ALASKA STATEWIDE AND REGIONAL ECONOMIC AND
DEMOGRAPHIC SYSTEMS: EFFECTS OF OCS
EXPLORATION AND DEVELOPMENT, 1986

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ABSTRACT

This report contains projections and analyses of economic and demographic effects of petroleum exploration and development that may occur in Alaska under the proposed Five-Year Program, 1987-1991, for leasing the federal Outer Continental Shelf (OCS). Econometric modeling techniques are used to develop projections for the state of Alaska and the state's Southcentral Region.

The projected cumulative effects of the Five-Year Program include an increase of approximately 3 percent in population and employment for both the state and for the Southcentral region. The statewide effects grow during construction of facilities for OCS development and remain relatively constant as petroleum development moves into the operations phase in the late 1990s. Economic activity related to expanded OCS development yields modest new revenues for the state, but the new revenues are not sufficient to offset new demands on public services created by the influx of new residents.

The effects grow more slowly in the Southcentral Region, continuing to increase until 2010 to reach or exceed the same percentage increases in population and employment as observed for the state as a whole. The effect of the Five-Year Program on Southcentral Region population and employment occurs later than for the state as a whole due to the lags in the multiplier process producing these largely indirect effects.

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I. INTRODUCTION

This report contains projections and analyses of economic and demographic effects of petroleum exploration and development that may occur in Alaska under the proposed Five-Year Program for leasing the federal Outer Continental Shelf (OCS) from 1987 to 1991 (U.S. Department of Interior, 1986). We include projections of the effects on Alaska's Southcentral Region as well as on the state as a whole. For this study, the Southcentral Region includes the Kenai Peninsula Borough and the Matanuska-Susitna Borough as well as Anchorage, but it excludes the Valdez and Copper River areas.

We analyze the effects of OCS oil and gas development by projecting the economy and population under five alternative economic scenarios. These scenarios include differing projections for OCS petroleum exploration and development activity but contain similar assumptions about future patterns of non-OCS activities. The five scenarios of offshore oil and gas development may be described as follows:

(1) Exploration and development of oil resources continues as expected from areas leased to January 1987 (oil only leased case).

(2) Exploration and development of oil resources occurs as expected from areas included in the proposed Five-Year (1987-1991) Leasing Program as well as from areas leased to January 1987 (oil only total case).

(3) Exploration and development of oil resources continues as expected and natural gas development occurs in the Bering Sea from areas leased to January 1987 (oil and gas leased case).

(4) Exploration and development of oil resources occurs as expected and natural gas development occurs in the Bering Sea from areas included in the proposed Five-Year (1987-1991) Leasing Program as well as from areas leased to January 1987 (<u>oil and gas total case</u>).

(5) Exploration and development of oil resources continues as expected from areas leased to January 1987; <u>and</u> development of oil resources occurs following exploration and discovery from proposed sale 109 in the Chukchi Sea (<u>Sale 109 impact case</u>).

None of these scenarios includes development of natural gas resources on Alaska's North Slope or in the Beaufort or Chukchi Seas. The third and fourth scenarios presume that natural gas is, however, economically feasible to develop offshore in the Bering Sea. The "oil only" and Sale 109 scenarios do not include Bering Sea natural gas development.

In the following chapters, we discuss and compare economic and demographic projections of the first two scenarios. We use the "oil only case" projections in order to assess the potential effects of the proposed Five-Year Leasing Program on the economy and population of Alaska and its Southcentral Region. We do not discuss in our report the effects of the proposed five-year plan under the alternative assumption that gas is developed from OCS areas in the Bering Sea. We include projections of the state economy and population for the "oil and gas" leased and total scenarios in a set of appendixes.

We project economic and demographic effects using the Man-in-the-Arctic Program (MAP) system of econometric models developed at the

University of Alaska, Institute of Social and Economic Research (ISER). Chapter II contains a brief review of the concepts and structure of the MAP economic and demographic modeling system, showing how we use this tool to help project the effects of OCS petroleum development on the economy of the state and its various regions.

