

Alaska OCS Socioeconomic Studies Program

609

DIAPIR FIELD STATEWIDE AND REGIONAL
ECONOMIC AND DEMOGRAPHIC SYSTEMS
IMPACT ANALYSIS

Prepared for

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Prepared by

Gunnar Knapp, Brian Reeder, and Scott Goldsmith
Institute of Social and Economic Research
University of Alaska

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ABSTRACT

This study projects economic and demographic impacts of OCS Lease Sale 87, scheduled for June of 1984 in the Beaufort Sea. Base case and impact projections are developed for the state of Alaska and for Anchorage and Fairbanks using the MAP econometric model.

The maximum projected impact of a 3.0 BBBL oil development on Sale 87 leases is an increase of about 3 percent in total state population and employment. Similar impacts occur for Anchorage and Fairbanks. In both absolute and percentage terms, projected impacts are greater after the year 2000 than in the 1990s, when peak direct employment associated with the sale would occur. This is because most future growth in Alaska is associated with support sector expansion; the effect of Sale 87 is to cause this growth to occur earlier.

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INTRODUCTION

This study projects economic and demographic impacts of the proposed Outer Continental Shelf (OCS) Lease Sale 87, scheduled for June of 1984 for leases in the Diapir Field (Beaufort Sea) along the north coast of Alaska. Earlier Beaufort Sea lease sales took place in October of 1982 (Sale 71) and in December of 1979 (Sale BF, held jointly with the State of Alaska).

The analysis of the study is carried out both for the state of Alaska as a whole and for the Anchorage and Fairbanks census divisions. We developed our projections using the MAP (Man-in-the-Arctic Program) econometric models which have been developed over a number of years at the University of Alaska's Institute of Social and Economic Research. We discuss our projection methodology in Chapter II.

The MAP models require a variety of assumptions. We discuss these assumptions in Chapter III.

We projected impacts of the lease sale by preparing economic and demographic projections without the sale (the base case) and with the sale (the impact cases). The projected impacts are the differences between the impact case projection and the base case

projections. We discuss the base case projections in Chapter IV, and the impact projections in Chapter V.

We review the results of the study in Chapter VI. The appendixes provide a variety of supporting materials.

II. METHODOLOGY

Introduction

This study focuses on several specific impacts of OCS Sale 87. These are primarily the effects of the sale upon population, employment, and statewide revenues and wealth. Obviously, these are only a few of the many variables which we might have considered. However, it is these variables which have been most interesting and useful in projecting impacts of earlier sales. A carefully developed model is available to project them, and they provide a basis for the discussion of a variety of indirect impacts of the sale.

Our choices of regions to study--the state, Anchorage, and Fairbanks--were based partly upon the capabilities of the MAP model, and partly on the fact that the effects of the sale are of interest both at the statewide level as well as for these two regions. An obvious third region in which Sale 87 might have impacts is the North Slope Borough. However, for several reasons, we do not examine these impacts in this study. First, as has been the case for oil development to date, Sale 87 is likely to have few direct impacts upon North Slope resident population and employment. Instead, those impacts are likely to be indirect, resulting from changes in the tax base of the Borough and changes in the number of

workers who may be included as residents in calculating the legal limit of property taxes collected by the Borough for operating revenues. Second, the North Slope is atypical of Alaska census divisions in that such a large share of employment is held by nonresidents, and in the significance of the local tax revenues to the regional economy. As a result, the MAP model is ill-suited for examining the impacts of OCS development upon the North Slope Borough. We are examining impacts upon the North Slope in connection with other studies currently underway for the Minerals Management Service (Kruse et. al, "A Description of the Socioeconomics of the North Slope Borough"; Knapp, "Impact Analysis of the Barrow Arch Lease Offering" [October 1984]).

We include a historical overview of the Alaska economy as Appendix G. In this study we do not discuss the historical or current Anchorage and Fairbanks regional economies. A variety of information on the statewide economy as well as the Anchorage and Fairbanks economies is available elsewhere. "Beaufort Sea Statewide and Regional Demographic and Economic Systems Impacts" (Social and Economic Studies Program Technical Report 62), prepared by ISER in August 1981, provides a baseline description of the statewide economy and the two regional economies. "Economic and Demographic Structural Change in Alaska" (Technical Report 73) discusses economic and demographic structural changes which may accompany economic growth.

We projected impacts of the lease sale by preparing economic and demographic projections without the sale (the base case) and with the sale (the impact cases). We then measured impacts of the sale as the difference between the impact case and base case projections.

Projections using economic and demographic models are based upon a variety of assumptions. Some of these assumptions are about the way the economy works and will work in the future. These assumptions are incorporated in the structure of the model. Other assumptions are about the future values of particular variables such as oil revenues or employment in basic industries. The accuracy of the projections depends upon the accuracy of the assumptions. Many of our base case assumptions are highly uncertain. For instance, the future economy of Alaska depends greatly upon world oil prices, which are extremely uncertain.

Fortunately, the projected impacts of an OCS Lease Sale are likely to be less sensitive to uncertain assumptions than the base case. It is easier to predict the change in population that will result from new OCS jobs than it is to predict what the total population will be. For example, the future development of the fishing and timber industries will be important in determining the future economy of the state, but will have less of an effect upon the impacts which might result from Lease Sale 87. Since the primary purpose of the study is to examine impacts of the lease sale rather

than to project the future of the Alaskan or regional economies, we can be somewhat less concerned about the accuracy of the projected base case.

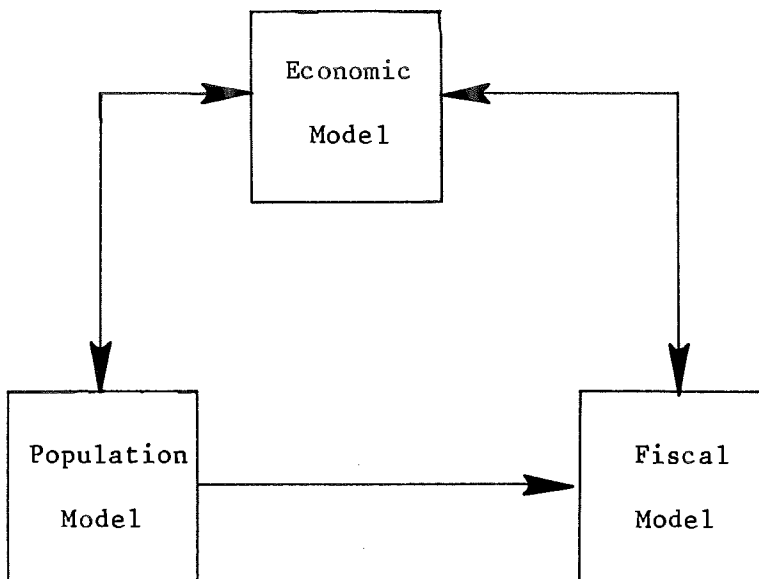
The MAP Model

In order to project statewide economic and demographic variables, we have used the Man-in-the-Arctic Program (MAP) model. This model was developed at ISER over a number of years, and has been used extensively in past OCS impact studies. A description of the model may be found in Scott Goldsmith's Man-in-the-Arctic (MAP) Economic Modeling System Technical Documentation Report (ISER), prepared for the Harza-Ebasco Susitna Joint Venture in June, 1983.

