63
1994	139	113	111	28	72	41
1995	142	122	114	28	89	34
1996	143	127	115	28	97	29
1997	141	128	113	28	102	26
1998	143	129	115	28	103	26
1999	143	130	115	28	104	26
2000	143	130	115	28	105	25
2001	143	130	115	28	105	25
2002	144	131	116	28	105	26
2003	144	131	116	28	105	25
2004	144	131	116	28	106	25
2005	144	131	116	28	106	25
2006	96	87	71	25	65	22
2007	96	87	71	25	65	22
2008	95	86	70	25	64	22
2009	95	86	70	25	64	22
2010	95	86	70	25	64	22

SOURCE: VARIABLES EMPJ, EMREPJ, EMPJSK, EMPJNS, EMREPJSK, AND EMREPJNS
DSET KD.IM.MD--CREATED 7/12/83

TABLE U-23
RURAL ALASKA MODEL IMPACT PROJECTIONS
KODIAK
TOTAL POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	9339	9339	0	0.00
1981	9472	9472	0	0.00
1982	9597	9597	0	0.00
1983	9716	9716	0	0.00
1984	9842	9842	0	0.00
1985	9949	9951	2	0.02
1986	10304	10335	31	0.30
1987	10406	10450	44	0.42
1988	10671	10735	64	0.60
1989	10768	10836	68	0.63
1990	10873	10941	69	0.63
1991	11007	11067	60	0.54
1992	11094	11155	62	0.55
1993	11178	11245	67	0.60
1994	11259	11324	65	0.58
1995	11338	11403	65	0.57
1996	11415	11481	65	0.57
1997	11491	11557	65	0.57
1998	11566	11632	66	0.57
1999	11640	11706	66	0.57
2000	11713	11779	66	0.57
2001	11786	11852	67	0.57
2002	11858	11925	67	0.56
2003	11930	11997	67	0.56
2004	12003	12070	67	0.56
2005	12075	12143	68	0.56
2006	12148	12215	67	0.55
2007	12221	12288	67	0.55
2008	12295	12362	68	0.55
2009	12369	12437	68	0.55
2010	12444	12512	68	0.55

VARIABLE: POTO
SOURCE: DSETS KD.BC.MD--CREATED 7/12/83 AND
KD.IM.MD--CREATED 7/12/83

TABLE U-24
RURAL ALASKA MODEL IMPACT PROJECTIONS
KODIAK
RESIDENT POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	7472	7472	0	0.00
1981	7605	7605	0	0.00
1982	7730	7730	0	0.00
1983	7849	7849	0	0.00
1984	7975	7975	0	0.00
1985	8082	8082	0	0.00
1986	8437	8460	23	0.27
1987	8539	8563	23	0.27
1988	8804	8842	38	0.43
1989	8901	8939	39	0.43
1990	9006	9064	58	0.64
1991	9140	9200	60	0.65
1992	9227	9288	61	0.66
1993	9311	9372	62	0.66
1994	9392	9454	62	0.66
1995	9471	9534	63	0.66
1996	9548	9612	63	0.66
1997	9624	9688	64	0.66
1998	9699	9763	64	0.66
1999	9773	9837	65	0.66
2000	9846	9911	65	0.66
2001	9919	9984	65	0.66
2002	9991	10057	66	0.66
2003	10063	10129	66	0.65
2004	10136	10202	66	0.65
2005	10208	10274	66	0.65
2006	10281	10347	66	0.65
2007	10354	10421	67	0.64
2008	10428	10494	67	0.64
2009	10502	10569	67	0.64
2010	10577	10644	67	0.63

VARIABLE: PO
SOURCE: DSETS KD.BC.MD--CREATED 7/12/83 AND
KD.IM.MD--CREATED 7/12/83

TABLE U-25
RURAL ALASKA MODEL IMPACT PROJECTIONS
KODIAK
SCHOOL-AGE POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	1641	1641	0	0.00
1981	1651	1651	0	0.00
1982	1673	1673	0	0.00
1983	1703	1703	0	0.00
1984	1740	1740	0	0.00
1985	1778	1778	0	0.00
1986	1850	1852	3	0.15
1987	1891	1894	3	0.15
1988	1953	1958	5	0.23
1989	1995	2000	5	0.24
1990	2038	2045	7	0.35
1991	2083	2091	8	0.37
1992	2122	2130	8	0.38
1993	2159	2168	9	0.40
1994	2194	2204	9	0.42
1995	2228	2238	10	0.44
1996	2260	2270	10	0.46
1997	2290	2300	11	0.47
1998	2318	2329	11	0.49
1999	2345	2357	12	0.50
2000	2371	2383	12	0.52
2001	2395	2408	13	0.53
2002	2419	2432	13	0.54
2003	2442	2455	13	0.54
2004	2464	2477	14	0.55
2005	2485	2499	14	0.55
2006	2507	2521	14	0.56
2007	2528	2542	14	0.56
2008	2549	2563	14	0.56
2009	2569	2584	15	0.57
2010	2590	2605	15	0.57

VARIABLE: POSL
SOURCE: DSETS KD.BC.MD--CREATED 7/12/83 AND
KD.IM.MD--CREATED 7/12/83

TABLE U-26
RURAL ALASKA MODEL IMPACT PROJECTIONS
KODIAK
RESIDENT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	3995	3995	0	0.00
1981	4033	4033	0	0.00
1982	4200	4200	0	0.00
1983	4152	4152	0	0.00
1984	4308	4308	0	0.00
1985	4283	4293	10	0.24
1986	4505	4520	15	0.32
1987	4476	4494	18	0.41
1988	4654	4679	25	0.54
1989	4653	4685	32	0.68
1990	4693	4730	37	0.80
1991	4734	4773	39	0.83
1992	4598	4640	43	0.93
1993	4567	4669	102	2.24
1994	4567	4687	120	2.63
1995	4523	4652	129	2.85
1996	4491	4624	133	2.96
1997	4505	4639	134	2.97
1998	4512	4647	135	2.99
1999	4542	4677	136	2.99
2000	4560	4696	136	2.98
2001	4578	4714	136	2.97
2002	4598	4734	136	2.97
2003	4617	4753	137	2.96
2004	4638	4774	137	2.95
2005	4659	4796	137	2.93
2006	4681	4773	93	1.98
2007	4703	4795	93	1.97
2008	4725	4817	92	1.94
2009	4748	4840	92	1.93
2010	4771	4862	92	1.92

VARIABLE: EMRETO
SOURCE: DSETS KD.BC.MD--CREATED 7/12/83 AND
KD.IM.MD--CREATED 7/12/83

TABLE U-27
RURAL ALASKA MODEL IMPACT PROJECTIONS
KODIAK
RESIDENT SUPPORT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	1479	1479	0	0.00
1981	1501	1501	0	0.00
1982	1584	1584	0	0.00
1983	1536	1536	0	0.00
1984	1608	1608	0	0.00
1985	1565	1565	0	0.01
1986	1750	1752	2	0.10
1987	1744	1747	2	0.14
1988	1827	1831	4	0.21
1989	1833	1837	4	0.22
1990	1858	1862	4	0.22
1991	1885	1889	4	0.19
1992	1836	1839	3	0.17
1993	1832	1836	3	0.18
1994	1840	1843	3	0.17
1995	1832	1835	3	0.16
1996	1828	1831	3	0.15
1997	1843	1846	3	0.15
1998	1856	1858	3	0.14
1999	1878	1881	3	0.14
2000	1896	1899	3	0.14
2001	1914	1917	3	0.14
2002	1932	1935	3	0.14
2003	1951	1953	3	0.13
2004	1970	1973	3	0.13
2005	1990	1993	3	0.13
2006	2010	2013	3	0.13
2007	2031	2033	3	0.12
2008	2052	2054	3	0.12
2009	2073	2076	2	0.12
2010	2095	2097	2	0.12

VARIABLE: EMSU
SOURCE: DSETS KD.BC.MD--CREATED 7/12/83 AND
KD.IM.MD--CREATED 7/12/83

TABLE U-28
RURAL ALASKA MODEL IMPACT PROJECTIONS
KODIAK
RESIDENT GOVERNMENT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	998	998	0	0.00
1981	1006	1006	0	0.00
1982	1080	1080	0	0.00
1983	1069	1069	0	0.00
1984	1144	1144	0	0.00
1985	1151	1151	0	0.00
1986	1178	1180	2	0.15
1987	1144	1146	2	0.15
1988	1230	1234	3	0.25
1989	1212	1215	3	0.25
1990	1217	1221	4	0.37
1991	1226	1231	5	0.38
1992	1133	1137	4	0.36
1993	1102	1106	4	0.35
1994	1091	1095	4	0.35
1995	1049	1052	4	0.34
1996	1017	1020	3	0.33
1997	1010	1013	3	0.33
1998	1000	1003	3	0.32
1999	1002	1005	3	0.32
2000	998	1001	3	0.32
2001	993	997	3	0.32
2002	989	992	3	0.31
2003	984	987	3	0.31
2004	980	984	3	0.31
2005	977	980	3	0.31
2006	973	976	3	0.30
2007	970	973	3	0.30
2008	966	969	3	0.30
2009	963	966	3	0.30
2010	959	962	3	0.29

VARIABLE: EMGO
SOURCE: DSETS KD.BC.MD--CREATED 7/12/83 AND
KD.IM.MD--CREATED 7/12/83

TABLE U-29
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: KODIAK
TOTAL POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1980			
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	3	2	3
1986	17	31	21
1987	29	44	42
1988	52	64	107
1989	56	68	136
1990	25	69	238
1991	1	60	236
1992	2	62	240
1993	9	67	244
1994	8	65	247
1995	7	65	250
1996	7	65	252
1997	6	65	254
1998	6	66	256
1999	5	66	258
2000	5	66	259
2001	5	67	261
2002	5	67	262
2003	5	67	263
2004	4	67	264
2005	4	68	265
2006	2	67	265
2007	2	67	266
2008	2	68	267
2009	2	68	268
2010	2	68	268

SOURCE: BASE CASE DSET KD.BC.MD, IMPACT CASE DSETS KD.IM.LW, KD.IM.MD, AND KD.IM.HG
VARIABLE POTO

TABLE U-30
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: KODIAK
RESIDENT POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1980			
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	8	23	22
1987	8	23	23
1988	25	38	109
1989	25	39	111
1990	13	58	231
1991	1	60	236
1992	1	61	240
1993	1	62	244
1994	0	62	247
1995	0	63	250
1996	0	63	252
1997	0	64	254
1998	0	64	256
1999	-0	65	258
2000	-0	65	259
2001	-0	65	261
2002	-0	66	262
2003	-0	66	263
2004	-0	66	264
2005	-0	66	265
2006	-0	66	265
2007	-0	67	266
2008	-0	67	267
2009	-0	67	268
2010	-0	67	268

SOURCE: BASE CASE DSET KD.BC.MD, IMPACT CASE DSETS KD.IM.LW, KD.IM.MD, AND KD.IM.HG
VARIABLE PO

TABLE U-31
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: KODIAK
SCHOOL-AGE POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1980			
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	1	3	3
1987	1	3	3
1988	3	5	13
1989	3	5	13
1990	2	7	28
1991	0	8	29
1992	1	8	31
1993	1	9	33
1994	1	9	35
1995	1	10	37
1996	1	10	39
1997	1	11	41
1998	1	11	44
1999	1	12	46
2000	1	12	47
2001	0	13	49
2002	0	13	51
2003	0	13	52
2004	0	14	53
2005	0	14	54
2006	0	14	55
2007	0	14	56
2008	0	14	57
2009	0	15	58
2010	0	15	58

SOURCE: BASE CASE DSET KD.BC.MD, IMPACT CASE DSETS KD.IM.LW, KD.IM.MD, AND KD.IM.HG
VARIABLE POSL

TABLE U-32
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: KODIAK
RESIDENT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1980			
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	1	10	3
1986	5	15	24
1987	11	18	36
1988	16	25	96
1989	18	32	113
1990	7	37	172
1991	0	39	158
1992	1	43	164
1993	68	102	166
1994	74	120	166
1995	80	129	167
1996	84	133	167
1997	88	134	165
1998	90	135	166
1999	93	136	166
2000	95	136	166
2001	96	136	166
2002	97	136	167
2003	98	137	166
2004	99	137	166
2005	100	137	166
2006	68	93	118
2007	68	93	118
2008	67	92	116
2009	67	92	116
2010	67	92	116

SOURCE: BASE CASE DSET KD.BC.MD, IMPACT CASE DSETS KD.IM.LW, KD.IM.MD, AND KD.IM.HG
VARIABLE EMRETO

TABLE U-33
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: KODIAK
RESIDENT SUPPORT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1980			
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	1	2	1
1987	2	2	2
1988	3	4	7
1989	3	4	8
1990	1	4	14
1991	0	4	14
1992	0	3	12
1993	1	3	12
1994	0	3	12
1995	0	3	11
1996	0	3	11
1997	0	3	10
1998	0	3	10
1999	0	3	10
2000	0	3	10
2001	0	3	10
2002	0	3	10
2003	0	3	10
2004	0	3	10
2005	0	3	10
2006	0	3	10
2007	0	3	10
2008	0	3	10
2009	0	2	10
2010	0	2	10