Chapter III reviews the assumptions used for the MAP statewide model and presents the economic and demographic projections for Alaska under the oil only leased case (Scenario 1). Since this scenario assumes continuing exploration and development of OCS areas already leased and scheduled to be leased by January 1987, these projections serve as the "base case" for the discussion of the impacts of the Five-Year Leasing Program. Chapter IV then discusses the economic and demographic projections, using oil only total case (Scenario 2), and compares these "impact case" projections to the base case described in Chapter III. We use these results to analyze the potential effects of the proposed Five-Year OCS Leasing Program on the state economy and population.

Chapter V discusses projections of the population and economy of the Southcentral Region of Alaska under the same (oil only) base case and impact case scenarios. Comparing these projections allows us to assess the potential effects, largely indirect, of the Five-Year Leasing Program on the region containing the bulk of the state's financial, trade, and service industries. Chapter VI reviews and

summarizes the results of the statewide and regional projections presented in Chapters III-V.

A number of appendixes contain additional supporting information. Appendix A contains additional tables describing the impact-case (oil-only) economic and demographic projections for the state of Alaska. Appendixes B and C contain similar tables describing projections of the state economy and population for the "oil and gas" Scenarios 3 (leased) and 4 (total), respectively. Appendix D contains a comparable set of projections for Scenario 5 (Sale 109 impact case).

One should note that Sale 109 projections do not include gas development from OCS areas in the Bering Sea. Thus one may assess the statewide economic and demographic effects of Sale 109 by comparing the projections contained in Appendix D to the oil only leased case described in the report.

Appendix E contains projections of employment and population in the Southcentral region of Alaska under alternative OCS development assumptions. Appendixes F, G, and H contain additional supporting information for these projections, including details of economic scenario assumptions.

II. METHODOLOGY

This chapter describes the methodology used to project statewide and regional economic and demographic effects of Alaska OCS development. We focus the analysis principally on changes in the magnitude and composition of population, employment, and personal income. Projections of these variables are the product of a complex modeling process. The Man-in-the-Arctic Program (MAP) model system, the principal modeling tool for our economic and demographic projections, has been used extensively in the past for economic and demographic projections. This chapter summarizes the MAP model system and provides a brief description of how it works.

The MAP model system includes a statewide econometric model and a regional model allocating employment and population within the state. These models were developed at ISER and have been refined and extended periodically over the years. Berman et al., 1985, contains a description and complete documentation of the model system. We shall, however, briefly review how each of the two models projects the main economic, demographic, and fiscal variables.

Statewide Projections

The MAP statewide econometric model has three main components--an economic model, a population model, and a fiscal model. The economic model determines the level of economic activity and employment in each industry as well as prices, wages, and total

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income. The population model projects values for numerous demographic variables in order to determine total population and total households. The fiscal component models the revenue and spending patterns of Alaska state and local governments. The three components of the MAP model are interdependent, with linkages as shown in Figure 1. Understanding the nature of this interdependence is helpful for recognizing the powers and limitations of the model for making economic and demographic projections.

The link between the economic model and population model is the notion of a labor market. The population model produces a potential labor force while the economic model produces a labor force participation rate and the demand for labor, e.g., jobs. Net migration flows balance the supply and demand for labor, as discussed in Berman, 1982. One link between the fiscal model and the economic model reflects the ability of the Alaska state government to stimulate or depress the economy through expenditures and tax policy. On the other hand, the level of government revenues depends on the level of economic activity, especially activity in the petroleum industry.

In addition to these major links among the three components of the MAP model, there are minor interdependencies such as the use of population figures in the economic and fiscal models to compute per capita income and per capita public spending. This last ratio has been significant in the past for computing state spending under the

Figure 1. MAP MODEL STRUCTURE

State and Local Govt.

Petro-leum

BASIC SECTORS
Forestry
Fisheries
Federal govt.
Agriculture
Manuf. for export
Mining
Tourism

Construction

SUPPORT SECTORS
Trade   Public
Finance   utilities
Services
Transportation
Communications
Manufacturing

Industrial Production

Employment

Natural Increase

Net Migration

Wage Rates

Wages and Salaries

Non-wage Income

Personal Income

Alaska Population

Labor Force

Personal Taxes

Disposable Personal Income

Alaska Households

Consumer Prices

Real Disposable Personal Income

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expenditure limitation initiative. Under recent revenue projections, however, spending is unlikely to reach the limit again even under optimistic scenarios.