The MAP statewide model is actually a system of models composed of economic, fiscal, and population models. The three are interdependent, as shown schematically in Figure 1. The economic model receives input from the fiscal and population models, the fiscal model receives input from the economic and population models, and the population model utilizes input from the economic models, but not directly from the fiscal model. The population-economic model link is the source of population estimates; population reflects both natural population change and migration induced by changes in economic conditions. The population estimates are also used by the economic model for purposes of computing various per capita values for economic variables.

FIGURE 1.

The MAP Model



The significant link with the fiscal model relates to the role of state government expenditures as a source of major economic stimulus to the aggregate level of economic activity. In turn, state government (and local government) expenditures are dependent upon two key factors: the overall level of economic activity and the level of activity in the petroleum industry.

In the economic model economic activity is classified as either endogenous or exogenous. Exogenous activities include forestry, fisheries, agriculture and other manufacturing, as well as federal government wages and salaries. Other exogenous sector activity includes the petroleum industry and components of contract construction such as major pipelines. State and local government expenditures may also be considered as exogenous for discussion purposes, although there is some interdependence between these expenditures and total economic activity.

These exogenous variables combine with demand from the support sector and endogenous construction to generate total industrial production. Industrial production, through a series of steps, determines employment and income, and finally, real disposable personal income, which in turn is a determinant of support sector and endogenous construction economic activity. This means that aggregate production depends on both exogenously determined and endogenously determined economic activity, where endogenous activity depends on total activity. As such, the system is a simultaneous equation structure.

Certain other variables enter the model as well. In particular, wage rates are used in determining total wage and salary payments, where the wage rates are in part dependent upon U.S. wage rates, which are determined exogenously.

A wide variety of assumptions are required to run the MAP model. Chapter III discusses the assumptions which we used.

The MAP Regional Model

The MAP regional model disaggregates the MAP statewide model projections for population and employment in the basic, support, and government sectors among 20 regions, corresponding to 1970 census divisions or combinations of census divisions. The disaggregation is based on proportions determined by 1980 population, basic employment in each region, assumptions about the relationship between basic employment in each region and support sector employment in that and other regions, and assumptions about the relationship between employment in each region and population in that and other regions. Thus, changes in basic employment in any one region may affect both support sector employment and population in other regions. In addition, the model allocates government employment among regions based on population and past trends.

III. MODEL ASSUMPTIONS

In this chapter we discuss the assumptions which we used in running the MAP model. First we discuss the assumptions required to develop the base case projections. We then discuss the assumptions about OCS direct impacts which we used in developing the impact case projections.

Base Case Assumptions

Four types of assumptions are required in order to run the MAP model. These are national variable assumptions which directly or indirectly affect Alaska economic activity; assumptions about exogenous employment in special projects, basic industries, and government; an assumption as to the number of tourists who will visit Alaska; and assumptions about state government revenues and expenditures.

Inasmuch as Alaska is an open economy, developments in the state hinge at least in part on the performance of the national economy. In particular, four assumptions about the U.S. economy are required. First, a forecast of weekly earnings in the United States is needed to estimate Alaskan wage rates. Second, insofar as most goods consumed in Alaska are imported from the Lower 48, the U.S. price level is an important determinant of Alaskan prices, so that estimates of such prices require some forecast of the U.S. consumer price index. Third, insofar as the income differential between

Alaska and the Lower 48 is a major determinant of migration between Alaska and the Lower 48, a forecast is required of real per capita disposable income in the United States. Finally, an estimate is required of the unemployment rate in the United States.

In the base case, we assumed that the growth in U.S. consumer prices slows to a long-run rate of 6.5 percent by 1985, that real average weekly earnings rise at a rate of 1 percent annually, that real per capita income rises at 1.5 percent annually after 1984, and that unemployment falls to a long-run rate of 6 percent. These are the assumptions used in the MAP model projections prepared by ISER for Harza-Ebasco energy demand projections (see page K-7 in the MAP model technical documentation report).

The MAP model requires assumptions about exogenous employment in ten different categories. These are agricultural employment, mining employment, high-wage exogenous construction employment, low-wage exogenous construction employment, exogenous transportation employment, high-wage exogenous manufacturing employment, low-wage exogenous manufacturing employment, fish harvesting employment, active-duty military employment, and civilian federal employment. In order to develop these assumptions, we made assumptions about employment levels in different industries as well as in special projects. We arrived at our exogenous employment assumptions by totaling the employment assumed for the different industries and special projects.

The validity of the model statewide projections do not require that the particular special projects which we assumed actually occur, but rather that the assumed levels of employment actually occur. For example, we assumed that the U.S. Borax, Greens Creek, and Red Dog mines would be developed as part of our exogenous employment assumptions. However, if other mines were developed instead of these three, the model's statewide projections would be unchanged.

In general, we assumed a modest level of growth in most industries in developing our employment assumptions. We assumed that state subsidization results in only a gradual expansion of agriculture in the state over the forecast period; that traditional commercial fisheries and their associated processing employment maintain their current levels, while a new bottomfish industry is primarily offshore processing and provides relatively few jobs to resident Alaskans. We assumed that federal military employment stays constant at its current level throughout the forecast period, while civilian federal employment grows slowly at one-half percent per year.

With regard to specific projects, we included several major sources of employment. Oil-related development includes exploration and production in the Beaufort Sea on Sale BF and Sale 71 leases; continuing Upper Cook Inlet and Prudhoe Bay field production; the Prudhoe Bay waterflood project; tertiary oil recovery on the North

Slope using natural gas; and the TAPS pipeline. We also assumed construction of new hydroelectric projects, development of the U.S. Borax and Greens Creek mines in Southeastern Alaska, development of the Red Dog Mine in Northwestern Alaska, and construction of a major coal mining facility in the Beluga/Chuitna area of Cook Inlet.

The assumptions about state government revenues and expenditures are critical to the MAP model projections, given the significance of state government expenditures in the economy of Alaska. We based our revenue projections upon the Alaska Department of Revenue projections published in December of 1982. We assumed that state expenditures would be at the levels determined by the recently-passed spending limit until revenues fall below the levels permitted by this limit. Subsequently, we assumed that the income tax would be reinstated, subsidies and the permanent fund dividend program would be eliminated, and expenditures would be cut to equal total revenues.