SOURCE: BASE CASE DSET KD.BC.MD, IMPACT CASE DSETS KD.IM.LW, KD.IM.MD, AND KD.IM.HG
VARIABLE EMSU

TABLE U-34
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: KODIAK
RESIDENT GOVERNMENT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1980			
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	1	2	2
1987	1	2	2
1988	2	3	9
1989	2	3	9
1990	1	4	18
1991	0	5	18
1992	0	4	16
1993	0	4	15
1994	0	4	15
1995	0	4	14
1996	0	3	13
1997	0	3	13
1998	0	3	13
1999	-0	3	13
2000	-0	3	13
2001	-0	3	13
2002	-0	3	12
2003	-0	3	12
2004	-0	3	12
2005	-0	3	12
2006	-0	3	12
2007	-0	3	12
2008	-0	3	12
2009	-0	3	11
2010	-0	3	11

SOURCE: BASE CASE DSET KD.BC.MD, IMPACT CASE DSETS KD.IM.LW, KD.IM.MD, AND KD.IM.HG
VARIABLE EMGO

TABLE V.1
RURAL ALASKA MODEL BASE CASE PROJECTIONS
SEWARD

	RESIDENT POPULATION	NON-PROJECT ENCLAVE POPULATION	PROJECT ENCLAVE POPULATION	MILITARY ENCLAVE POPULATION	TOTAL POPULATION INCLUDING ENCLAVES AND MILITARY
1980	2493	-	0	0	2493
1981	2525	0	0	0	2525
1982	2729	0	0	0	2729
1983	2821	0	0	0	2821
1984	3107	0	0	0	3107
1985	3240	0	0	0	3240
1986	3581	0	0	0	3581
1987	3716	0	0	0	3716
1988	4024	0	0	0	4024
1989	4152	0	0	0	4152
1990	4323	0	0	0	4323
1991	4507	0	0	0	4507
1992	4551	0	0	0	4551
1993	4593	0	0	0	4593
1994	4675	0	0	0	4675
1995	4744	0	0	0	4744
1996	4805	0	0	0	4805
1997	4924	0	0	0	4924
1998	5040	0	0	0	5040
1999	5188	0	0	0	5188
2000	5326	0	0	0	5326
2001	5468	0	0	0	5468
2002	5613	0	0	0	5613
2003	5763	0	0	0	5763
2004	5922	0	0	0	5922
2005	6087	0	0	0	6087
2006	6258	0	0	0	6258
2007	6436	0	0	0	6436
2008	6622	0	0	0	6622
2009	6816	0	0	0	6816
2010	7018	0	0	0	7018

SOURCE: VARIABLES PO, EMENNOPJ, EMENPJ, POML, AND POTO
DSET SW.BC.MD--CREATED 7/7/83

TABLE V.2
RURAL ALASKA MODEL BASE CASE PROJECTIONS
SEWARD

	RESIDENT POPULATION	NATIVE POPULATION	NON-NATIVE POPULATION	NATIVE MALE POPULATION	NATIVE FEMALE POPULATION	NON-NATIVE MALE POPULATION	NON-NATIVE FEMALE POPULATION
1980	2493	322	2171	169	153	1201	970
1981	2525	332	2193	174	158	1210	983
1982	2729	342	2387	179	164	1316	1070
1983	2821	352	2469	183	169	1359	1109
1984	3107	361	2745	188	174	1512	1233
1985	3240	370	2870	192	179	1579	1291
1986	3581	379	3202	196	183	1762	1439
1987	3716	388	3328	200	188	1829	1499
1988	4024	396	3628	204	192	1994	1634
1989	4152	404	3747	207	197	2056	1691
1990	4323	412	3911	211	201	2143	1768
1991	4507	420	4086	215	206	2237	1850
1992	4551	428	4123	218	210	2251	1872
1993	4593	436	4157	222	215	2264	1893
1994	4675	444	4231	225	219	2300	1931
1995	4744	453	4291	229	224	2328	1963
1996	4805	461	4344	232	228	2351	1993
1997	4924	469	4455	236	233	2408	2047
1998	5040	477	4563	240	238	2463	2100
1999	5188	486	4702	243	242	2535	2167
2000	5326	494	4832	247	247	2602	2230
2001	5468	503	4965	251	252	2670	2294
2002	5613	512	5101	255	257	2741	2360
2003	5763	521	5242	259	262	2813	2428
2004	5922	531	5391	263	267	2891	2500
2005	6087	540	5547	267	273	2972	2575
2006	6258	550	5708	272	278	3055	2653
2007	6436	560	5876	276	284	3143	2733
2008	6622	570	6052	281	289	3234	2817
2009	6816	581	6235	285	295	3330	2905
2010	7018	591	6426	290	301	3430	2996

SOURCE: VARIABLES PO, PONA, PONN, PONAMA, PONAFE,
PONNMA, AND PONNFE
DSET SW.BC.MD--CREATED 7/7/83

TABLE V.3
RURAL ALASKA MODEL BASE CASE PROJECTIONS
SEWARD

	RESIDENT POPULATION	PRE-SCHOOL AGE (0-4)	SCHOOL AGE (5-18)	ADULT (19-64)	SENIOR (65+)
1980	2493	173	475	1650	195
1981	2525	196	479	1649	201
1982	2729	225	499	1796	208
1983	2821	245	511	1848	216
1984	3107	274	551	2056	226
1985	3240	293	575	2134	238
1986	3581	323	627	2379	251
1987	3716	341	656	2452	267
1988	4024	367	709	2665	283
1989	4152	382	741	2726	302
1990	4323	398	780	2824	320
1991	4507	414	822	2931	340
1992	4551	421	847	2924	359
1993	4593	425	873	2917	378
1994	4675	430	903	2945	396
1995	4744	435	931	2964	414
1996	4805	438	958	2979	430
1997	4924	445	990	3043	446
1998	5040	452	1021	3105	462
1999	5188	462	1055	3194	478
2000	5326	472	1086	3274	494
2001	5468	483	1118	3357	510
2002	5613	494	1149	3443	526
2003	5763	507	1181	3532	543
2004	5922	520	1214	3629	559
2005	6087	534	1248	3730	576
2006	6258	549	1282	3834	593
2007	6436	564	1318	3944	610
2008	6622	580	1355	4059	628
2009	6816	598	1393	4179	646
2010	7018	615	1433	4305	665

SOURCE: VARIABLES PO, POKD, POSL, POAT, AND POGE
DSET SW.BC.MD--CREATED 7/7/83

TABLE V.4
RURAL ALASKA MODEL BASE CASE PROJECTIONS
SEWARD

	RESIDENT POPULATION	CHANGE IN RESIDENT POPULATION	NATURAL INCREASE	NET MIGRATION	NET MIGRATION OF WORKERS	NET MIGRATION OF DEPENDENTS
1980	2493	-	-	-	-	-
1981	2525	32	41	0	0	0
1982	2729	204	40	150	115	35
1983	2821	92	44	51	39	12
1984	3107	286	43	219	169	51
1985	3240	134	48	84	64	19
1986	3581	341	48	263	202	61
1987	3716	135	54	81	62	19
1988	4024	308	54	231	178	53
1989	4152	127	59	72	55	17
1990	4323	172	58	111	85	26
1991	4507	184	59	121	93	28
1992	4551	44	61	0	0	0
1993	4593	42	58	0	0	0
1994	4675	82	57	37	29	9
1995	4744	69	56	27	20	6
1996	4805	61	56	21	16	5
1997	4924	119	55	73	56	17
1998	5040	117	56	70	54	16
1999	5188	148	57	97	75	22
2000	5326	138	59	88	67	20
2001	5468	142	60	90	69	21
2002	5613	145	62	93	71	21
2003	5763	150	64	96	74	22
2004	5922	159	65	103	79	24
2005	6087	165	67	107	83	25
2006	6258	171	69	111	85	26
2007	6436	178	71	116	90	27
2008	6622	186	74	122	94	28
2009	6816	194	76	127	98	29
2010	7018	202	78	133	102	31

SOURCE: VARIABLES PO, CHPO, NTIC, IM, IMLA, AND IMDE
DSET SW.BC.MD--CREATED 7/7/83

TABLE V.5
RURAL ALASKA MODEL BASE CASE PROJECTIONS
SEWARD

	RESIDENT EMPLOYMENT	NON-PROJECT ENCLAVE EMPLOYMENT	PROJECT ENCLAVE EMPLOYMENT (ONSHORE ONLY)	MILITARY ENCLAVE EMPLOYMENT	TOTAL EMPLOYMENT INCLUDING ENCLAVES AND MILITARY
1980	1149	-	0	0	1149
1981	1192	0	0	0	1192
1982	1318	0	0	0	1318
1983	1355	0	0	0	1355
1984	1524	0	0	0	1524
1985	1581	0	0	0	1581
1986	1780	0	0	0	1780
1987	1831	0	0	0	1831
1988	2002	0	0	0	2002
1989	2045	0	0	0	2045
1990	2122	0	0	0	2122
1991	2205	0	0	0	2205
1992	2150	0	0	0	2150
1993	2165	0	0	0	2165
1994	2210	0	0	0	2210
1995	2223	0	0	0	2223
1996	2232	0	0	0	2232
1997	2282	0	0	0	2282
1998	2329	0	0	0	2329
1999	2397	0	0	0	2397
2000	2458	0	0	0	2458
2001	2521	0	0	0	2521
2002	2586	0	0	0	2586
2003	2655	0	0	0	2655
2004	2728	0	0	0	2728
2005	2805	0	0	0	2805
2006	2885	0	0	0	2885
2007	2969	0	0	0	2969
2008	3057	0	0	0	3057
2009	3149	0	0	0	3149
2010	3245	0	0	0	3245

SOURCE: VARIABLES EMRETO, EMENNOPJ, EMENPJ, EMML, AND EMTO
DSET SW.BC.MD--CREATED 7/7/83

TABLE V.6
RURAL ALASKA MODEL BASE CASE PROJECTIONS
SEWARD

	TOTAL RESIDENT EMPLOYMENT	RESIDENT BASIC EMPLOYMENT	RESIDENT SUPPORT EMPLOYMENT	RESIDENT GOVERNMENT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT
1980	1149	265	582	302	0
1981	1192	267	609	315	0
1982	1318	270	674	374	-0
1983	1355	292	679	384	-0
1984	1524	315	753	456	-0
1985	1581	337	764	480	-0
1986	1780	359	894	526	-0
1987	1831	382	923	525	-0
1988	2002	384	1010	608	-0
1989	2045	387	1043	615	-0
1990	2122	389	1092	641	-0
1991	2205	392	1144	670	-0
1992	2150	395	1137	618	0
1993	2165	397	1161	607	0
1994	2210	400	1197	613	-0
1995	2223	403	1224	597	-0
1996	2232	405	1251	576	-0
1997	2282	408	1297	577	-0
1998	2329	411	1342	576	-0
1999	2397	414	1399	585	-0
2000	2458	417	1453	588	-0
2001	2521	419	1510	592	-0
2002	2586	422	1569	595	-0
2003	2655	425	1631	598	-0
2004	2728	428	1697	603	-0
2005	2805	431	1767	608	-0
2006	2885	434	1839	612	-0
2007	2969	437	1915	617	-0
2008	3057	440	1994	623	-0
2009	3149	443	2078	628	-0
2010	3245	446	2165	634	-0

SOURCE: VARIABLES EMRETO, EMBA, EMSU, EMGO, AND EMREPJ
DSET SW.BC.MD--CREATED 7/7/83

TABLE V.7
RURAL ALASKA MODEL BASE CASE PROJECTIONS
SEWARD

	TOTAL RESIDENT BASIC EMPLOYMENT	RESIDENT FISHING EMPLOYMENT	RESIDENT FISH PROCESSING EMPLOYMENT	OTHER RESIDENT BASIC EMPLOYMENT
1980	265	120	114	31
1981	267	121	115	31
1982	270	122	116	31
1983	292	124	117	51
1984	315	125	119	71
1985	337	126	120	91
1986	359	127	121	111
1987	382	129	122	131
1988	384	130	123	131
1989	387	131	125	131
1990	389	133	126	131
1991	392	134	127	131
1992	395	135	128	131
1993	397	137	130	131
1994	400	138	131	131
1995	403	139	132	131
1996	405	141	134	131
1997	408	142	135	131
1998	411	144	136	131
1999	414	145	138	131
2000	417	146	139	131
2001	419	148	140	131
2002	422	149	142	131
2003	425	151	143	131
2004	428	152	145	131
2005	431	154	146	131
2006	434	155	148	131
2007	437	157	149	131
2008	440	159	151	131
2009	443	160	152	131
2010	446	162	154	131

SOURCE: VARIABLES EMBA, EMFI, EMFP, AND EMBANF
DSET SW.BC.MD--CREATED 7/7/83

TABLE V.8
RURAL ALASKA MODEL BASE CASE PROJECTIONS
SEWARD

	TOTAL RESIDENT SUPPORT EMPLOYMENT	ENDOGENOUS RESIDENT SUPPORT EMPLOYMENT	GOVERNMENT SPONSORED RESIDENT SUPPORT EMPLOYMENT	EXOGENOUS RESIDENT SUPPORT EMPLOYMENT	ENCLAVE SPONSORED RESIDENT SUPPORT EMPLOYMENT
1980	582	206	68	308	0
1981	609	217	69	323	0
1982	674	241	93	340	0
1983	679	252	71	357	0
1984	753	286	93	374	0
1985	764	301	70	393	0
1986	894	337	145	413	0
1987	923	350	140	433	0
1988	1010	386	169	455	0
1989	1043	397	168	478	0
1990	1092	415	175	502	0
1991	1144	435	182	527	0
1992	1137	428	156	553	0
1993	1161	434	147	581	0
1994	1197	445	143	610	0
1995	1224	450	134	640	0
1996	1251	454	125	672	0
1997	1297	466	125	706	0
1998	1342	478	124	741	0
1999	1399	494	127	778	0
2000	1453	508	128	817	0
2001	1510	523	129	858	0
2002	1569	539	129	901	0
2003	1631	555	130	946	0
2004	1697	572	132	993	0
2005	1767	590	133	1043	0
2006	1839	609	134	1095	0
2007	1915	629	136	1150	0
2008	1994	649	138	1207	0
2009	2078	671	139	1268	0
2010	2165	693	141	1331	0