The economic model classifies all economic activity as exogenous or endogenous. Exogenous activities produce goods or services for a primarily national or international market while endogenous activities produce to satisfy local or state demand. Forest and fisheries products, petroleum and other mining, and federal government are the major exogenous industries. Most services sector employment is endogenous, although a portion derived from tourism is considered exogenous. Manufacturing, construction, and transportation also contain both endogenous and exogenous components, depending on the assumed location of the market for their products. State and local government spending are endogenous, but depend on revenues with major exogenous components (petroleum revenues and federal transfers). Although local markets absorb most Alaska agricultural production, state policy and resource constraints greatly influence the size and growth of the industry. Thus, we consider it more appropriate to classify this industry as exogenous rather than endogenous.

The notion of exogenous and endogenous economic activity in the MAP statewide economic model is, in many ways, similar to the basic and support sectors in an economic base model. In an economic base model, the so-called basic industries are exogenous (set outside the

model), and the support industries are endogenous (computed by the model). The MAP model goes beyond the concept of the basic versus support industries by taking into account the fact that data available for various industries in Alaska to estimate and calibrate the model include both exogenous and endogenous components. Thus, some industries usually considered basic in a base model, such as manufacturing, have an endogenous component while some support services have an exogenous component deriving from tourism.

Given the levels of exogenous economic activity, the MAP statewide model solves simultaneously for all the endogenous activities as well as for total disposable income, total population, and total employment. Though the process is much more complex than in an economic base model, the MAP model implicitly calculates an "employment multiplier," defined as the equilibrium change in total employment following a change in exogenous employment, other things equal. One may readily observe the multiplier process working in MAP model projections. Since the model assumes that much of support-sector activity depends on real income rather than employment, the actual value of the employment multiplier varies depending on the contribution of particular exogenous events to total income. Many economic variables affect real income, including state revenues and fiscal policy, wage rates, the cost of living and the mix of employment among relatively high- and relatively low-wage industries.

Regional Projections

The MAP regional model allocates MAP statewide model projections for
population and basic, support, and government employment among
20 regions, given the regional distribution of exogenous industry
employment. The MAP model regions correspond exactly to 1970 census
divisions, except that the unincorporated portion of the Bristol Bay
Region is combined with the borough census division in one region,
and all census divisions in Southeast Alaska are combined into one
region. The boundaries of the Kenai Peninsula Borough, included in
the Southcentral Region in this report, conform to the combined
Seward and Kenai-Cook Inlet Census Divisions.

The methodology of the regional model is based upon the use of two
large matrixes. One relates basic employment in each region to
support sector employment in that and in other regions while the
other matrix relates employment in each region to population in that
and in other regions. The model also distributes government
employment to regions based upon population and past trends. The
model begins with allocations proportional to distribution of
population and employment in 1980. Changes since 1980 in the
pattern of basic employment in the regions affect the distribution
of support sector employment and population in all the regions.

III. ALASKA ECONOMIC GROWTH IN THE BASE CASE

This chapter discusses the projected growth and development of the Alaska economy and population to 2010, assuming that no further leasing of the federal Outer Continental Shelf occurs after January 1987. We do assume in the projection discussed in this chapter, however, that exploration and development of petroleum resources continues on lands already under lease and scheduled to be leased during the remainder of 1986. We call this the base-case projection.

In Chapter IV we will discuss an analogous projection that includes the effects on the economy and population of exploration and development of OCS areas included in the proposed Five-Year Leasing Program. We call this the impact-case projection. We use these two sets of projections in order to assess the potential effects of the proposed 1987-1991 Five-Year Leasing Program on the state's economy and population. In this chapter, we first discuss the assumptions used for the base-case projection. Then we analyze the results of a simulation of the MAP statewide model.

Scenario Assumptions

Using the MAP model to project the Alaska economy and population requires an input scenario containing four types of assumptions. These are (1) projections of the level of Alaska state petroleum revenues; (2) assumptions regarding Alaska state taxation, spending, and saving decisions (state fiscal policy); (3) projections for the

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level of activity in various industries which primarily serve markets outside the state (exogenous industry assumptions); and (4) national economic variable assumptions relevant to Alaska's economy. Table 1 summarizes the assumptions we use for the MAP base-case projections, following the outline of the four categories.