Table 1 summarizes the assumptions we used in preparing the MAP model base case projections. Table 2 summarizes our exogenous employment assumptions for the ten categories of exogenous employment used by the MAP model. These employment assumptions are based on the project assumptions shown in Table 1. Table 3 summarizes our exogenous revenue assumptions.

The fluctuations in year-to-year employment in some categories result from the timing of employment assumed for particular projects. Small changes in timing for the projects could considerably change the employment assumptions for particular years. Thus, year-to-year fluctuations in assumed or projected levels of employment should not be overemphasized in interpreting our projections.

The low wage exogenous construction employment assumptions fall to zero in 1995 because we do not assume any major new projects after this year. Our inability to foresee possible new projects decades in the future may result in a downward bias in our projections, but we have no basis for assuming any particular positive level of exogenous construction employment. The high wage exogenous construction employment assumptions are zero for all years because this category exists specifically in order to simulate historical construction employment during the construction of the Trans Alaska Pipeline.

We provide a detailed discription of our employment assumptions in Appendix F.

TABLE 1. SUMMARY OF BASE CASE ASSUMPTIONS
FOR MAP MODEL, DIAPIR FIELD (SALE 87) STUDY

<u>ASSUMPTIONS</u>	<u>DESCRIPTION(a)</u>
<u>National Variables Assumptions</u>	
U.S. Inflation Rate	Consumer prices rise at 6.5 percent annually after 1985.
Real Average Weekly Earnings	Growth in real average weekly earnings averages 1 percent annually.
Real Per Capita Income	Growth in real per capita income averages 1.5 percent annually after 1984.
Unemployment Rate	Long-run rate of 6 percent.
<u>Exogenous Employment Assumptions</u>	
Trans-Alaska Pipeline	Operating employment remains constant at 1,500 through 2010 (TAP.083).
North Slope Petroleum Production	Construction employment developing Prudhoe Bay and Kuparuk fields, including Prudhoe Bay waterflood project, peaks at 2,400 in 1983 and 1986. Operating employment remains at 2,502 through 2010 for overall North Slope production (NSO.082).
Upper Cook Inlet Petroleum Production	Employment declines gradually beginning in 1983 so as to reach 50 percent of the 1979 level (778), or 383 by 2010 (UPC.082).
OCS Development	Exploration employment only for Sales CI, 55, 57, 60, 70, and 83. Development of Sale BF and Sale 71 (Beaufort Sea) lease area results in maximum employment of 1,771 in 1995, falling to long-run operating level of 1,359. Development of Sale 83 results in maximum employment of 3,391 in 1997. (OCS.BFM, OCS.55X, OCS.57X, OCS.60X, OCS.70L, OCS.71M, OCS.60X(+4), OCS.83M).

(a) Codes in parentheses indicate ISER names for MAP Model SCEN_ case files.

North Slope Gas	Tertiary oil recovery project utilizing North Slope natural gas occurs in early 1990s with a peak annual employment of 2,000 (NSO.TRC).
Beluga Chuitna Coal Production	Development of 4.4 million ton/year mine for export beginning in 1990 provides total employment of 524 (BCL.04T(-4)).
Hydroelectric Projects	Employment peaks at over 700 in 1990 for construction of several state-funded hydroelectric projects around the state (SHP.082, SHP.PJH).
U.S. Borax	The U.S. Borax mine near Ketchikan is brought into production with operating employment of 790 by 1988 (BXM.PJM).
Greens Creek Mine	Production from the Greens Creek Mine on Admiralty Island results in employment of 315 people from 1986 through 1996 (GCM.082).
Red Dog Mine	The Red Dog Mine in the Western Brooks Range reaches full production with operating employment of 448 by 1988 (RED.PJH).
Other Mining Activity	Employment increases from a 1979 level of 3,140 at 1 percent annually (OMN.EPH).
Agriculture	Moderate state support results in expansion of agriculture to employment of 508 in 2000 (AGR.PJM).
Logging and Sawmills	Employment expands to over 3,200 by 1990 before beginning to decline gradually after 2000 to about 2,800 by 2010 (FLL.082).
Pulp Mills	Employment declines at a rate of 1 percent per year after 1982 (FPU.082).
Commercial Fishing-Nonbottomfish	Employment levels in fishing and fish processing remain constant at 1979 levels of 6,323 and 6,874, respectively (TCF.001).

Commercial Fishing-Bottomfish

The total U.S. bottomfish catch expands at a constant rate to allowable catch in 2000, with Alaska resident harvesting employment rising to 733. Onshore processing capacity expands in the Aleutians and Kodiak census divisions to provide total resident employment of 971 by 2000 (BCF.183).

Federal Military Employment

Employment remains constant at 23,333 (GFM.082).

Federal Civilian Employment

Rises at 0.6 percent annual rate from 17,800 in 1983 to 21,042 by 2010 (GFC.082).

Tourism Assumptions

Number of visitors to Alaska increases by 50,000 per year from 630,000 in 1981 to over 2 million by 2010 (TRS.082).

State Revenue and Expenditure Assumptions

Revenues

State revenue projections are based upon Alaska Department of Revenue projections published in December of 1982. Oil and gas corporate income tax revenues are projected to grow at a nominal rate of 8 percent per year after 1985. Other petroleum revenues are extrapolated forward to 2010 from the last several years of projections published by the Department of Revenue (DOR.5D82).

Expenditures

State expenditures are at the levels allowed by the recently-passed spending limit, with subsidies and capital expenditures equalling one-third of total expenditures. As revenue growth slows, the income tax is reinstated, subsidies are eliminated, the Permanent Fund dividend program is phased out, and proportional cuts in the operating and capital budgets are made to keep total expenditures equal to total revenues. Also at that time, all Permanent Fund earnings are transferred to the general fund.

TABLE 2. MAP BASE CASE EXOGENOUS
EMPLOYMENT ASSUMPTIONS
(Thousands of Employees)