SOURCE: VARIABLES EMSU, EMSUEG, EMSUGO, EMSUEX, AND EMSUEN
DSET SW.BC.MD--CREATED 7/7/83

TABLE V.9
RURAL ALASKA MODEL BASE CASE PROJECTIONS
SEWARD

	TOTAL CIVILIAN GOVERNMENT EMPLOYMENT	ENDOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT	EXOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT
1980	302	219	83
1981	315	222	93
1982	374	271	103
1983	384	271	113
1984	456	333	123
1985	480	347	133
1986	526	383	143
1987	525	372	153
1988	608	445	163
1989	615	442	173
1990	641	458	183
1991	670	477	193
1992	618	415	203
1993	607	394	213
1994	613	390	223
1995	597	364	233
1996	576	343	233
1997	577	344	233
1998	576	343	233
1999	585	352	233
2000	588	355	233
2001	592	359	233
2002	595	362	233
2003	598	365	233
2004	603	370	233
2005	608	375	233
2006	612	379	233
2007	617	384	233
2008	623	390	233
2009	628	395	233
2010	634	401	233

SOURCE: VARIABLES EMGO, EMGOEG, AND EMGOEX
DSET SW.BC.MD--CREATED 7/7/83

TABLE V.10
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
SEWARD

	RESIDENT POPULATION	NON-PROJECT ENCLAVE POPULATION	PROJECT ENCLAVE POPULATION	MILITARY ENCLAVE POPULATION	TOTAL POPULATION INCLUDING ENCLAVES AND MILITARY
1981	2525	0	0	0	2525
1982	2729	0	0	0	2729
1983	2821	0	0	0	2821
1984	3107	0	0	0	3107
1985	3262	0	15	0	3278
1986	3620	0	32	0	3652
1987	3805	0	99	0	3905
1988	4151	0	86	0	4236
1989	4391	0	142	0	4533
1990	4693	0	155	0	4848
1991	4865	0	50	0	4915
1992	4915	0	3	0	4919
1993	4963	0	22	0	4985
1994	5165	0	5	0	5170
1995	5326	0	4	0	5330
1996	5400	0	4	0	5403
1997	5529	0	3	0	5533
1998	5656	0	3	0	5659
1999	5817	0	3	0	5820
2000	5970	0	3	0	5974
2001	6122	0	3	0	6125
2002	6277	0	3	0	6280
2003	6435	0	3	0	6438
2004	6506	0	3	0	6508
2005	6671	0	3	0	6673
2006	6842	0	3	0	6845
2007	6925	0	2	0	6927
2008	7106	0	2	0	7107
2009	7296	0	2	0	7298
2010	7401	0	1	0	7402

SOURCE: VARIABLES PO, EMENNOPJ, EMENPJ, POML, AND POTO
DSET SW.IM.MD--CREATED 7/15/83

TABLE V.11
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
SEWARD

	RESIDENT POPU-LATION	NATIVE POPU-LATION	NON-NATIVE POPU-LATION	NATIVE MALE POPU-LATION	NATIVE FEMALE POPU-LATION	NON-NATIVE MALE POPU-LATION	NON-NATIVE FEMALE POPU-LATION
1981	2525	332	2193	174	158	1210	983
1982	2729	342	2387	179	164	1316	1070
1983	2821	352	2469	183	169	1359	1109
1984	3107	361	2745	188	174	1512	1233
1985	3262	370	2892	192	179	1591	1301
1986	3620	379	3241	196	183	1785	1456
1987	3805	388	3418	200	188	1880	1538
1988	4151	396	3755	204	192	2065	1689
1989	4391	404	3986	207	197	2191	1795
1990	4693	412	4281	211	201	2352	1929
1991	4865	420	4444	215	206	2438	2007
1992	4915	428	4487	218	210	2455	2032
1993	4963	436	4526	222	215	2470	2056
1994	5165	444	4720	225	219	2573	2147
1995	5326	453	4873	229	224	2653	2220
1996	5400	461	4939	232	228	2683	2256
1997	5529	469	5060	236	233	2744	2316
1998	5656	477	5179	240	238	2804	2375
1999	5817	486	5331	243	242	2883	2448
2000	5970	494	5476	247	247	2957	2519
2001	6122	503	5619	251	252	3030	2589
2002	6277	512	5765	255	257	3105	2660
2003	6435	521	5914	259	262	3181	2733
2004	6506	531	5975	263	267	3207	2768
2005	6671	540	6130	267	273	3287	2844
2006	6842	550	6292	272	278	3370	2922
2007	6925	560	6365	276	284	3403	2963
2008	7106	570	6535	281	289	3491	3045
2009	7296	581	6715	285	295	3584	3132
2010	7401	591	6810	290	301	3628	3182

SOURCE: VARIABLES PO, PONA, PONN, PONAMA, PONAFE,
PONNMA, AND PONNFE
DSET SW.IM.MD--CREATED 7/15/83

TABLE V.12
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
SEWARD

	RESIDENT POPULATION	PRE-SCHOOL AGE (0-4)	SCHOOL AGE (5-18)	ADULT (19-64)	SENIOR (65+)
1981	2525	196	479	1649	201
1982	2729	225	499	1796	208
1983	2821	245	511	1848	216
1984	3107	274	551	2056	226
1985	3262	295	578	2152	238
1986	3620	326	632	2411	251
1987	3805	347	667	2524	267
1988	4151	377	724	2765	285
1989	4391	401	770	2916	304
1990	4693	427	825	3115	325
1991	4865	445	866	3205	348
1992	4915	454	894	3196	371
1993	4963	459	923	3187	393
1994	5165	473	971	3307	414
1995	5326	485	1012	3393	435
1996	5400	491	1043	3409	456
1997	5529	500	1080	3472	477
1998	5656	509	1116	3534	497
1999	5817	520	1156	3625	516
2000	5970	531	1193	3710	536
2001	6122	542	1230	3794	556
2002	6277	554	1266	3881	575
2003	6435	567	1303	3971	595
2004	6506	573	1329	3989	615
2005	6671	586	1365	4086	633
2006	6842	599	1403	4188	652
2007	6925	608	1429	4218	671
2008	7106	622	1467	4328	689
2009	7296	637	1506	4446	707
2010	7401	648	1534	4493	726

SOURCE: VARIABLES PO, POKD, POSL, POAT, AND POGE
DSET SW.IM.MD--CREATED 7/15/83

TABLE V.13
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
SEWARD

	RESIDENT POPULATION	CHANGE IN RESIDENT POPULATION	NATURAL INCREASE	NET MIGRATION	NET MIGRATION OF WORKERS	NET MIGRATION OF DEPENDENTS
1981	2525	32	41	0	0	0
1982	2729	204	40	150	115	35
1983	2821	92	44	51	39	12
1984	3107	286	43	219	169	51
1985	3262	156	48	103	79	24
1986	3620	358	49	278	214	64
1987	3805	185	55	124	95	29
1988	4151	345	56	262	201	60
1989	4391	240	62	167	129	39
1990	4693	302	64	220	169	51
1991	4865	172	67	104	80	24
1992	4915	51	67	0	0	0
1993	4963	47	65	0	0	0
1994	5165	202	63	137	105	32
1995	5326	161	65	100	77	23
1996	5400	74	66	25	19	6
1997	5529	130	64	75	58	17
1998	5656	127	65	73	56	17
1999	5817	161	66	102	79	24
2000	5970	154	67	96	74	22
2001	6122	152	69	94	72	22
2002	6277	155	70	96	74	22
2003	6435	158	71	99	76	23
2004	6506	71	73	22	17	5
2005	6671	165	72	105	81	24
2006	6842	172	74	110	85	25
2007	6925	83	76	32	25	7
2008	7106	180	76	117	90	27
2009	7296	190	78	125	96	29
2010	7401	105	81	49	38	11

SOURCE: VARIABLES PO, CHPO, NTIC, IM, IMLA, AND IMDE
DSET SW.IM.MD--CREATED 7/15/83

TABLE V.14
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
SEWARD

	RESIDENT EMPLOYMENT	NON-PROJECT ENCLAVE EMPLOYMENT	PROJECT ENCLAVE EMPLOYMENT (ONSHORE ONLY)	MILITARY ENCLAVE EMPLOYMENT	TOTAL EMPLOYMENT INCLUDING ENCLAVES AND MILITARY
1981	1192	0	0	0	1192
1982	1318	0	0	0	1318
1983	1355	0	0	0	1355
1984	1524	0	0	0	1524
1985	1597	0	15	0	1612
1986	1807	0	32	0	1838
1987	1894	0	99	0	1993
1988	2086	0	86	0	2171
1989	2204	0	142	0	2346
1990	2361	0	155	0	2516
1991	2418	0	50	0	2468
1992	2321	0	3	0	2324
1993	2380	0	22	0	2402
1994	2528	0	5	0	2533
1995	2584	0	4	0	2588
1996	2569	0	4	0	2572
1997	2613	0	3	0	2616
1998	2658	0	3	0	2662
1999	2728	0	3	0	2731
2000	2794	0	3	0	2797
2001	2856	0	3	0	2859
2002	2922	0	3	0	2925
2003	2990	0	3	0	2993
2004	3001	0	3	0	3004
2005	3077	0	3	0	3080
2006	3155	0	3	0	3158
2007	3175	0	2	0	3176
2008	3261	0	2	0	3263
2009	3351	0	2	0	3353
2010	3385	0	1	0	3386

SOURCE: VARIABLES EMRETO, EMENNOPJ, EMENPJ, EMML, AND EMTO
DSET SW.IM.MD--CREATED 7/15/83

TABLE V.15
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
SEWARD

	TOTAL RESIDENT EMPLOYMENT	RESIDENT BASIC EMPLOYMENT	RESIDENT SUPPORT EMPLOYMENT	RESIDENT GOVERNMENT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT
1981	1192	267	609	315	0
1982	1318	270	674	374	-0
1983	1355	292	679	384	-0
1984	1524	315	753	456	-0
1985	1597	337	770	482	8
1986	1807	359	905	530	13
1987	1894	382	948	534	30
1988	2086	384	1042	622	38
1989	2204	387	1102	641	75
1990	2361	389	1178	680	113
1991	2418	392	1219	708	100
1992	2321	395	1198	651	77
1993	2380	397	1235	638	110
1994	2528	400	1303	654	172
1995	2584	403	1343	641	196
1996	2569	405	1364	619	181
1997	2613	408	1408	620	177
1998	2658	411	1454	618	176
1999	2728	414	1511	627	176
2000	2794	417	1567	631	179
2001	2856	419	1624	634	178
2002	2922	422	1684	638	178
2003	2990	425	1746	641	178
2004	3001	428	1792	é 639	142
2005	3077	431	1861	644	142
2006	3155	434	1932	648	141
2007	3175	437	1987	646	104
2008	3261	440	2066	651	104
2009	3351	443	2149	656	103
2010	3385	446	2216	656	67

SOURCE: VARIABLES EMRETO, EMBA, EMSU, EMGO, AND EMREPJ
DSET SW.IM.MD--CREATED 7/15/83

TABLE V.16
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
SEWARD

	TOTAL RESIDENT BASIC EMPLOYMENT	RESIDENT FISHING EMPLOYMENT	RESIDENT FISH PROCESSING EMPLOYMENT	OTHER RESIDENT BASIC EMPLOYMENT
1981	267	121	115	31
1982	270	122	116	31
1983	292	124	117	51
1984	315	125	119	71
1985	337	126	120	91
1986	359	127	121	111
1987	382	129	122	131
1988	384	130	123	131
1989	387	131	125	131
1990	389	133	126	131
1991	392	134	127	131
1992	395	135	128	131
1993	397	137	130	131
1994	400	138	131	131
1995	403	139	132	131
1996	405	141	134	131
1997	408	142	135	131
1998	411	144	136	131
1999	414	145	138	131
2000	417	146	139	131
2001	419	148	140	131
2002	422	149	142	131
2003	425	151	143	131
2004	428	152	145	131
2005	431	154	146	131
2006	434	155	148	131
2007	437	157	149	131
2008	440	159	151	131
2009	443	160	152	131
2010	446	162	154	131

SOURCE: VARIABLES EMBA, EMFI, EMFP, AND EMBANF
DSET SW.IM.MD--CREATED 7/15/83

TABLE V.17
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
SEWARD

	TOTAL RESIDENT SUPPORT EMPLOYMENT	ENDOGENOUS RESIDENT SUPPORT EMPLOYMENT	GOVERNMENT SPONSORED RESIDENT SUPPORT EMPLOYMENT	EXOGENOUS RESIDENT SUPPORT EMPLOYMENT	ENCLAVE SPONSORED RESIDENT SUPPORT EMPLOYMENT
1981	609	217	69	323	0
1982	674	241	93	340	0
1983	679	252	71	357	0
1984	753	286	93	374	0
1985	770	305	71	393	1
1986	905	344	146	413	2
1987	948	367	143	433	5
1988	1042	408	174	455	4
1989	1102	439	177	478	7
1990	1178	479	190	502	8
1991	1219	493	196	527	3
1992	1198	476	168	553	0
1993	1235	494	159	581	1
1994	1303	535	158	610	0
1995	1343	553	150	640	0
1996	1364	551	140	672	0
1997	1408	562	140	706	0
1998	1454	574	139	741	0
1999	1511	590	142	778	0
2000	1567	607	143	817	0
2001	1624	622	144	858	0
2002	1684	638	145	901	0
2003	1746	654	145	946	0
2004	1792	654	145	993	0
2005	1861	672	146	1043	0
2006	1932	690	147	1095	0
2007	1987	691	146	1150	0
2008	2066	711	148	1207	0
2009	2149	732	149	1268	0
2010	2216	736	149	1331	0