	Agri- cultural Employment	Mining Employment	High Wage Exogenous Con- struction Employment	Low Wage Exogenous Con- struction Employment	Exogenous Trans- portation Employment
1980	0.183	6.565	0.800	0.000	1.500
1981	0.188	7.788	1.433	0.000	1.500
1982	0.194	8.411	2.269	0.125	1.500
1983	0.203	9.387	3.261	0.290	1.552
1984	0.211	9.983	2.203	0.726	1.631
1985	0.219	11.279	2.627	0.863	1.949
1986	0.228	12.400	2.911	0.850	2.157
1987	0.239	13.149	3.069	0.613	2.471
1988	0.250	14.062	3.128	0.401	2.804
1989	0.263	14.526	3.244	0.875	2.440
1990	0.276	14.797	4.276	1.025	2.752
1991	0.291	15.671	1.667	1.125	2.063
1992	0.306	16.557	6.301	1.075	2.753
1993	0.325	16.068	5.164	0.563	2.348
1994	0.343	16.969	2.141	0.100	3.147
1995	0.365	17.329	1.529	0.000	3.055
1996	0.389	17.501	1.303	0.000	3.291
1997	0.414	17.390	1.303	0.000	3.351
1998	0.442	16.994	1.070	0.000	3.423
1999	0.474	16.620	1.070	0.000	3.423
2000	0.508	16.226	1.070	0.000	3.423
2001	0.527	15.957	1.070	0.000	3.423
2002	0.546	15.888	1.070	0.000	3.423
2003	0.568	16.089	1.070	0.000	3.423
2004	0.589	16.143	1.070	0.000	3.423
2005	0.611	16.197	1.070	0.000	3.423
2006	0.634	16.253	1.070	0.000	3.423
2007	0.660	16.309	1.063	0.000	3.351
2008	0.686	16.340	1.063	0.000	3.351
2009	0.712	16.223	1.056	0.000	3.279
2010	0.740	16.282	1.056	0.000	3.279

SOURCE: SCENARIOSB87.3--CREATED 4/83

TABLE 2. MAP BASE CASE EXOGENOUS
EMPLOYMENT ASSUMPTIONS (continued)
(Thousands of Employees)

	High Wage Exogenous Manu- facturing Employment	Low Wage Exogenous Manu- facturing Employment	Fish Harvesting Employment	Active Duty Military Employment	Civilian Federal Employment
1980	0.000	11.483	7.139	23.323	17.820
1981	0.000	10.283	6.552	23.323	17.600
1982	0.000	8.771	5.217	23.323	17.900
1983	0.000	10.433	6.421	23.323	17.989
1984	0.000	10.571	6.444	23.323	18.079
1985	0.000	10.749	6.471	23.323	18.170
1986	0.000	10.929	6.499	23.323	18.261
1987	0.000	11.107	6.527	23.323	18.352
1988	0.000	11.196	6.544	23.323	18.444
1989	0.000	11.240	6.579	23.323	18.536
1990	0.000	11.292	6.592	23.323	18.629
1991	0.000	11.299	6.608	23.323	18.722
1992	0.000	11.315	6.629	23.323	18.815
1993	0.000	11.335	6.655	23.323	18.909
1994	0.000	11.366	6.689	23.323	19.004
1995	0.000	11.413	6.731	23.323	19.099
1996	0.000	11.478	6.784	23.323	19.194
1997	0.000	11.571	6.851	23.323	19.290
1998	0.000	11.704	6.935	23.323	19.387
1999	0.000	11.887	7.041	23.323	19.484
2000	0.000	12.122	7.096	23.323	19.581
2001	0.000	12.018	7.096	23.323	19.679
2002	0.000	11.807	7.096	23.323	19.777
2003	0.000	11.776	7.096	23.323	19.876
2004	0.000	11.747	7.096	23.323	19.976
2005	0.000	11.718	7.096	23.323	20.076
2006	0.000	11.641	7.096	23.323	20.176
2007	0.000	11.634	7.096	23.323	20.277
2008	0.000	11.626	7.096	23.323	20.378
2009	0.000	11.623	7.096	23.323	20.480
2010	0.000	11.617	7.096	23.323	20.583

SOURCE: SCENARIOSB87.3--CREATED 4/83

TABLE 3. MAP BASE CASE EXOGENOUS
REVENUE ASSUMPTIONS
(Millions of Current Dollars)

	State Production Tax Revenue	State Royalty Income	State Bonus Payment Revenue	State Property Tax Revenue	State Corporate Petroleum Tax Revenue
1980	506.500	688.200	456.500	168.900	547.500
1981	1170.200	1118.500	10.100	143.000	860.100
1982	1590.000	1530.000	6.700	142.700	668.900
1983	1480.000	1430.000	26.100	148.600	235.000
1984	1220.000	1200.000	11.066	153.200	272.000
1985	1260.000	1240.000	4.692	158.000	295.000
1986	1350.000	1350.000	1.990	163.456	315.650
1987	1430.000	1450.000	0.844	169.101	337.745
1988	1500.000	1520.000	0.358	174.940	361.387
1989	1380.000	1650.000	0.152	180.981	386.684
1990	1420.000	1710.000	0.064	187.231	413.751
1991	1230.000	1570.000	0.027	244.697	442.714
1992	1150.000	1550.000	0.012	253.385	473.704
1993	1110.000	1520.000	0.005	334.305	506.863
1994	1090.000	1500.000	0.002	360.464	542.343
1995	1000.000	1410.000	0.001	372.870	580.306
1996	910.000	1290.000	0.000	386.531	620.927
1997	930.000	1330.000	0.000	399.458	664.392
1998	910.000	1340.000	0.000	412.658	710.899
1999	860.000	1350.000	0.000	425.141	760.662
2000	843.918	1370.384	0.000	438.917	813.907
2001	828.136	1391.076	0.000	452.996	870.881
2002	812.650	1412.081	0.000	465.389	931.842
2003	797.453	1433.402	0.000	480.106	997.070
2004	782.541	1455.046	0.000	494.158	1066.865
2005	767.907	1477.016	0.000	506.558	1141.545
2006	753.547	1499.318	0.000	519.317	1221.453
2007	739.456	1521.957	0.000	530.447	1306.954
2008	725.628	1544.938	0.000	542.962	1398.440
2009	712.058	1568.266	0.000	554.874	1496.331
2010	698.743	1591.946	0.000	564.198	1601.073

SOURCE: SCENARIOSB87.3--CREATED 4/83

Impact Cases Assumptions

We examined OCS impacts for two different "cases," which we refer to as the "3.0 BBBL Case" and the "2.2 BBBL Case." These names refer to the amount of oil which we assumed to be discovered and developed. We assumed that no gas resources are developed.

Tables 4 and 5 summarize the employment which we assumed for each case. The employment assumptions were provided to us by the Minerals Management Service Alaska OCS office. We did not adjust these employment figures for Alaska residency as we have done in some previous studies because the model does so internally on the basis of the historical data used to estimate model relationships. We calculated the property tax revenue assumptions using figures provided to us by the Alaska OCS office for the value and timing of onshore investments in each case.

TABLE 4. EMPLOYMENT AND REVENUE ASSUMPTIONS
 3.0 BBBL CASE
 (Thousands of Employees, Millions of Current \$)

	High Wage Exog Con- struction Employment	Mining Employment	Exog Trans- portation Employment	State Property Tax Revenue
1980	0.000	0.000	0.000	0.000
1981	0.000	0.000	0.000	0.000
1982	0.000	0.000	0.000	0.000
1983	0.000	0.000	0.000	0.000
1984	0.000	0.000	0.000	0.000
1985	0.341	0.375	0.052	0.000
1986	0.208	0.375	0.052	0.000
1987	0.416	0.535	0.104	0.000
1988	0.468	0.575	0.117	0.000
1989	1.080	0.575	0.384	0.000
1990	1.824	0.546	0.713	0.000
1991	0.340	0.568	0.230	0.000
1992	0.952	1.001	0.501	0.000
1993	0.327	0.980	0.387	160.534
1994	0.873	1.265	0.912	166.801
1995	0.261	1.203	0.651	173.134
1996	0.268	1.448	0.728	179.468
1997	0.268	1.720	0.788	185.801
1998	0.035	1.484	0.860	192.068
1999	0.035	1.350	0.860	198.068
2000	0.035	1.341	0.860	204.201
2001	0.035	1.350	0.860	210.001
2002	0.035	1.341	0.860	215.468
2003	0.035	1.490	0.860	220.601
2004	0.035	1.490	0.860	225.268
2005	0.035	1.490	0.860	229.401
2006	0.035	1.490	0.860	232.934
2007	0.035	1.490	0.860	235.668
2008	0.035	1.490	0.860	237.535
2009	0.028	1.315	0.788	238.335
2010	0.028	1.315	0.788	237.868

SOURCE: MAP MODEL CASE OCS.G20
 VARIABLES: EMCNX1 EMP9 EMT9X RPPS

TABLE 5. EMPLOYMENT AND REVENUE ASSUMPTIONS
 3.0 BBBL CASE
 (Thousands of Employees, Millions of Current \$)

	High Wage Exog Con- struction Employment	Mining Employment	Exog Trans- portation Employment	State Property Tax Revenue
1980	0.000	0.000	0.000	0.000
1981	0.000	0.000	0.000	0.000
1982	0.000	0.000	0.000	0.000
1983	0.000	0.000	0.000	0.000
1984	0.000	0.000	0.000	0.000
1985	0.237	0.295	0.026	0.000
1986	0.208	0.375	0.052	0.000
1987	0.312	0.455	0.078	0.000
1988	0.364	0.495	0.091	0.000
1989	0.924	0.455	0.345	0.000
1990	1.108	0.466	0.420	0.000
1991	0.340	0.623	0.230	0.000
1992	1.032	0.812	0.521	0.000
1993	0.247	0.603	0.332	116.001
1994	0.254	0.872	0.464	120.534
1995	0.334	0.936	0.544	125.134
1996	0.021	0.982	0.616	129.667
1997	0.021	1.150	0.616	134.267
1998	0.021	0.989	0.616	138.801
1999	0.021	1.003	0.616	143.201
2000	0.021	0.994	0.616	147.534
2001	0.021	0.994	0.616	151.734
2002	0.021	0.994	0.616	155.734
2003	0.021	0.994	0.616	159.401
2004	0.021	0.994	0.616	162.801
2005	0.021	0.994	0.616	165.801
2006	0.021	0.994	0.616	168.334
2007	0.021	0.994	0.616	170.334
2008	0.021	0.994	0.616	171.668
2009	0.021	0.994	0.516	172.201
2010	0.021	0.994	0.516	171.934

SOURCE: MAP MODEL CASE OCS.G02
 VARIABLES: EMCNX1 EMP9 EMT9X RPPS

IV. BASE CASE PROJECTIONS

Statewide Base Case Projections

Table 6 summarizes the MAP model statewide base case projections. The complete set of statewide base case projections is given in Appendix A.

As shown in Table 6, total population is projected to rise from 421 thousand in 1981 to 556 thousand in 1990, 614 thousand in 2000, and 700 thousand in 2010. This is a 3.1 percent rate of growth during the 1980s, a 1.0 percent rate of growth during the 1990s, and a 1.3 percent rate of growth during the period 2000-2010. The marked decline in the rate of growth during the 1990s is due to the combined effects of a number of factors. Most important among these is a decline in state government expenditures after 1990 (see Table A-7). This decline is assumed to occur because state revenues fall below the current spending limit. Other factors include a leveling off of exogenous mining employment and a decline in high wage construction employment following major North Slope construction activity associated with onshore and offshore (Sale 71) development.

The pattern for statewide employment is similar to that for population, but shows an even more marked slowdown in the 1990s. Employment rises from 220 thousand in 1981 to 285 thousand in 1990

Table 6: MAP Model Statewide Base Case Projections

Summary

	TOTAL POPULATION (000)	TOTAL ^a EMPLOYMENT (000)	PER CAPITA GENERAL FUND ^b REVENUES (1982 \$)	PER CAPITA GENERAL FUND EXPENDIT. (1982 \$)	PER CAPITA COMBINED FUNDS BALANCE (1982 \$)
1981	421.616	220.618	9732.110	7313.160	6950.723
1982	439.408	234.180	9988.530	9540.580	7657.105
1983	459.496	243.476	7711.156	6726.574	9079.840
1984	483.907	256.726	6335.766	7242.512	8263.500
1985	506.712	272.279	5958.191	7264.953	7148.824
1986	531.707	288.404	5722.973	7286.813	5860.363
1987	539.347	284.822	5544.461	5544.457	6381.090
1988	544.750	285.481	5452.270	5452.277	6873.355
1989	551.366	286.088	5447.961	5447.961	7330.113
1990	556.608	285.896	5741.832	5741.828	6974.461
1991	562.370	287.240	5235.328	5235.320	6904.297
1992	572.708	293.538	4950.422	4950.418	6785.211
1993	580.207	296.312	4758.109	4758.102	6684.078
1994	583.670	295.624	4745.848	4745.848	6594.902
1995	588.058	296.699	4472.391	4472.387	6458.734
1996	592.657	297.945	4210.367	4210.359	6296.332
1997	597.577	299.750	4131.109	4131.098	6131.281
1998	602.927	302.109	4011.679	4011.670	5961.156
1999	608.689	304.818	3882.674	3882.663	5788.156
2000	614.695	307.754	3785.658	3785.649	5614.820
2001	620.514	310.429	3695.475	3695.461	5445.039
2002	626.774	313.496	3608.264	3608.257	5274.090
2003	633.859	317.242	3524.806	3524.797	5100.586
2004	641.582	321.430	3446.179	3446.171	4927.098
2005	649.922	326.011	3370.911	3370.899	4754.160
2006	658.857	330.915	3298.831	3298.821	4582.484
2007	668.494	336.226	3229.019	3229.009	4411.770
2008	678.767	341.837	3161.938	3161.928	4242.930
2009	689.502	347.548	3097.284	3097.275	4077.076
2010	700.975	353.690	3033.869	3033.861	3913.189

^aIncludes military employment.

^bIncludes some restricted funds (primarily federal transfers).

(a 2.9 percent rate of growth), 307 thousand in 2000 (a 0.6 percent rate of growth), and 353 thousand in 2010 (a 1.5 percent of growth).