SOURCE: VARIABLES EMSU, EMSUEG, EMSUGO, EMSUEX, AND EMSUEN
DSET SW.IM.MD--CREATED 7/15/83

TABLE V.18
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
SEWARD

	TOTAL CIVILIAN GOVERNMENT EMPLOYMENT	ENDOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT	EXOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT
1981	315	222	93
1982	374	271	103
1983	384	271	113
1984	456	333	123
1985	482	349	133
1986	530	387	143
1987	534	381	153
1988	622	459	163
1989	641	468	173
1990	680	497	183
1991	708	515	193
1992	651	448	203
1993	638	425	213
1994	654	431	223
1995	641	408	233
1996	619	386	233
1997	620	387	233
1998	618	385	233
1999	627	394	233
2000	631	398	233
2001	634	401	233
2002	638	405	233
2003	641	408	233
2004	639	406	233
2005	644	411	233
2006	648	415	233
2007	646	413	233
2008	651	418	233
2009	656	423	233
2010	656	423	233

SOURCE: VARIABLES EMGO, EMGOEG, AND EMGOEX
DSET SW.IM.MD--CREATED 7/15/83

TABLE V.19
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
SEWARD

	ONSHORE SHORT-TERM SKILLED PROJECT EMPLOYMENT	ONSHORE SHORT-TERM NONSKILLED PROJECT EMPLOYMENT	ONSHORE LONG-TERM SKILLED PROJECT EMPLOYMENT	ONSHORE LONG-TERM NONSKILLED PROJECT EMPLOYMENT	TOTAL ONSHORE PROJECT EMPLOYMENT
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	20	0	0	0	20
1986	39	0	0	0	39
1987	118	0	0	0	118
1988	108	0	0	0	108
1989	168	17	0	0	185
1990	179	38	0	0	217
1991	60	24	0	0	84
1992	0	6	0	0	6
1993	19	16	0	0	35
1994	0	3	34	0	37
1995	0	0	45	0	45
1996	0	0	45	0	45
1997	0	0	45	0	45
1998	0	0	45	0	45
1999	0	0	45	0	45
2000	0	0	45	0	45
2001	0	0	45	0	45
2002	0	0	45	0	45
2003	0	0	45	0	45
2004	0	0	34	0	34
2005	0	0	34	0	34
2006	0	0	34	0	34
2007	0	0	22	0	22
2008	0	0	22	0	22
2009	0	0	22	0	22
2010	0	0	11	0	11

SOURCE: VARIABLES EMPSONSK, EMPSONNS, EMPLONSK, EMPLONNS, AND EMPJON
DSET SW.IM.MD--CREATED 7/15/83

TABLE V.20
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
SEWARD

	OFFSHORE SHORT-TERM SKILLED PROJECT EMPLOYMENT	OFFSHORE SHORT-TERM NONSKILLED PROJECT EMPLOYMENT	OFFSHORE LONG-TERM SKILLED PROJECT EMPLOYMENT	OFFSHORE LONG-TERM NONSKILLED PROJECT EMPLOYMENT	TOTAL OFFSHORE PROJECT EMPLOYMENT
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	18	0	0	0	18
1986	37	0	0	0	37
1987	110	0	0	0	110
1988	101	0	0	0	101
1989	287	0	0	0	287
1990	458	0	0	0	458
1991	366	0	0	0	366
1992	220	20	0	0	240
1993	224	60	0	0	284
1994	30	0	88	24	142
1995	0	0	113	30	143
1996	0	0	116	30	146
1997	0	0	116	30	146
1998	0	0	116	30	146
1999	0	0	116	30	146
2000	0	0	118	30	148
2001	0	0	118	30	148
2002	0	0	118	30	148
2003	0	0	118	30	148
2004	0	0	96	24	120
2005	0	0	96	24	120
2006	0	0	95	24	119
2007	0	0	73	18	91
2008	0	0	73	18	91
2009	0	0	72	18	90
2010	0	0	50	12	62

SOURCE: VARIABLES EMPSOFSK, EMPSOFNS, EMPLOFSK, EMPLOFNS, AND EMPJOF
DSET SW.IM.MD--CREATED 7/15/83

TABLE V.21
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
SEWARD

	RESIDENT PROJECT EMPLOYMENT	ENCLAVE PROJECT EMPLOYMENT	COMMUTER PROJECT EMPLOYMENT	TOTAL PROJECT EMPLOYMENT
1981	0	0	0	0
1982	-0	0	0	0
1983	-0	0	0	0
1984	-0	0	0	0
1985	8	15	15	38
1986	13	32	32	76
1987	30	99	99	228
1988	38	86	85	209
1989	75	142	255	472
1990	113	155	407	675
1991	100	50	300	450
1992	77	3	165	246
1993	110	22	187	319
1994	172	5	2	179
1995	196	4	-13	188
1996	181	4	6	191
1997	177	3	11	191
1998	176	3	11	191
1999	176	3	12	191
2000	179	3	10	193
2001	178	3	12	193
2002	178	3	12	193
2003	178	3	12	193
2004	142	3	10	154
2005	142	3	10	154
2006	141	3	10	153
2007	104	2	7	113
2008	104	2	8	113
2009	103	2	7	112
2010	67	1	5	73

SOURCE: VARIABLES EMREPJ, EMENPJ, EMCOPJ, AND EMPJ
DSET SW.IM.MD--CREATED 7/15/83

TABLE V.22
RURAL ALASKA MODEL IMPACT CASE PROJECTIONS
SEWARD

	TOTAL PROJECT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT	SKILLED PROJECT EMPLOYMENT	NONSKILLED PROJECT EMPLOYMENT	RESIDENT SKILLED PROJECT EMPLOYMENT	RESIDENT NONSKILLED PROJECT EMPLOYMENT
1981	0	0	0	0	0	0
1982	0	-0	0	0	0	-0
1983	0	-0	0	0	0	-0
1984	0	-0	0	0	0	-0
1985	38	8	38	0	6	2
1986	76	13	76	0	8	4
1987	228	30	228	0	16	14
1988	209	38	209	0	27	11
1989	472	75	455	17	41	33
1990	675	113	637	38	61	51
1991	450	100	426	24	75	25
1992	246	77	220	26	66	11
1993	319	110	243	76	77	32
1994	179	172	152	27	79	92
1995	188	196	158	30	115	81
1996	191	181	161	30	143	39
1997	191	177	161	30	149	28
1998	191	176	161	30	149	27
1999	191	176	161	30	149	27
2000	193	179	163	30	149	30
2001	193	178	163	30	151	27
2002	193	178	163	30	151	27
2003	193	178	163	30	151	27
2004	154	142	130	24	120	22
2005	154	142	130	24	120	21
2006	153	141	129	24	119	21
2007	113	104	95	18	88	16
2008	113	104	95	18	88	16
2009	112	103	94	18	87	16
2010	73	67	61	12	56	11

SOURCE: VARIABLES EMPJ, EMREPJ, EMPJSK, EMPJNS, EMREPJSK, AND EMREPJNS
DSET SW.IM.MD--CREATED 7/15/83

TABLE V.23
RURAL ALASKA MODEL IMPACT PROJECTIONS
SEWARD
TOTAL POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1981	2525	2525	0	0.00
1982	2729	2729	0	0.00
1983	2821	2821	-0	-0.00
1984	3107	3107	-0	-0.00
1985	3240	3278	38	1.16
1986	3581	3652	71	1.98
1987	3716	3905	188	5.07
1988	4024	4236	212	5.27
1989	4152	4533	382	9.19
1990	4323	4848	525	12.15
1991	4507	4915	408	9.05
1992	4551	4919	367	8.07
1993	4593	4985	392	8.53
1994	4675	5170	495	10.58
1995	4744	5330	586	12.36
1996	4805	5403	598	12.45
1997	4924	5533	609	12.36
1998	5040	5659	619	12.28
1999	5188	5820	632	12.18
2000	5326	5974	648	12.16
2001	5468	6125	658	12.03
2002	5613	6280	667	11.88
2003	5763	6438	675	11.72
2004	5922	6508	586	9.90
2005	6087	6673	586	9.62
2006	6258	6845	587	9.38
2007	6436	6927	491	7.63
2008	6622	7107	485	7.33
2009	6816	7298	482	7.07
2010	7018	7402	384	5.48

VARIABLE: POTO
SOURCE: DSETS SW.BC.MD--CREATED 7/11/83 AND
SW.IM.MD--CREATED 7/15/83

TABLE V.24
RURAL ALASKA MODEL IMPACT PROJECTIONS
SEWARD
RESIDENT POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1981	2525	2525	0	0.00
1982	2729	2729	0	0.00
1983	2821	2821	-0	-0.00
1984	3107	3107	-0	-0.00
1985	3240	3262	22	0.68
1986	3581	3620	39	1.10
1987	3716	3805	89	2.40
1988	4024	4151	127	3.15
1989	4152	4391	239	5.76
1990	4323	4693	370	8.56
1991	4507	4865	358	7.94
1992	4551	4915	364	8.00
1993	4593	4963	370	8.05
1994	4675	5165	490	10.47
1995	4744	5326	582	12.27
1996	4805	5400	595	12.38
1997	4924	5529	605	12.30
1998	5040	5656	616	12.21
1999	5188	5817	628	12.11
2000	5326	5970	644	12.10
2001	5468	6122	654	11.97
2002	5613	6277	664	11.82
2003	5763	6435	672	11.66
2004	5922	6506	584	9.86
2005	6087	6671	583	9.58
2006	6258	6842	584	9.34
2007	6436	6925	489	7.60
2008	6622	7106	484	7.30
2009	6816	7296	480	7.04
2010	7018	7401	383	5.46

VARIABLE: PO
SOURCE: DSETS SW.BC.MD--CREATED 7/11/83 AND
SW.IM.MD--CREATED 7/15/83

TABLE V.25
RURAL ALASKA MODEL IMPACT PROJECTIONS
SEWARD
SCHOOL-AGE POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1981	479	479	0	0.00
1982	499	499	0	0.00
1983	511	511	-0	-0.00
1984	551	551	0	0.00
1985	575	578	3	0.46
1986	627	632	5	0.75
1987	656	667	11	1.63
1988	709	724	15	2.15
1989	741	770	29	3.92
1990	780	825	45	5.79
1991	822	866	45	5.43
1992	847	894	47	5.57
1993	873	923	50	5.75
1994	903	971	67	7.44
1995	931	1012	81	8.69
1996	958	1043	85	8.93
1997	990	1080	90	9.12
1998	1021	1116	95	9.34
1999	1055	1156	101	9.57
2000	1086	1193	107	9.84
2001	1118	1230	112	10.02
2002	1149	1266	117	10.17
2003	1181	1303	121	10.28
2004	1214	1329	114	9.41
2005	1248	1365	117	9.41
2006	1282	1403	120	9.37
2007	1318	1429	111	8.42
2008	1355	1467	112	8.27
2009	1393	1506	113	8.10
2010	1433	1534	102	7.10

VARIABLE: POSL
SOURCE: DSETS SW.BC.MD--CREATED 7/11/83 AND
SW.IM.MD--CREATED 7/15/83

TABLE V.26
RURAL ALASKA MODEL IMPACT PROJECTIONS
SEWARD
RESIDENT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1981	1192	1192	0	0.00
1982	1318	1318	0	0.00
1983	1355	1355	-0	-0.00
1984	1524	1524	-0	-0.00
1985	1581	1597	15	0.98
1986	1780	1807	27	1.52
1987	1831	1894	64	3.49
1988	2002	2086	84	4.19
1989	2045	2204	159	7.78
1990	2122	2361	239	11.24
1991	2205	2418	213	9.66
1992	2150	2321	171	7.96
1993	2165	2380	215	9.91
1994	2210	2528	318	14.37
1995	2223	2584	361	16.22
1996	2232	2569	336	15.07
1997	2282	2613	331	14.48
1998	2329	2658	329	14.14
1999	2397	2728	331	13.81
2000	2458	2794	336	13.69
2001	2521	2856	335	13.30
2002	2586	2922	335	12.96
2003	2655	2990	335	12.63
2004	2728	3001	273	10.00
2005	2805	3077	272	9.69
2006	2885	3155	270	9.36
2007	2969	3175	206	6.93
2008	3057	3261	204	6.69
2009	3149	3351	202	6.42
2010	3245	3385	140	4.30

VARIABLE: EMRETO
SOURCE: DSETS SW.BC.MD--CREATED 7/11/83 AND
SW.IM.MD--CREATED 7/15/83

TABLE V.27
RURAL ALASKA MODEL IMPACT PROJECTIONS
SEWARD
RESIDENT SUPPORT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1981	609	609	0	0.00
1982	674	674	0	0.00
1983	679	679	0	0.00
1984	753	753	0	0.00
1985	764	770	5	0.71
1986	894	905	10	1.14
1987	923	948	25	2.69
1988	1010	1042	32	3.13
1989	1043	1102	59	5.65
1990	1092	1178	87	7.94
1991	1144	1219	75	6.56
1992	1137	1198	61	5.33
1993	1161	1235	73	6.31
1994	1197	1303	105	8.78
1995	1224	1343	120	9.78
1996	1251	1364	113	9.01
1997	1297	1408	111	8.58
1998	1342	1454	111	8.28
1999	1399	1511	112	8.02
2000	1453	1567	114	7.85
2001	1510	1624	114	7.56
2002	1569	1684	114	7.29
2003	1631	1746	115	7.03
2004	1697	1792	94	5.56
2005	1767	1861	94	5.33
2006	1839	1932	94	5.09
2007	1915	1987	73	3.80
2008	1994	2066	72	3.62
2009	2078	2149	71	3.44
2010	2165	2216	51	2.35