The final three columns of Table 6 show a dramatic decline in per capita government revenues, per capita general fund expenditures, and per capita balance on the combined general and permanent funds. These declines are due to the fact that population is rising while total revenues--primarily petroleum--are falling. The predominance of petroleum revenues and the effect of their decline on total revenues is shown in Table 7. Over the projection period, petroleum revenues fall from 89 percent of total revenues to only 43 percent. The rapid decline in petroleum revenues causes total revenues in 2010 to fall to 52 percent of their 1981 level.

Anchorage Base Case Projections

Table 8 presents the regional model base case population projections for Anchorage. Other base case projections for Anchorage are shown in Tables C.2-C.5. Total Anchorage population rises from 181 thousand in 1981 to 237 thousand in 1990 (a 3.0 percent rate of growth), 273 thousand in 2000 (a 1.4 percent rate of growth), and 322 thousand in 2010 (a 1.7 percent rate of growth). The growth rates are similar to those observed for the state as a whole except that the growth rates are higher after 1990. The slowdown in state growth is offset in part in Anchorage by continuing expansion of the support sector. Over the period 1981-2010, support sector employment grows at a rate of 2.7 percent compared to a rate of

Table 7: MAP Model Statewide Base Case Projections

State Government Revenues

(Millions of 1982 Dollars)

	PETROLEUM ^a REVENUES	FEDERAL GRANTS	INTEREST ^b EARNINGS	OTHER REVENUES	TOTAL ^c REVENUES
1981	3667.440	271.845	275.213	204.064	4103.215
1982	4152.020	196.849	241.010	207.218	4389.039
1983	3334.305	200.456	308.861	222.051	3543.250
1984	2731.156	204.704	381.772	228.408	3065.921
1985	2686.458	210.512	377.860	233.835	3019.090
1986	2745.014	216.440	348.664	243.265	3042.944
1987	2733.268	220.124	322.149	249.100	2990.393
1988	2697.272	223.080	327.902	242.028	2970.126
1989	2567.749	226.094	354.375	389.269	3003.821
1990	2384.311	218.397	359.933	503.891	3195.949
1991	2074.623	222.023	364.910	516.637	2944.194
1992	1929.205	226.703	363.833	533.812	2835.149
1993	1812.836	231.828	364.682	554.128	2760.691
1994	1801.484	236.522	361.867	559.180	2770.010
1995	1641.566	241.083	357.660	557.656	2630.026
1996	1483.053	245.742	348.580	563.438	2495.307
1997	1449.048	250.426	342.026	568.753	2468.659
1998	1387.834	255.266	335.579	574.836	2418.750
1999	1319.559	260.306	329.016	582.770	2363.341
2000	1271.383	265.482	322.285	590.950	2327.023
2001	1225.879	270.774	315.474	599.031	2293.094
2002	1182.991	276.206	308.629	607.008	2261.568
2003	1142.767	281.836	301.829	616.496	2234.232
2004	1105.061	287.681	295.095	627.516	2211.006
2005	1069.628	293.729	288.421	639.249	2190.829
2006	1036.295	299.984	281.812	651.607	2173.459
2007	1004.886	306.439	275.266	664.440	2158.579
2008	975.244	313.095	268.785	677.930	2146.220
2009	947.149	319.921	262.350	691.527	2135.585
2010	920.545	326.939	255.983	705.236	2126.667

SOURCE: MAP MODEL SIMULATION MAP87.3B--CREATED 4/19/83
 VARIABLES: DF.RP9S, DF.RSFD, DF.RSIN, DF.RSEN, AND DF.RSGF

^aIncludes permanent fund contributions.

^bIncludes earnings on the general and permanent funds.

^cIncludes restricted and unrestricted general fund revenues.
 Does not include permanent fund contributions or retained earnings.

Table 8

MAP Model Regional Projections,
Base Case and Impact Cases

ANCHORAGE CENSUS DIVISION
TOTAL POPULATION
(000)

	<u>BASE CASE</u>	<u>2.2 BBBL CASE</u>	<u>3.0 BBBL CASE</u>
1981	181.514	181.514	181.514
1982	192.439	192.439	192.439
1983	200.416	200.416	200.416
1984	208.784	208.784	208.784
1985	218.558	219.030	219.213
1986	228.850	229.742	229.893
1987	233.251	234.584	234.844
1988	233.412	235.071	235.418
1989	235.429	238.017	238.503
1990	237.668	240.997	242.276
1991	241.004	243.953	244.612
1992	245.766	249.745	250.222
1993	250.899	254.555	255.397
1994	254.019	258.098	260.043
1995	256.667	261.303	262.726
1996	259.672	264.428	266.224
1997	262.902	267.979	270.162
1998	266.209	271.504	273.672
1999	269.790	275.295	277.415
2000	273.450	279.162	281.329
2001	277.002	282.916	285.161
2002	280.833	286.932	289.233
2003	284.955	291.240	293.705
2004	289.402	295.868	298.474
2005	294.154	300.799	303.516
2006	299.237	306.056	308.883
2007	304.626	311.620	314.559
2008	310.346	317.514	320.557
2009	316.292	323.563	326.573
2010	322.619	330.025	333.033

SOURCE: REGIONAL MODEL SIMULATIONS
CD87.3B, CD87.LN, AND CD87.HN--CREATED
4/21/83
VARIABLE: P.02

1.9 percent for total employment (Table C.4). Support sector employment as a share of total employment increases from 46 percent to 58 percent.

Fairbanks Base Case Projections

Table 9 presents the regional model base case projections for Fairbanks. Other base case projections for Fairbanks are shown in Tables C.6-C.10. Total population increases from 57.8 thousand in 1981 to 74.0 thousand in 1990 (a rate of 2.8 percent), 81.1 thousand in 2000 (a rate of 0.9 percent), and 93.9 thousand in 2010 (a rate of 1.5 percent). This pattern of growth is more similar to that of the total statewide economy than that of Anchorage, with a sharp decline in the rate of growth during the 1990s. Fairbanks, like Anchorage, exhibits an increasing share of the support sector in total economic activity, with support employment rising from 37.3 percent of total employment in 1981 to 48.4 percent of total employment in 2010 (Table C.9). However, the share of support employment remains lower in Fairbanks than in Anchorage. Thus, Fairbanks, as a smaller community than Anchorage, is likely to import more of its support services from other areas.

Table 9

MAP Model Regional Projections,
Base Case and Impact Cases

FAIRBANKS CENSUS DIVISION
TOTAL POPULATION
(000)

	<u>BASE CASE</u>	<u>2.2 BBBL CASE</u>	<u>3.0 BBBL CASE</u>
1981	57.887	57.887	57.887
1982	61.256	61.256	61.256
1983	62.533	62.533	62.533
1984	65.444	65.444	65.444
1985	68.513	68.605	68.641
1986	71.773	71.988	72.034
1987	72.597	72.909	72.966
1988	72.837	73.239	73.323
1989	73.301	73.913	74.028
1990	74.003	74.807	75.089
1991	74.346	75.107	75.303
1992	74.136	75.105	75.236
1993	74.996	76.008	76.236
1994	76.559	77.617	78.063
1995	77.079	78.246	78.631
1996	77.715	78.914	79.347
1997	78.499	79.752	80.278
1998	79.272	80.583	81.120
1999	80.112	81.467	81.998
2000	81.065	82.468	83.010
2001	82.082	83.527	84.087
2002	83.105	84.589	85.160
2003	84.134	85.656	86.250
2004	85.260	86.819	87.444
2005	86.473	88.068	88.717
2006	87.793	89.422	90.095
2007	89.190	90.852	91.550
2008	90.680	92.375	93.094
2009	92.259	93.982	94.709
2010	93.923	95.669	96.392

SOURCE: REGIONAL MODEL SIMULATIONS
CD87.3B, CD87.LN, AND CD87.HN--CREATED
4/21/83
VARIABLE: P.09

V. IMPACT CASE PROJECTIONS

Statewide Impact Projections

The MAP model statewide impact projections for population and employment are summarized in Tables 10 and 11 for the 3.0 BBBL case, and Tables 12 and 13 for the 2.2 BBBL case. Appendix B provides a full set of impact tables for a number of other variables.

In general, impacts for the 2.2 BBBL case are somewhat smaller than for the 3.0 BBBL case. This was to be expected since we assumed lower levels of employment and revenues for the 2.2 BBBL case. We will focus our discussion of impacts upon the 3.0 BBBL case. Impacts for the 2.2 BBBL case may be found by referring to the corresponding tables.

As shown in Table 9, the impacts of Sale 87 upon total population are projected to rise over time. With the sale, in the 3.0 BBBL case, statewide population is projected to be 9.6 thousand higher in 1990, 16.3 thousand higher in 2000, and 20.7 thousand higher in 2010 than it would have been without the sale. At first glance, this result seems somewhat surprising, since direct employment associated with the sale is highest in 1990, with subsequent smaller peaks in 1994 and 1997 (see Table 4). The reason that total impacts of the sale continue to rise after 1990, even though direct impacts fall, is that the Alaska economy is growing over time. The structure of

Table 10

MAP Model Statewide Impact Projections

OCS SALE 87 3.0 BBBL IMPACT CASE
 TOTAL POPULATION
 (Thousands)

	<u>BASE CASE</u>	<u>IMPACT CASE</u>	<u>ABSOLUTE IMPACT</u>	<u>PERCENT IMPACT</u>
1981	421.616	421.616	0.000	0.000
1982	439.408	439.408	0.000	0.000
1983	459.496	459.496	0.000	0.000
1984	483.907	483.907	0.000	0.000
1985	506.712	508.098	1.385	0.273
1986	531.707	533.959	2.252	0.424
1987	539.347	542.694	3.346	0.620
1988	544.750	548.986	4.236	0.778
1989	551.366	557.825	6.459	1.171
1990	556.608	566.212	9.604	1.725
1991	562.370	569.987	7.616	1.354
1992	572.708	582.138	9.429	1.646
1993	580.207	590.229	10.022	1.727
1994	583.670	596.609	12.939	2.217
1995	588.058	600.914	12.857	2.186
1996	592.657	606.481	13.823	2.332
1997	597.577	612.812	15.234	2.549
1998	602.927	618.508	15.581	2.584
1999	608.689	624.549	15.860	2.606
2000	614.695	631.043	16.349	2.660
2001	620.514	637.383	16.869	2.719
2002	626.774	644.071	17.297	2.760
2003	633.859	651.792	17.933	2.829
2004	641.582	660.073	18.491	2.882
2005	649.922	668.909	18.988	2.922
2006	658.857	678.331	19.474	2.956
2007	668.494	688.453	19.959	2.986
2008	678.767	699.189	20.422	3.009
2009	689.502	709.978	20.475	2.970
2010	700.975	721.643	20.668	2.948

SOURCE: MAP MODEL SIMULATIONS MAP87.3B AND
 MAP87.HN--CREATED 4/21/83
 VARIABLE: POP

Table 11

MAP Model Statewide Impact Projections

OCS SALE 87 3.0 BBBL IMPACT CASE
 TOTAL EMPLOYMENT
 (Thousands)

	<u>BASE CASE</u>	<u>IMPACT CASE</u>	<u>ABSOLUTE IMPACT</u>	<u>PERCENT IMPACT</u>
1981	220.618	220.618	0.000	0.000
1982	234.180	234.180	0.000	0.000
1983	243.476	243.476	0.000	0.000
1984	256.726	256.726	0.000	0.000
1985	272.279	273.729	1.450	0.532
1986	288.404	289.911	1.506	0.522
1987	284.822	287.184	2.362	0.829
1988	285.481	288.310	2.829	0.991
1989	286.088	290.862	4.774	1.669
1990	285.896	293.114	7.218	2.525
1991	287.240	291.231	3.992	1.390
1992	293.538	299.709	6.171	2.102
1993	296.312	302.273	5.960	2.012
1994	295.624	304.353	8.729	2.953
1995	296.699	304.298	7.599	2.561
1996	297.945	306.255	8.310	2.789
1997	299.750	308.923	9.172	3.060
1998	302.109	310.966	8.857	2.932
1999	304.818	313.577	8.759	2.873
2000	307.754	316.587	8.833	2.870
2001	310.429	319.373	8.943	2.881
2002	313.496	322.476	8.981	2.865
2003	317.242	326.521	9.278	2.925
2004	321.430	330.892	9.461	2.944
2005	326.011	335.648	9.637	2.956
2006	330.915	340.734	9.819	2.967
2007	336.226	346.244	10.018	2.980
2008	341.837	352.047	10.209	2.987
2009	347.548	357.536	9.988	2.874
2010	353.690	363.725	10.035	2.837

SOURCE: MAP MODEL SIMULATIONS MAP87.3B AND MAP87.HN--
 CREATED 4/21/83
 VARIABLE: EM99

Table 12

MAP Model Statewide Impact Projections

OCS SALE 87 2.2 BBBL IMPACT CASE
 TOTAL POPULATION
 (Thousands)