VARIABLE: EMSU
SOURCE: DSETS SW.BC.MD--CREATED 7/11/83 AND
SW.IM.MD--CREATED 7/15/83

TABLE V.28
RURAL ALASKA MODEL IMPACT PROJECTIONS
SEWARD
RESIDENT GOVERNMENT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1981	315	315	0	0.00
1982	374	374	0	0.00
1983	384	384	-0	-0.00
1984	456	456	-0	-0.00
1985	480	482	2	0.49
1986	526	530	4	0.80
1987	525	534	9	1.70
1988	608	622	14	2.30
1989	615	641	25	4.14
1990	641	680	39	6.12
1991	670	708	38	5.65
1992	618	651	33	5.37
1993	607	638	32	5.22
1994	613	654	41	6.66
1995	597	641	45	7.48
1996	576	619	42	7.37
1997	577	620	42	7.33
1998	576	618	42	7.27
1999	585	627	43	7.29
2000	588	631	43	7.30
2001	592	634	43	7.25
2002	595	638	43	7.19
2003	598	641	43	7.12
2004	603	639	36	6.05
2005	608	644	36	5.91
2006	612	648	35	5.79
2007	617	646	29	4.73
2008	623	651	28	4.57
2009	628	656	28	4.43
2010	634	656	22	3.45

VARIABLE: EMGO
SOURCE: DSETS SW.BC.MD--CREATED 7/11/83 AND
SW.IM.MD--CREATED 7/15/83

TABLE V.29
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: SEWARD
TOTAL POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	-0	-0	-0
1984	-0	-0	-0
1985	41	38	59
1986	85	71	157
1987	193	188	446
1988	195	212	602
1989	311	382	1099
1990	383	525	1712
1991	212	408	1721
1992	148	367	1620
1993	177	392	1645
1994	317	495	1510
1995	417	586	1435
1996	446	598	1395
1997	463	609	1325
1998	475	619	1255
1999	486	632	1150
2000	499	648	1054
2001	508	658	951
2002	517	667	909
2003	524	675	906
2004	453	586	800
2005	454	586	789
2006	455	587	779
2007	378	491	666
2008	375	485	650
2009	373	482	636
2010	294	384	522

SOURCE: BASE CASE DSET SW.BC.MD, IMPACT CASE DSETS SW.IM.LW, SW.IM.MD, AND SW.IM.HG
VARIABLE POTO

TABLE V.30
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: SEWARD
RESIDENT POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	-0	-0	-0
1984	-0	-0	-0
1985	25	22	68
1986	54	39	171
1987	86	89	490
1988	100	127	619
1989	143	239	1187
1990	190	370	1826
1991	141	358	1721
1992	143	364	1620
1993	144	370	1645
1994	301	490	1510
1995	399	582	1435
1996	432	595	1395
1997	450	605	1325
1998	462	616	1255
1999	474	628	1150
2000	486	644	1054
2001	496	654	951
2002	504	664	909
2003	512	672	906
2004	444	584	800
2005	444	583	789
2006	446	584	779
2007	372	489	666
2008	368	484	650
2009	366	480	636
2010	291	383	522

SOURCE: BASE CASE DSET SW.BC.MD, IMPACT CASE DSETS SW.IM.LW, SW.IM.MD, AND SW.IM.HG
VARIABLE PO

TABLE V.31
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: SEWARD
SCHOOL-AGE POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	-0	-0	-0
1984	0	0	0
1985	3	3	8
1986	6	5	20
1987	10	11	59
1988	12	15	74
1989	18	29	144
1990	24	45	223
1991	19	45	215
1992	20	47	205
1993	21	50	219
1994	41	67	208
1995	54	81	208
1996	59	85	213
1997	63	90	217
1998	67	95	219
1999	71	101	217
2000	76	107	214
2001	80	112	208
2002	84	117	209
2003	88	121	212
2004	83	114	202
2005	86	117	201
2006	89	120	200
2007	82	111	185
2008	83	112	181
2009	84	113	177
2010	76	102	160

SOURCE: BASE CASE DSET SW.BC.MD, IMPACT CASE DSETS SW.IM.LW, SW.IM.MD, AND SW.IM.HG
VARIABLE POSL

TABLE V.32
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: SEWARD
RESIDENT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	-0	-0	-0
1984	-0	-0	-0
1985	16	15	64
1986	34	27	139
1987	54	64	406
1988	60	84	416
1989	87	159	885
1990	115	239	1290
1991	78	213	967
1992	29	171	624
1993	45	215	715
1994	210	318	492
1995	261	361	477
1996	258	336	463
1997	257	331	451
1998	256	329	437
1999	257	331	423
2000	260	336	410
2001	261	335	395
2002	261	335	388
2003	261	335	386
2004	212	273	317
2005	212	272	315
2006	210	270	311
2007	160	206	240
2008	159	204	238
2009	157	202	234
2010	108	140	165

SOURCE: BASE CASE DSET SW.BC.MD, IMPACT CASE DSETS SW.IM.LW, SW.IM.MD, AND SW.IM.HG
VARIABLE EMRETO

TABLE V.33
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: SEWARD
RESIDENT SUPPORT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	6	5	19
1986	13	10	44
1987	22	25	129
1988	24	32	139
1989	36	59	287
1990	47	87	424
1991	30	75	335
1992	13	61	231
1993	19	73	255
1994	69	105	188
1995	86	120	179
1996	86	113	173
1997	86	111	167
1998	86	111	161
1999	87	112	154
2000	88	114	147
2001	89	114	140
2002	89	114	137
2003	89	115	136
2004	73	94	113
2005	73	94	112
2006	73	94	111
2007	56	73	88
2008	56	72	86
2009	56	71	85
2010	39	51	62

SOURCE: BASE CASE DSET SW.BC.MD, IMPACT CASE DSETS SW.IM.LW, SW.IM.MD, AND SW.IM.HG
VARIABLE EMSU

TABLE V.34
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: SEWARD
RESIDENT GOVERNMENT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	-0	-0	-0
1984	-0	-0	-0
1985	3	2	7
1986	6	4	18
1987	9	9	49
1988	11	14	68
1989	15	25	126
1990	20	39	193
1991	15	38	182
1992	13	33	148
1993	12	32	141
1994	25	41	126
1995	31	45	110
1996	31	42	100
1997	31	42	93
1998	31	42	85
1999	32	43	78
2000	32	43	70
2001	33	43	62
2002	33	43	59
2003	32	43	57
2004	28	36	50
2005	27	36	49
2006	27	35	47
2007	22	29	40
2008	22	28	38
2009	21	28	37
2010	17	22	30

SOURCE: BASE CASE DSET SW.BC.MD, IMPACT CASE DSETS SW.IM.LW, SW.IM.MD, AND SW.IM.HG
VARIABLE EMGO

TABLE W.1
RURAL ALASKA MODEL BASE CASE PROJECTIONS
YAKUTAT

	RESIDENT POPULATION	NON-PROJECT ENCLAVE POPULATION	PROJECT ENCLAVE POPULATION	MILITARY ENCLAVE POPULATION	TOTAL POPULATION INCLUDING ENCLAVES AND MILITARY
1980	449	1	0	0	450
1981	466	5	0	0	471
1982	498	10	0	0	508
1983	522	15	0	0	537
1984	558	15	0	0	573
1985	570	15	0	0	585
1986	602	15	0	0	617
1987	613	15	0	0	628
1988	644	10	-0	0	654
1989	656	10	0	0	666
1990	678	10	-0	0	688
1991	692	10	-0	0	702
1992	703	10	0	0	713
1993	714	10	0	0	724
1994	725	10	0	0	735
1995	728	10	0	0	738
1996	726	10	0	0	736
1997	727	10	0	0	737
1998	729	10	0	0	739
1999	734	10	0	0	744
2000	740	10	0	0	750
2001	745	10	0	0	755
2002	751	10	0	0	761
2003	757	10	0	0	767
2004	763	10	0	0	773
2005	769	10	0	0	779
2006	775	10	0	0	785
2007	781	10	0	0	791
2008	787	10	0	0	797
2009	794	10	0	0	804
2010	800	10	0	0	810

SOURCE: VARIABLES PO, EMENNOPJ, EMENPJ, POML, AND POTO
DSET YK.BC.MD--CREATED 7/11/83

TABLE W.2
RURAL ALASKA MODEL BASE CASE PROJECTIONS
YAKUTAT

	RESIDENT POPULATION	NATIVE POPULATION	NON-NATIVE POPULATION	NATIVE MALE POPULATION	NATIVE FEMALE POPULATION	NON-NATIVE MALE POPULATION	NON-NATIVE FEMALE POPULATION
1980	449	279	170	136	143	99	71
1981	466	288	178	140	147	103	75
1982	498	296	202	144	152	116	85
1983	522	305	217	149	156	125	92
1984	558	314	244	153	161	140	104
1985	570	322	248	157	165	141	106
1986	602	331	271	161	170	154	117
1987	613	340	273	165	174	155	119
1988	644	348	296	169	179	167	129
1989	656	357	298	174	184	168	130
1990	678	366	312	178	188	175	137
1991	692	375	317	182	193	177	140
1992	703	384	319	186	198	178	141
1993	714	393	321	191	202	178	143
1994	725	403	323	195	207	179	144
1995	728	410	318	199	211	176	143
1996	726	416	310	202	215	170	139
1997	727	423	303	205	218	166	137
1998	729	431	298	208	222	163	135
1999	734	439	295	212	227	161	134
2000	740	447	292	216	231	159	134
2001	745	456	289	220	236	157	133
2002	751	465	287	224	240	155	132
2003	757	474	283	229	245	152	131
2004	763	482	280	233	250	150	130
2005	769	492	277	237	255	148	129
2006	775	501	274	241	259	146	128
2007	781	510	271	246	264	144	127
2008	787	519	268	250	269	142	126
2009	794	529	265	255	274	140	125
2010	800	538	261	259	279	138	123

SOURCE: VARIABLES PO, PONA, PONN, PONAMA, PONAFE, PONNMA, AND PONNFE
DSET YK.BC.MD--CREATED 7/11/83

TABLE W.3
RURAL ALASKA MODEL BASE CASE PROJECTIONS
YAKUTAT

	RESIDENT POPULATION	PRE-SCHOOL AGE (0-4)	SCHOOL AGE (5-18)	ADULT (19-64)	SENIOR (65+)
1980	449	49	119	281	26
1981	466	53	124	261	28
1982	498	58	129	282	29
1983	522	62	134	295	31
1984	558	66	140	318	34
1985	570	68	144	322	36
1986	602	72	150	342	38
1987	613	74	154	345	41
1988	644	77	161	364	43
1989	656	78	165	367	45
1990	678	81	171	379	48
1991	692	82	175	384	50
1992	703	84	180	387	52
1993	714	85	184	390	55
1994	725	86	188	394	57
1995	728	87	191	393	58
1996	726	86	192	388	59
1997	727	87	194	386	61
1998	729	87	195	385	62
1999	734	87	198	385	63
2000	740	88	201	386	64
2001	745	89	203	388	66
2002	751	90	205	389	67
2003	757	90	208	391	68
2004	763	91	210	392	70
2005	769	92	212	394	71
2006	775	93	214	396	72
2007	781	94	217	397	73
2008	787	95	219	399	74
2009	794	96	221	401	76
2010	800	97	223	403	77

SOURCE: VARIABLES PO, POKD, POSL, POAT, AND POGE
DSET YK.BC.MD--CREATED 7/11/83

TABLE W.4
RURAL ALASKA MODEL BASE CASE PROJECTIONS
YAKUTAT

	RESIDENT POPULATION	CHANGE IN RESIDENT POPULATION	NATURAL INCREASE	NET MIGRATION	NET MIGRATION OF WORKERS	NET MIGRATION OF DEPENDENTS
1980	449	-	-	-	-	-
1981	466	17	11	6	4	1
1982	498	32	11	19	15	4
1983	522	24	11	11	9	3
1984	558	36	12	22	17	5
1985	570	13	12	1	1	0
1986	602	32	12	18	14	4
1987	613	11	13	0	0	0
1988	644	31	13	17	13	4
1989	656	11	13	0	0	0
1990	678	23	13	10	8	2
1991	692	13	13	2	1	0
1992	703	11	13	0	0	0
1993	714	11	13	0	0	0
1994	725	11	13	0	0	0
1995	728	3	13	-7	-4	-4
1996	726	-3	13	-13	-6	-7
1997	727	1	13	-10	-5	-5
1998	729	2	13	-9	-4	-5
1999	734	5	13	-5	-2	-3
2000	740	6	13	-5	-2	-3
2001	745	6	13	-5	-2	-3
2002	751	6	14	-5	-2	-3
2003	757	6	14	-5	-2	-3
2004	763	6	14	-5	-2	-3
2005	769	6	14	-5	-2	-3
2006	775	6	14	-6	-2	-3
2007	781	6	14	-6	-2	-3
2008	787	6	14	-6	-2	-3
2009	794	6	14	-6	-3	-3
2010	800	6	15	-6	-3	-4