	<u>BASE CASE</u>	<u>IMPACT CASE</u>	<u>ABSOLUTE IMPACT</u>	<u>PERCENT IMPACT</u>
1981	421.616	421.616	0.000	0.000
1982	439.408	439.408	0.000	0.000
1983	459.496	459.496	0.000	0.000
1984	483.907	483.907	0.000	0.000
1985	506.712	507.711	0.999	0.197
1986	531.707	533.632	1.925	0.362
1987	539.347	542.150	2.803	0.520
1988	544.750	548.257	3.507	0.644
1989	551.366	556.804	5.439	0.986
1990	556.608	563.573	6.966	1.251
1991	562.370	568.619	6.249	1.111
1992	572.708	581.088	8.379	1.463
1993	580.207	588.269	8.062	1.389
1994	583.670	592.486	8.815	1.510
1995	588.058	597.911	9.854	1.676
1996	592.657	602.732	10.074	1.700
1997	597.577	608.266	10.689	1.789
1998	602.927	613.984	11.057	1.834
1999	608.689	620.136	11.447	1.881
2000	614.695	626.528	11.834	1.925
2001	620.514	632.712	12.198	1.966
2002	626.774	639.303	12.528	1.999
2003	633.859	646.711	12.851	2.027
2004	641.582	654.744	13.162	2.052
2005	649.922	663.385	13.463	2.071
2006	658.857	672.611	13.754	2.088
2007	668.494	682.532	14.039	2.100
2008	678.767	693.085	14.318	2.109
2009	689.502	703.954	14.452	2.096
2010	700.975	715.633	14.657	2.091

SOURCE: MAP MODEL SIMULATIONS MAP87.3B AND
 MAP87.LN--CREATED 4/21/83
 VARIABLE: POP

Table 12

MAP Model Statewide Impact Projections

OCS SALE 87 2.2 BBBL IMPACT CASE
 TOTAL EMPLOYMENT
 (Thousands)

	<u>BASE CASE</u>	<u>IMPACT CASE</u>	<u>ABSOLUTE IMPACT</u>	<u>PERCENT IMPACT</u>
1981	220.618	220.618	0.000	0.000
1982	234.180	234.180	0.000	0.000
1983	243.476	243.476	0.000	0.000
1984	256.726	256.726	0.000	0.000
1985	272.279	273.324	1.045	0.384
1986	288.404	289.808	1.404	0.487
1987	284.822	286.731	1.909	0.670
1988	285.481	287.805	2.325	0.814
1989	286.088	290.129	4.041	1.412
1990	285.896	290.807	4.911	1.718
1991	287.240	290.785	3.545	1.234
1992	293.538	299.305	5.767	1.965
1993	296.312	300.910	4.598	1.552
1994	295.624	300.957	5.333	1.804
1995	296.699	302.669	5.970	2.012
1996	297.945	303.685	5.740	1.926
1997	299.750	305.877	6.127	2.044
1998	302.109	308.224	6.115	2.024
1999	304.818	311.049	6.231	2.044
2000	307.754	314.069	6.315	2.052
2001	310.429	316.833	6.404	2.063
2002	313.496	319.965	6.469	2.064
2003	317.242	323.791	6.549	2.064
2004	321.430	328.065	6.635	2.064
2005	326.011	332.739	6.727	2.064
2006	330.915	337.741	6.827	2.063
2007	336.226	343.159	6.934	2.062
2008	341.837	348.886	7.049	2.062
2009	347.548	354.572	7.024	2.021
2010	353.690	360.801	7.111	2.010

SOURCE: MAP MODEL SIMULATIONS MAP87.3B AND
 MAP87.LN--CREATED 4/21/83
 VARIABLE: EM99

the economy changes, with more support activity taking place within the state. During the period of highest direct impacts from OCS, this growth is accelerated. Once new support activities are established as a result of the sale, they do not disappear, even though the direct employment associated with the sale may decline. In effect, the growth of the economy which will occur in any case is shifted forward by approximately two years. Without OCS Sale 87, the population reaches 700 thousand in 2010. With OCS Sale 87, it reaches this level in 2008.

In relative terms, the percentage impact of Sale 87 upon population also increases over time, reaching a maximum of 3.0 percent in 2008.

The impacts of Sale 87 upon statewide employment are similar to those upon population. The maximum impact of 10,000 jobs occurs in 2008. In general, base case employment levels are reached about two years earlier.

Anchorage and Fairbanks Impact Projections

The MAP model projections of Sale 87 impacts upon Anchorage are very similar to the statewide projections. As shown in Tables 14 and 15, impacts upon total population rise sharply until 1990, and then continue to rise, although more gradually, in subsequent years. Tables 8 and 9 (pages 29 and 31) permit a comparison of total population between the base case and impact case levels. In the

Table 14

MAP Model Regional Absolute
Impact Projections

ANCHORAGE CENSUS DIVISION
TOTAL POPULATION
(000)

	<u>2.2 BBBL</u> <u>CASE</u>	<u>3.0 BBBL</u> <u>CASE</u>
1981	0.000	0.000
1982	0.000	0.000
1983	0.000	0.000
1984	0.000	0.000
1985	0.471	0.655
1986	0.891	1.043
1987	1.333	1.593
1988	1.658	2.005
1989	2.588	3.074
1990	3.329	4.608
1991	2.949	3.608
1992	3.980	4.456
1993	3.656	4.499
1994	4.079	6.025
1995	4.637	6.060
1996	4.756	6.552
1997	5.077	7.260
1998	5.294	7.463
1999	5.505	7.625
2000	5.712	7.878
2001	5.914	8.158
2002	6.099	8.400
2003	6.286	8.750
2004	6.466	9.071
2005	6.645	9.362
2006	6.819	9.646
2007	6.994	9.933
2008	7.167	10.210
2009	7.271	10.281
2010	7.406	10.413

SOURCE: REGIONAL MODEL SIMULATIONS
CD87.3B, CD87.LN, AND CD87.HN--CREATED
4/21/83
VARIABLE: P.02

Table 15

MAP Model Regional Absolute
Impact Projections

FAIRBANKS CENSUS DIVISION
TOTAL POPULATION
(000)

	<u>2.2 EBBL</u>	<u>3.0 BBBL</u>
	<u>CASE</u>	<u>CASE</u>
1981	0.000	0.000
1982	0.000	0.000
1983	0.000	0.000
1984	0.000	0.000
1985	0.092	0.128
1986	0.215	0.261
1987	0.313	0.370
1988	0.403	0.486
1989	0.612	0.728
1990	0.804	1.086
1991	0.761	0.957
1992	0.969	1.100
1993	1.012	1.241
1994	1.058	1.505
1995	1.167	1.551
1996	1.199	1.632
1997	1.254	1.779
1998	1.311	1.848
1999	1.355	1.886
2000	1.402	1.945
2001	1.445	2.005
2002	1.484	2.055
2003	1.523	2.116
2004	1.559	2.184
2005	1.595	2.243
2006	1.629	2.301
2007	1.662	2.359
2008	1.695	2.414
2009	1.722	2.450
2010	1.745	2.469

SOURCE: REGIONAL MODEL SIMULATIONS
CD87.3B, CD87.LN, AND CD87.HN--CREATED
4/21/83
VARIABLE: P.09