SOURCE: VARIABLES PO, CHPO, NTIC, IM, IMLA, AND IMDE
DSET YK.BC.MD--CREATED 7/11/83

TABLE W.5
RURAL ALASKA MODEL BASE CASE PROJECTIONS
YAKUTAT

	RESIDENT EMPLOYMENT	NON-PROJECT ENCLAVE EMPLOYMENT	PROJECT ENCLAVE EMPLOYMENT (ONSHORE ONLY)	MILITARY ENCLAVE EMPLOYMENT	TOTAL EMPLOYMENT INCLUDING ENCLAVES AND MILITARY
1980	188	1	0	0	189
1981	191	5	0	0	196
1982	208	10	0	0	218
1983	218	15	0	0	233
1984	237	15	0	0	252
1985	239	15	0	0	254
1986	255	15	0	0	270
1987	254	15	0	0	269
1988	272	10	-0	0	282
1989	270	10	0	0	280
1990	283	10	-0	0	293
1991	287	10	-0	0	297
1992	272	10	0	0	282
1993	268	10	0	0	278
1994	267	10	0	0	277
1995	260	10	0	0	270
1996	254	10	0	0	264
1997	254	10	0	0	264
1998	252	10	0	0	262
1999	254	10	0	0	264
2000	254	10	0	0	264
2001	255	10	0	0	265
2002	255	10	0	0	265
2003	255	10	0	0	265
2004	256	10	0	0	266
2005	257	10	0	0	267
2006	257	10	0	0	267
2007	258	10	0	0	268
2008	259	10	0	0	269
2009	260	10	0	0	270
2010	260	10	0	0	270

SOURCE: VARIABLES EMRETO, EMENNOPJ, EMENPJ, EMML, AND EMTO
DSET YK.BC.MD--CREATED 7/11/83

TABLE W.6
RURAL ALASKA MODEL BASE CASE PROJECTIONS
YAKUTAT

	TOTAL RESIDENT EMPLOYMENT	RESIDENT BASIC EMPLOYMENT	RESIDENT SUPPORT EMPLOYMENT	RESIDENT GOVERNMENT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT
1980	188	75	46	67	0
1981	191	75	47	69	-0
1982	208	75	52	81	-0
1983	218	84	52	82	-0
1984	237	85	57	95	-0
1985	239	87	56	97	-0
1986	255	90	64	101	-0
1987	254	93	64	97	0
1988	272	93	68	110	0
1989	270	93	69	109	0
1990	283	100	72	111	0
1991	287	100	73	113	0
1992	272	100	71	101	0
1993	268	100	71	97	0
1994	267	100	71	96	0
1995	260	100	71	89	0
1996	254	100	70	84	0
1997	254	100	71	83	0
1998	252	100	72	81	0
1999	254	100	73	81	0
2000	254	100	74	80	0
2001	255	100	75	80	0
2002	255	100	76	79	0
2003	255	100	77	79	0
2004	256	100	78	78	0
2005	257	100	79	78	0
2006	257	100	80	77	0
2007	258	100	81	77	0
2008	259	100	82	76	0
2009	260	100	84	76	0
2010	260	100	85	76	0

SOURCE: VARIABLES EMRETO, EMBA, EMSU, EMGO, AND EMREPJ
DSET YK.BC.MD--CREATED 7/11/83

TABLE W.7
RURAL ALASKA MODEL BASE CASE PROJECTIONS
YAKUTAT

	TOTAL RESIDENT BASIC EMPLOYMENT	RESIDENT FISHING EMPLOYMENT	RESIDENT FISH PROCESSING EMPLOYMENT	OTHER RESIDENT BASIC EMPLOYMENT
1980	75	38	32	5
1981	75	38	32	5
1982	75	38	32	5
1983	84	38	32	14
1984	85	38	32	15
1985	87	38	32	17
1986	90	38	32	20
1987	93	38	32	23
1988	93	38	32	23
1989	93	38	32	23
1990	100	38	32	30
1991	100	38	32	30
1992	100	38	32	30
1993	100	38	32	30
1994	100	38	32	30
1995	100	38	32	30
1996	100	38	32	30
1997	100	38	32	30
1998	100	38	32	30
1999	100	38	32	30
2000	100	38	32	30
2001	100	38	32	30
2002	100	38	32	30
2003	100	38	32	30
2004	100	38	32	30
2005	100	38	32	30
2006	100	38	32	30
2007	100	38	32	30
2008	100	38	32	30
2009	100	38	32	30
2010	100	38	32	30

SOURCE: VARIABLES EMBA, EMFI, EMFP, AND EMBANF
DSET YK.BC.MD--CREATED 7/11/83

TABLE W.8
RURAL ALASKA MODEL BASE CASE PROJECTIONS
YAKUTAT

	TOTAL RESIDENT SUPPORT EMPLOYMENT	ENDOGENOUS RESIDENT SUPPORT EMPLOYMENT	GOVERNMENT SPONSORED RESIDENT SUPPORT EMPLOYMENT	EXOGENOUS RESIDENT SUPPORT EMPLOYMENT	ENCLAVE SPONSORED RESIDENT SUPPORT EMPLOYMENT
1980	46	20	6	20	0
1981	47	21	6	20	0
1982	52	22	8	21	1
1983	52	24	6	21	1
1984	57	26	8	22	1
1985	56	27	6	22	1
1986	64	29	12	23	1
1987	64	29	11	23	1
1988	68	31	13	23	0
1989	69	32	13	24	1
1990	72	34	13	24	0
1991	73	34	14	25	0
1992	71	33	12	25	1
1993	71	33	11	26	1
1994	71	34	11	26	1
1995	71	33	10	27	1
1996	70	33	9	27	1
1997	71	34	9	28	1
1998	72	34	9	29	1
1999	73	34	9	29	1
2000	74	35	9	30	1
2001	75	35	9	30	1
2002	76	36	8	31	1
2003	77	36	8	32	1
2004	78	37	8	32	1
2005	79	37	8	33	1
2006	80	38	8	33	1
2007	81	39	8	34	1
2008	82	39	8	35	1
2009	84	40	8	36	1
2010	85	40	8	36	1

SOURCE: VARIABLES EMSU, EMSUEG, EMSUGO, EMSUEX, AND EMSUEN
DSET YK.BC.MD--CREATED 7/11/83

TABLE W.9
RURAL ALASKA MODEL BASE CASE PROJECTIONS
YAKUTAT

	TOTAL CIVILIAN GOVERNMENT EMPLOYMENT	ENDOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT	EXOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT
1980	67	54	13
1981	69	56	13
1982	81	68	13
1983	82	69	13
1984	95	82	13
1985	97	84	13
1986	101	88	13
1987	97	84	13
1988	110	97	13
1989	109	96	13
1990	111	98	13
1991	113	100	13
1992	101	88	13
1993	97	84	13
1994	96	83	13
1995	89	76	13
1996	84	71	13
1997	83	70	13
1998	81	68	13
1999	81	68	13
2000	80	67	13
2001	80	67	13
2002	79	66	13
2003	79	66	13
2004	78	65	13
2005	78	65	13
2006	77	64	13
2007	77	64	13
2008	76	63	13
2009	76	63	13
2010	76	63	13

SOURCE: VARIABLES EMGO, EMGOEG, AND EMGOEX
DSET YK.BC.MD--CREATED 7/11/83

TABLE W.10
RURAL ALASKA MODEL
IMPACT CASE PROJECTIONS
YAKUTAT

	RESIDENT POPULATION	NON-PROJECT ENCLAVE POPULATION	PROJECT ENCLAVE POPULATION	MILITARY ENCLAVE POPULATION	TOTAL POPULATION INCLUDING ENCLAVES AND MILITARY
1980	449	1	0	0	450
1981	466	5	0	0	471
1982	498	10	0	0	508
1983	522	15	0	0	537
1984	558	15	0	0	573
1985	572	15	30	0	617
1986	605	15	59	0	679
1987	618	15	177	0	810
1988	654	10	162	0	826
1989	665	10	278	0	953
1990	697	10	325	0	1032
1991	717	10	426	0	1153
1992	729	10	510	0	1249
1993	741	10	697	0	1448
1994	819	10	172	0	1002
1995	852	10	182	0	1045
1996	866	10	183	0	1058
1997	893	10	179	0	1083
1998	907	10	180	0	1096
1999	942	10	177	0	1129
2000	969	10	175	0	1155
2001	983	10	176	0	1169
2002	1017	10	173	0	1200
2003	1044	10	171	0	1225
2004	1058	10	153	0	1221
2005	1072	10	152	0	1234
2006	1102	10	149	0	1261
2007	1116	10	131	0	1257
2008	1131	10	130	0	1271
2009	1154	10	127	0	1291
2010	1169	10	105	0	1284

SOURCE: VARIABLES PO, EMENNOPJ, EMENPJ, POML, AND POTO
DSET YK.IM.MD--CREATED 7/15/83

TABLE W.11
RURAL ALASKA MODEL
IMPACT CASE PROJECTIONS
YAKUTAT

	RESIDENT POPULATION	NATIVE POPULATION	NON-NATIVE POPULATION	NATIVE MALE POPULATION	NATIVE FEMALE POPULATION	NON-NATIVE MALE POPULATION	NON-NATIVE FEMALE POPULATION
1980	449	279	170	136	143	99	71
1981	466	288	178	140	147	103	75
1982	498	296	202	144	152	116	85
1983	522	305	217	149	156	125	92
1984	558	314	244	153	161	140	104
1985	572	322	249	157	165	142	107
1986	605	331	274	161	170	156	118
1987	618	340	278	165	174	158	121
1988	654	348	305	169	179	172	133
1989	665	357	308	174	184	173	135
1990	697	366	331	178	188	186	145
1991	717	375	342	182	193	191	151
1992	729	384	345	186	198	192	153
1993	741	393	347	191	202	193	154
1994	819	403	417	195	207	232	185
1995	852	412	440	200	212	244	196
1996	866	422	444	204	217	246	199
1997	893	431	462	209	223	255	207
1998	907	441	465	214	228	256	209
1999	942	451	491	218	233	270	221
2000	969	462	508	223	239	278	230
2001	983	472	511	228	244	279	232
2002	1017	483	535	233	250	292	243
2003	1044	494	550	238	255	299	251
2004	1058	505	553	243	261	300	253
2005	1072	516	556	249	267	301	255
2006	1102	528	574	254	273	310	264
2007	1116	539	577	260	280	311	266
2008	1131	551	580	265	286	312	268
2009	1154	563	591	271	292	317	274
2010	1169	576	593	277	299	318	276

SOURCE: VARIABLES PO, PONA, PONN, PONAMA, PONAFE, PONNMA, AND PONNFE
DSET YK.IM.MD--CREATED 7/15/83

TABLE W.12
RURAL ALASKA MODEL
IMPACT CASE PROJECTIONS
YAKUTAT

	RESIDENT POPULATION	PRE-SCHOOL AGE (0-4)	SCHOOL AGE (5-18)	ADULT (19-64)	SENIOR (65+)
1980	449	49	119	281	26
1981	466	53	124	261	28
1982	498	58	129	282	29
1983	522	62	134	295	31
1984	558	66	140	318	34
1985	572	68	144	324	36
1986	605	72	150	345	38
1987	618	74	155	349	41
1988	654	77	162	372	43
1989	665	79	166	375	45
1990	697	82	173	394	48
1991	717	84	178	404	50
1992	729	86	183	407	53
1993	741	87	188	410	55
1994	819	93	200	468	58
1995	852	97	207	488	61
1996	866	99	212	491	64
1997	893	102	219	506	67
1998	907	103	224	510	70
1999	942	107	232	532	72
2000	969	109	239	546	75
2001	983	111	244	550	78
2002	1017	114	252	570	81
2003	1044	117	259	584	84
2004	1058	119	264	588	87
2005	1072	121	269	593	89
2006	1102	123	277	609	92
2007	1116	125	282	614	95
2008	1131	127	288	619	97
2009	1154	129	294	631	100
2010	1169	131	300	636	103

SOURCE: VARIABLES PO, POKD, POSL, POAT, AND POGE
DSET YK.IM.MD--CREATED 7/15/83

TABLE W.13
RURAL ALASKA MODEL
IMPACT CASE PROJECTIONS
YAKUTAT

	RESIDENT POPULATION	CHANGE IN RESIDENT POPULATION	NATURAL INCREASE	NET MIGRATION	NET MIGRATION OF WORKERS	NET MIGRATION OF DEPENDENTS
1980	449	-	-	-	-	-
1981	466	17	11	6	4	1
1982	498	32	11	19	15	4
1983	522	24	11	11	9	3
1984	558	36	12	22	17	5
1985	572	14	12	3	2	1
1986	605	34	12	20	15	5
1987	618	13	13	1	1	0
1988	654	36	13	21	16	5
1989	665	12	13	0	0	0
1990	697	32	13	18	14	4
1991	717	20	14	7	5	2
1992	729	12	14	0	0	0
1993	741	12	14	0	0	0
1994	819	79	14	58	45	13
1995	852	33	16	17	13	4
1996	866	13	16	0	0	0
1997	893	28	16	13	10	3
1998	907	13	16	0	0	0
1999	942	36	16	19	15	4
2000	969	27	17	12	9	3
2001	983	14	17	0	0	0
2002	1017	34	17	18	14	4
2003	1044	26	18	11	8	2
2004	1058	14	18	0	0	0
2005	1072	14	18	0	0	0
2006	1102	29	18	13	10	3
2007	1116	15	19	0	0	0
2008	1131	15	19	0	0	0
2009	1154	23	19	7	6	2
2010	1169	15	19	0	0	0

SOURCE: VARIABLES PO, CHPO, NTIC, IM, IMLA, AND IMDE
DSET YK.IM.MD--CREATED 7/15/83

TABLE W.14
RURAL ALASKA MODEL
IMPACT CASE PROJECTIONS
YAKUTAT

	RESIDENT EMPLOYMENT	NON-PROJECT ENCLAVE EMPLOYMENT	PROJECT ENCLAVE EMPLOYMENT (ONSHORE ONLY)	MILITARY ENCLAVE EMPLOYMENT	TOTAL EMPLOYMENT INCLUDING ENCLAVES AND MILITARY
1980	188	1	0	0	189
1981	191	5	0	0	196
1982	208	10	0	0	218
1983	218	15	0	0	233
1984	237	15	0	0	252
1985	240	15	30	0	285
1986	257	15	59	0	331
1987	260	15	177	0	452
1988	278	10	162	0	450
1989	280	10	278	0	568
1990	296	10	325	0	631
1991	303	10	426	0	739
1992	290	10	510	0	810
1993	291	10	697	0	998
1994	359	10	172	0	541
1995	375	10	182	0	567
1996	371	10	183	0	564
1997	388	10	179	0	577
1998	388	10	180	0	578
1999	406	10	177	0	593
2000	417	10	175	0	602
2001	419	10	176	0	604
2002	435	10	173	0	617
2003	445	10	171	0	626
2004	441	10	153	0	604
2005	448	10	152	0	610
2006	461	10	149	0	620
2007	457	10	131	0	598
2008	463	10	130	0	603
2009	475	10	127	0	611
2010	470	10	105	0	585

SOURCE: VARIABLES EMRETO, EMENNOPJ, EMENPJ, EMML, AND EMTO
DSET YK.IM.MD--CREATED 7/15/83

TABLE W.15
RURAL ALASKA MODEL
IMPACT CASE PROJECTIONS
YAKUTAT

	TOTAL RESIDENT EMPLOYMENT	RESIDENT BASIC EMPLOYMENT	RESIDENT SUPPORT EMPLOYMENT	RESIDENT GOVERNMENT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT
1980	188	75	46	67	0
1981	191	75	47	69	-0
1982	208	75	52	81	-0
1983	218	84	52	82	-0
1984	237	85	57	95	-0
1985	240	87	57	97	0
1986	257	90	66	102	0
1987	260	93	69	98	0
1988	278	93	73	112	-0
1989	280	93	77	110	0
1990	296	100	82	114	0
1991	303	100	86	117	0
1992	290	100	86	104	0
1993	291	100	91	100	0
1994	359	100	98	106	55
1995	375	100	103	102	69
1996	371	100	103	98	70
1997	388	100	108	99	82
1998	388	100	109	97	82
1999	406	100	114	100	92
2000	417	100	117	101	99
2001	419	100	118	101	99
2002	435	100	123	103	109
2003	445	100	126	104	115
2004	441	100	126	103	111
2005	448	100	129	103	116
2006	461	100	133	104	124
2007	457	100	132	104	121
2008	463	100	135	104	124
2009	475	100	139	105	131
2010	470	100	138	104	127

SOURCE: VARIABLES EMRETO, EMBA, EMSU, EMGO, AND EMREPJ
DSET YK.IM.MD--CREATED 7/15/83

TABLE W.16
RURAL ALASKA MODEL
IMPACT CASE PROJECTIONS
YAKUTAT

	TOTAL RESIDENT BASIC EMPLOYMENT	RESIDENT FISHING EMPLOYMENT	RESIDENT FISH PROCESSING EMPLOYMENT	OTHER RESIDENT BASIC EMPLOYMENT
1980	75	38	32	5
1981	75	38	32	5
1982	75	38	32	5
1983	84	38	32	14
1984	85	38	32	15
1985	87	38	32	17
1986	90	38	32	20
1987	93	38	32	23
1988	93	38	32	23
1989	93	38	32	23
1990	100	38	32	30
1991	100	38	32	30
1992	100	38	32	30
1993	100	38	32	30
1994	100	38	32	30
1995	100	38	32	30
1996	100	38	32	30
1997	100	38	32	30
1998	100	38	32	30
1999	100	38	32	30
2000	100	38	32	30
2001	100	38	32	30
2002	100	38	32	30
2003	100	38	32	30
2004	100	38	32	30
2005	100	38	32	30
2006	100	38	32	30
2007	100	38	32	30
2008	100	38	32	30
2009	100	38	32	30
2010	100	38	32	30

SOURCE: VARIABLES EMBA, EMFI, EMFP, AND EMBANF
DSET YK.IM.MD--CREATED 7/15/83

TABLE W.17
RURAL ALASKA MODEL
IMPACT CASE PROJECTIONS
YAKUTAT

	TOTAL RESIDENT SUPPORT EMPLOYMENT	ENDOGENOUS RESIDENT SUPPORT EMPLOYMENT	GOVERNMENT SPONSORED RESIDENT SUPPORT EMPLOYMENT	EXOGENOUS RESIDENT SUPPORT EMPLOYMENT	ENCLAVE SPONSORED RESIDENT SUPPORT EMPLOYMENT
1980	46	20	6	20	0
1981	47	21	6	20	0
1982	52	22	8	21	1
1983	52	24	6	21	1
1984	57	26	8	22	1
1985	57	27	6	22	1
1986	66	29	12	23	2
1987	69	30	11	23	5
1988	73	32	13	23	5
1989	77	32	13	24	7
1990	82	35	14	24	9
1991	86	36	14	25	11
1992	86	35	12	25	13
1993	91	35	12	26	18
1994	98	52	15	26	5
1995	103	56	15	27	5
1996	103	56	14	27	5
1997	108	60	14	28	5
1998	109	61	14	29	5
1999	114	65	15	29	5
2000	117	67	15	30	5
2001	118	68	15	30	5
2002	123	72	15	31	5
2003	126	75	15	32	5
2004	126	74	15	32	4
2005	129	76	15	33	4
2006	133	79	16	33	4
2007	132	79	16	34	4
2008	135	81	16	35	4
2009	139	84	16	36	4
2010	138	83	16	36	3

SOURCE: VARIABLES EMSU, EMSUEG, EMSUGO, EMSUEX, AND EMSUEN
DSET YK.IM.MD--CREATED 7/15/83

TABLE W.18
RURAL ALASKA MODEL
IMPACT CASE PROJECTIONS
YAKUTAT

	TOTAL CIVILIAN GOVERNMENT EMPLOYMENT	ENDOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT	EXOGENOUS CIVILIAN GOVERNMENT EMPLOYMENT
1980	67	54	13
1981	69	56	13
1982	81	68	13
1983	82	69	13
1984	95	82	13
1985	97	84	13
1986	102	89	13
1987	98	85	13
1988	112	99	13
1989	110	97	13
1990	114	101	13
1991	117	104	13
1992	104	91	13
1993	100	87	13
1994	106	93	13
1995	102	89	13
1996	98	85	13
1997	99	86	13
1998	97	84	13
1999	100	87	13
2000	101	88	13
2001	101	88	13
2002	103	90	13
2003	104	91	13
2004	103	90	13
2005	103	90	13
2006	104	91	13
2007	104	91	13
2008	104	91	13
2009	105	92	13
2010	104	91	13

SOURCE: VARIABLES EMGO, EMGOEG, AND EMGOEX
DSET YK.IM.MD--CREATED 7/15/83

TABLE W.19
RURAL ALASKA MODEL
IMPACT CASE PROJECTIONS
YAKUTAT

	ONSHORE SHORT-TERM SKILLED PROJECT EMPLOYMENT	ONSHORE SHORT-TERM NONSKILLED PROJECT EMPLOYMENT	ONSHORE LONG-TERM SKILLED PROJECT EMPLOYMENT	ONSHORE LONG-TERM NONSKILLED PROJECT EMPLOYMENT	TOTAL ONSHORE PROJECT EMPLOYMENT
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	30	0	0	0	30
1986	59	0	0	0	59
1987	177	0	0	0	177
1988	162	0	0	0	162
1989	252	26	0	0	278
1990	268	57	0	0	325
1991	390	36	0	0	426
1992	400	110	0	0	510
1993	373	324	0	0	697
1994	0	5	160	30	195
1995	0	0	177	30	207
1996	0	0	177	30	207
1997	0	0	177	30	207
1998	0	0	177	30	207
1999	0	0	177	30	207
2000	0	0	177	30	207
2001	0	0	177	30	207
2002	0	0	177	30	207
2003	0	0	177	30	207
2004	0	0	160	30	190
2005	0	0	160	30	190
2006	0	0	160	30	190
2007	0	0	144	30	174
2008	0	0	144	30	174
2009	0	0	144	30	174
2010	0	0	127	30	157

SOURCE: VARIABLES EMPSONSK, EMPSONNS, EMPLONSK, EMPLONNS, AND EMPJON
DSET YK.IM.MD--CREATED 7/15/83

TABLE W.20
RURAL ALASKA MODEL
IMPACT CASE PROJECTIONS
YAKUTAT

	OFFSHORE SHORT-TERM SKILLED PROJECT EMPLOYMENT	OFFSHORE SHORT-TERM NONSKILLED PROJECT EMPLOYMENT	OFFSHORE LONG-TERM SKILLED PROJECT EMPLOYMENT	OFFSHORE LONG-TERM NONSKILLED PROJECT EMPLOYMENT	TOTAL OFFSHORE PROJECT EMPLOYMENT
1980	0	0	0	0	0
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	0	0	0	0	0
1984	0	0	0	0	0
1985	73	0	0	0	73
1986	146	0	0	0	146
1987	439	0	0	0	439
1988	403	0	0	0	403
1989	1149	0	0	0	1149
1990	1832	0	0	0	1832
1991	1166	0	0	0	1166
1992	479	80	0	0	559
1993	553	240	0	0	793
1994	119	0	406	42	567
1995	0	0	525	48	573
1996	0	0	538	48	586
1997	0	0	538	48	586
1998	0	0	538	48	586
1999	0	0	534	48	582
2000	0	0	545	48	593
2001	0	0	545	48	593
2002	0	0	545	48	593
2003	0	0	545	48	593
2004	0	0	439	42	481
2005	0	0	439	42	481
2006	0	0	433	42	475
2007	0	0	327	36	363
2008	0	0	327	36	363
2009	0	0	324	36	360
2010	0	0	218	30	248

SOURCE: VARIABLES EMPSOFSK, EMPSOFNS, EMPLOFSK, EMPLOFNS, AND EMPJOF
DSET YK.IM.MD--CREATED 7/15/83

TABLE W.21
RURAL ALASKA MODEL
IMPACT CASE PROJECTIONS
YAKUTAT

	RESIDENT PROJECT EMPLOYMENT	ENCLAVE PROJECT EMPLOYMENT	COMMUTER PROJECT EMPLOYMENT	TOTAL PROJECT EMPLOYMENT
1980	0	0	0	0
1981	-0	0	0	0
1982	-0	0	0	0
1983	-0	0	0	0
1984	-0	0	0	0
1985	0	30	73	103
1986	0	59	146	205
1987	0	177	439	616
1988	-0	162	403	565
1989	0	278	1149	1427
1990	0	325	1832	2157
1991	0	426	1166	1592
1992	0	510	559	1069
1993	0	697	793	1490
1994	55	172	535	762
1995	69	182	528	780
1996	70	183	540	793
1997	82	179	532	793
1998	82	180	531	793
1999	92	177	520	789
2000	99	175	526	800
2001	99	176	525	800
2002	109	173	518	800
2003	115	171	514	800
2004	111	153	406	671
2005	116	152	403	671
2006	124	149	392	665
2007	121	131	286	537
2008	124	130	283	537
2009	131	127	276	534
2010	127	105	173	405

SOURCE: VARIABLES EMREPJ, EMENPJ, EMCOPJ, AND EMPJ
DSET YK.IM.MD--CREATED 7/15/83

TABLE W.22
RURAL ALASKA MODEL
IMPACT CASE PROJECTIONS
YAKUTAT

	TOTAL PROJECT EMPLOYMENT	RESIDENT PROJECT EMPLOYMENT	SKILLED PROJECT EMPLOYMENT	NONSKILLED PROJECT EMPLOYMENT	RESIDENT SKILLED PROJECT EMPLOYMENT	RESIDENT NONSKILLED PROJECT EMPLOYMENT
1980	0	0	0	0	0	0
1981	0	-0	0	0	0	-0
1982	0	-0	0	0	0	-0
1983	0	-0	0	0	0	-0
1984	0	-0	0	0	0	-0
1985	103	0	103	0	0	0
1986	205	0	205	0	0	0
1987	616	0	616	0	0	0
1988	565	-0	565	0	0	-0
1989	1427	0	1401	26	0	0
1990	2157	0	2100	57	0	0
1991	1592	0	1556	36	0	0
1992	1069	0	879	190	0	0
1993	1490	0	926	564	0	0
1994	762	55	685	77	3	52
1995	780	69	702	78	9	61
1996	793	70	715	78	15	56
1997	793	82	715	78	21	61
1998	793	82	715	78	27	56
1999	789	92	711	78	32	60
2000	800	99	722	78	38	61
2001	800	99	722	78	44	55
2002	800	109	722	78	49	60
2003	800	115	722	78	55	60
2004	671	111	599	72	60	51
2005	671	116	599	72	65	51
2006	665	124	593	72	70	55
2007	537	121	471	66	74	46
2008	537	124	471	66	78	46
2009	534	131	468	66	82	50
2010	405	127	345	60	85	42

SOURCE: VARIABLES EMPJ, EMREPJ, EMPJSK, EMPJNS, EMREPJSK, AND EMREPJNS
DSET YK.IM.MD--CREATED 7/15/83

TABLE W.23
RURAL ALASKA MODEL IMPACT PROJECTIONS
YAKUTAT
TOTAL POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	450	450	0	0.00
1981	471	471	0	0.00
1982	508	508	0	0.00
1983	537	537	0	0.00
1984	573	573	0	0.00
1985	585	617	32	5.41
1986	617	679	62	10.11
1987	628	810	182	28.97
1988	654	826	172	26.24
1989	666	953	288	43.25
1990	688	1032	344	50.04
1991	702	1153	452	64.38
1992	713	1249	536	75.20
1993	724	1448	723	99.91
1994	735	1002	266	36.19
1995	738	1045	306	41.47
1996	736	1058	323	43.84
1997	737	1083	346	46.95
1998	739	1096	358	48.47
1999	744	1129	385	51.75
2000	750	1155	405	54.03
2001	755	1169	414	54.75
2002	761	1200	439	57.64
2003	767	1225	458	59.69
2004	773	1221	448	58.03
2005	779	1234	455	58.47
2006	785	1261	476	60.59
2007	791	1257	466	58.88
2008	797	1271	473	59.35
2009	804	1291	488	60.66
2010	810	1284	475	58.59

VARIABLE: POTO
SOURCE: DSETS YK.BC.MD--CREATED 7/15/83 AND
YK.IM.MD--CREATED 7/15/83

TABLE W.24
RURAL ALASKA MODEL IMPACT PROJECTIONS
YAKUTAT
RESIDENT POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	449	449	0	0.00
1981	466	466	0	0.00
1982	498	498	0	0.00
1983	522	522	0	0.00
1984	558	558	0	0.00
1985	570	572	2	0.29
1986	602	605	3	0.56
1987	613	618	5	0.81
1988	644	654	10	1.49
1989	656	665	10	1.50
1990	678	697	19	2.85
1991	692	717	26	3.71
1992	703	729	26	3.71
1993	714	741	26	3.71
1994	725	819	94	12.96
1995	728	852	124	17.02
1996	726	866	140	19.27
1997	727	893	167	22.93
1998	729	907	178	24.45
1999	734	942	208	28.38
2000	740	969	230	31.08
2001	745	983	238	31.91
2002	751	1017	266	35.42
2003	757	1044	287	37.88
2004	763	1058	295	38.68
2005	769	1072	303	39.44
2006	775	1102	327	42.13
2007	781	1116	335	42.89
2008	787	1131	344	43.64
2009	794	1154	361	45.45
2010	800	1169	369	46.19

VARIABLE: PO
SOURCE: DSETS YK.BC.MD--CREATED 7/15/83 AND
YK.IM.MD--CREATED 7/15/83

TABLE W.25
RURAL ALASKA MODEL IMPACT PROJECTIONS
YAKUTAT
SCHOOL-AGE POPULATION

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	119	119	0	0.00
1981	124	124	0	0.00
1982	129	129	0	0.00
1983	134	134	0	0.00
1984	140	140	0	0.00
1985	144	144	0	0.14
1986	150	150	0	0.27
1987	154	155	1	0.39
1988	161	162	1	0.72
1989	165	166	1	0.73
1990	171	173	2	1.40
1991	175	178	3	1.82
1992	180	183	3	1.86
1993	184	188	4	1.92
1994	188	200	12	6.26
1995	191	207	16	8.57
1996	192	212	20	10.48
1997	194	219	25	12.98
1998	195	224	28	14.54
1999	198	232	34	17.04
2000	201	239	38	19.00
2001	203	244	41	20.17
2002	205	252	46	22.57
2003	208	259	51	24.52
2004	210	264	54	25.76
2005	212	269	57	27.00
2006	214	277	62	29.09
2007	217	282	66	30.31
2008	219	288	69	31.52
2009	221	294	73	33.17
2010	223	300	77	34.34

VARIABLE: POSL
SOURCE: DSETS YK.BC.MD--CREATED 7/15/83 AND
YK.IM.MD--CREATED 7/15/83

TABLE W.26
RURAL ALASKA MODEL IMPACT PROJECTIONS
YAKUTAT
RESIDENT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	188	188	0	0.00
1981	191	191	-0	-0.00
1982	208	208	0	0.00
1983	218	218	0	0.00
1984	237	237	-0	-0.00
1985	239	240	1	0.46
1986	255	257	2	0.87
1987	254	260	6	2.23
1988	272	278	6	2.30
1989	270	280	9	3.47
1990	283	296	12	4.38
1991	287	303	16	5.70
1992	272	290	18	6.65
1993	268	291	23	8.59
1994	267	359	92	34.36
1995	260	375	114	43.90
1996	254	371	117	45.85
1997	254	388	134	52.84
1998	252	388	136	53.71
1999	254	406	152	59.93
2000	254	417	163	64.03
2001	255	419	164	64.39
2002	255	435	180	70.39
2003	255	445	189	74.15
2004	256	441	184	72.01
2005	257	448	191	74.35
2006	257	461	204	79.18
2007	258	457	199	77.15
2008	259	463	204	78.97
2009	260	475	215	82.75
2010	260	470	209	80.34

VARIABLE: EMRETO
SOURCE: DSETS YK.BC.MD--CREATED 7/15/83 AND
YK.IM.MD--CREATED 7/15/83

TABLE W.27
RURAL ALASKA MODEL IMPACT PROJECTIONS
YAKUTAT
RESIDENT SUPPORT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	46	46	0	0.00
1981	47	47	-0	-0.00
1982	52	52	0	0.00
1983	52	52	-0	-0.00
1984	57	57	-0	-0.00
1985	56	57	1	1.55
1986	64	66	2	2.71
1987	64	69	5	7.78
1988	68	73	5	7.01
1989	69	77	8	11.55
1990	72	82	10	13.38
1991	73	86	13	17.21
1992	71	86	15	20.87
1993	71	91	20	28.06
1994	71	98	27	37.19
1995	71	103	32	45.04
1996	70	103	33	46.20
1997	71	108	36	51.27
1998	72	109	37	51.46
1999	73	114	41	55.81
2000	74	117	43	58.42
2001	75	118	44	58.15
2002	76	123	47	62.10
2003	77	126	49	64.29
2004	78	126	48	61.60
2005	79	129	50	62.68
2006	80	133	53	65.54
2007	81	132	51	62.97
2008	82	135	52	63.61
2009	84	139	55	65.61
2010	85	138	53	62.76

VARIABLE: EMSU
SOURCE: DSETS YK.BC.MD--CREATED 7/15/83 AND
YK.IM.MD--CREATED 7/15/83

TABLE W.28
RURAL ALASKA MODEL IMPACT PROJECTIONS
YAKUTAT
RESIDENT GOVERNMENT EMPLOYMENT

	BASE CASE	IMPACT CASE	DIFFERENCE	PERCENT DIFFERENCE
1980	67	67	0	0.00
1981	69	69	-0	-0.00
1982	81	81	0	0.00
1983	82	82	0	0.00
1984	95	95	0	0.00
1985	97	97	0	0.25
1986	101	102	0	0.49
1987	97	98	1	0.71
1988	110	112	1	1.32
1989	109	110	1	1.32
1990	111	114	3	2.51
1991	113	117	4	3.28
1992	101	104	3	3.23
1993	97	100	3	3.21
1994	96	106	11	11.20
1995	89	102	13	14.54
1996	84	98	14	16.29
1997	83	99	16	19.32
1998	81	97	17	20.52
1999	81	100	19	23.83
2000	80	101	21	26.06
2001	80	101	21	26.72
2002	79	103	23	29.61
2003	79	104	25	31.62
2004	78	103	25	32.25
2005	78	103	26	32.85
2006	77	104	27	35.05
2007	77	104	27	35.64
2008	76	104	28	36.21
2009	76	105	29	37.67
2010	76	104	29	38.24

VARIABLE: EMGO
SOURCE: DSETS YK.BC.MD--CREATED 7/15/83 AND
YK.IM.MD--CREATED 7/15/83

TABLE W.29
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: YAKUTAT
TOTAL POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	32	32	39
1986	62	62	70
1987	182	182	190
1988	172	172	180
1989	288	288	316
1990	344	344	395
1991	452	452	503
1992	536	536	665
1993	723	723	1035
1994	220	266	462
1995	242	306	476
1996	256	323	655
1997	267	346	783
1998	277	358	890
1999	283	385	988
2000	289	405	1077
2001	296	414	1157
2002	302	439	1229
2003	308	458	1295
2004	298	448	1293
2005	304	455	1329
2006	311	476	1357
2007	295	466	1306
2008	295	473	1320
2009	295	488	1334
2010	274	475	1054

SOURCE: BASE CASE DSET YK.BC.MD, IMPACT CASE DSETS YK.IM.LW, YK.IM.MD, AND YK.IM.HG
VARIABLE POTO

TABLE W.30
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: YAKUTAT
RESIDENT POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	2	2	10
1986	3	3	12
1987	5	5	14
1988	10	10	19
1989	10	10	50
1990	19	19	96
1991	26	26	96
1992	26	26	200
1993	26	26	438
1994	37	94	306
1995	46	124	320
1996	60	140	527
1997	71	167	666
1998	81	178	781
1999	87	208	886
2000	93	230	980
2001	99	238	1065
2002	106	266	1142
2003	112	287	1212
2004	119	295	1230
2005	125	303	1269
2006	132	327	1299
2007	132	335	1260
2008	132	344	1274
2009	132	361	1287
2010	129	369	1013

SOURCE: BASE CASE DSET YK.BC.MD, IMPACT CASE DSETS YK.IM.LW,
YK.IM.MD, AND YK.IM.HG
VARIABLE PO

TABLE W.31
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: YAKUTAT
SCHOOL-AGE POPULATION

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	1
1986	0	0	1
1987	1	1	2
1988	1	1	2
1989	1	1	6
1990	2	2	12
1991	3	3	12
1992	3	3	25
1993	4	4	54
1994	5	12	31
1995	7	16	35
1996	11	20	63
1997	13	25	83
1998	16	28	101
1999	18	34	119
2000	20	38	136
2001	21	41	152
2002	23	46	169
2003	25	51	185
2004	27	54	196
2005	29	57	209
2006	31	62	222
2007	31	66	222
2008	31	69	231
2009	32	73	241
2010	31	77	191

SOURCE: BASE CASE DSET YK.BC.MD, IMPACT CASE DSETS YK.IM.LW,
YK.IM.MD, AND YK.IM.HG
VARIABLE POSL

TABLE W.32
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: YAKUTAT
RESIDENT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	-0	-0	-0
1982	0	0	0
1983	0	0	0
1984	-0	-0	-0
1985	1	1	6
1986	2	2	8
1987	6	6	11
1988	6	6	12
1989	9	9	36
1990	12	12	62
1991	16	16	56
1992	18	18	146
1993	23	23	307
1994	48	92	198
1995	52	114	273
1996	54	117	417
1997	55	134	489
1998	56	136	545
1999	57	152	595
2000	58	163	640
2001	58	164	678
2002	59	180	711
2003	59	189	740
2004	57	184	718
2005	58	191	735
2006	58	204	741
2007	55	199	650
2008	55	204	650
2009	55	215	647
2010	52	209	498

SOURCE: BASE CASE DSET YK.BC.MD, IMPACT CASE DSETS YK.IM.LW, YK.IM.MD, AND YK.IM.HG
VARIABLE EMRETO

TABLE W.33
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: YAKUTAT
RESIDENT SUPPORT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	-0	-0	-0
1982	0	0	0
1983	-0	-0	-0
1984	-0	-0	-0
1985	1	1	2
1986	2	2	3
1987	5	5	6
1988	5	5	6
1989	8	8	14
1990	10	10	20
1991	13	13	21
1992	15	15	42
1993	20	20	81
1994	17	27	50
1995	18	32	67
1996	19	33	99
1997	19	36	116
1998	19	37	129
1999	19	41	140
2000	20	43	150
2001	20	44	159
2002	20	47	167
2003	20	49	174
2004	19	48	169
2005	20	50	173
2006	20	53	175
2007	19	51	154
2008	19	52	154
2009	19	55	154
2010	18	53	119

SOURCE: BASE CASE DSET YK.BC.MD, IMPACT CASE DSETS YK.IM.LW,
YK.IM.MD, AND YK.IM.HG
VARIABLE EMSU

TABLE W.34
SENSITIVITY OF PROJECTED IMPACTS
TO ASSUMPTIONS: YAKUTAT
RESIDENT GOVERNMENT EMPLOYMENT

	IMPACTS WITH LOW-IMPACT ASSUMPTIONS	IMPACTS WITH ASSUMPTIONS USED IN STUDY	IMPACTS WITH HIGH-IMPACT ASSUMPTIONS
1981	-0	-0	-0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	1
1986	0	0	2
1987	1	1	2
1988	1	1	3
1989	1	1	7
1990	3	3	14
1991	4	4	14
1992	3	3	25
1993	3	3	51
1994	4	11	35
1995	5	13	34
1996	6	14	52
1997	7	16	64
1998	8	17	73
1999	8	19	82
2000	9	21	89
2001	9	21	96
2002	9	23	101
2003	10	25	105
2004	10	25	105
2005	11	26	107
2006	11	27	108
2007	11	27	103
2008	11	28	103
2009	10	29	102
2010	10	29	79

SOURCE: BASE CASE DSET YK.BC.MD, IMPACT CASE DSETS YK.IM.LW,
YK.IM.MD, AND YK.IM.HG
VARIABLE EMGO