The scenario assumptions represent, in the aggregate, a median outcome for future demographic, economic, and fiscal conditions affecting the Alaska economy. This means that we consider it equally likely that the value is higher or lower than the assumed value. Since it is unlikely but possible that a very high level may result for some scenario assumptions, the median value generally is lower than the average level of all possible outcomes (the mean). Goldsmith et al., 1985 (Appendix K, Section K.1) discusses this problem in greater detail.

PETROLEUM REVENUE ASSUMPTIONS

Petroleum revenue assumptions for the model are based upon Alaska Department of Revenue 50 percent probability projections released in December 1985. These projections assume a steady erosion of the world price of oil over an approximate ten-year period, before oil prices begin to climb in the mid-1990s.

After these projections were released, the world oil prices have declined much more rapidly than the December projections. Although the long-term trend is relatively unaffected, Alaska state revenues

TABLE 1. SUMMARY OF MAP MODEL BASE CASE ASSUMPTIONS

A. PETROLEUM REVENUE ASSUMPTIONS: DOR DEC 1985 (S86.B2)
B. FISCAL ASSUMPTIONS: BUSINESS AS USUAL
C. INDUSTRY ASSUMPTIONS: MODERATE GROWTH (S86.B2)
D. NATIONAL VARIABLE ASSUMPTIONS: MODERATE GROWTH

	DESCRIPTION(a)
A. PETROLEUM REVENUE ASSUMPTIONS	
1. Severance Taxes	Based on 50 percent probability projections published by the Alaska Department of Revenue. After 2001, values remain constant in nominal dollars (DOR.D85). No change in tax regulations. Partial TAPS settlement revenues included [RPTS].
2. Royalties	Based on 50 percent probability projections published by the Alaska Department of Revenue. After 2001, values remain constant in nominal dollars (DOR.D85) [RPRY].
3. Bonuses	Based on projections published by Alaska Department of Revenue, Revenue Sources (DOR.D85) [RPBS].
4. Property Taxes	Based on projections published by Alaska Department of Revenue, Revenue Sources (DOR.D85) augmented by taxes on onshore facilities related to OCS development (OCS.6NGL) [RPPS].
5. Petroleum Corporate Income Tax	Based on projections published by Alaska Department of Revenue, Revenue Sources (DOR.D85). No change in tax regulations [RTCSPX].
6. Rents	Increasing slowly from current level of $8 million [RPEN].

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   (a) Codes in parentheses indicate ISER names for MAP Model SCEN_ case files, and codes in brackets indicate MAP variable names.

TABLE 1 (continued)

7. Miscellaneous Petroleum   Zero [RP9X].
   Revenues

8. Federal-State Petroleum-   Increasing $1 million annually from
   Related Shared Revenues   current level of $25 million [RSFDNPX].

9. Windfalls   During FY 1987, $250 million accrues
                                  to Alaska from a litigation settlement
                                  with ARCO and $300 million in settle-
                                  ment of the TAPS tariff dispute.

B. FISCAL ASSUMPTIONS

1. State Appropriations   If funds available, ceiling estab-
                                  lished by Constitutional Spending
                                  Limit; otherwise appropriations equal
                                  revenues plus 20 percent of general
                                  fund balance available for
                                  appropriations.

2. Capital/Operations Split   Two-thirds operations if Spending
                                  Limit in effect; three-fourths
                                  operations otherwise [EXSPLITX].

3. General Obligation Bonds   Bonding occurs up to point where debt
                                  service is 5 percent of state revenues.

4. Federal Grants-in-Aid   Constant at $75 million [RSFDNCAX].
   for Capital Expenditures

5. State Loan Programs   New capitalization terminated after
                                  FY 1987 [EXKTR1X]. Programs continue
                                  functioning on existing capitalization
                                  including AHFC [EXLOAN2] and APA
                                  revenue bond expenditures [EXCPSR1].

6. Municipal Capital Grants   Funding terminated after FY 1987
                                  [RLTMCAP].

7. State-Local Revenue   Continuation proportional to total
   Sharing   state expenditures [RLTRS].

8. State-Local Municipal   Continuation proportional to total
   Assistance   state expenditures [RLTMA].

9. Permanent Fund/Other   None for operations [EXGFOPSX]; none
   Appropriations in Excess   for capital [EXSPCAP].
   of Spending Limit

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TABLE 1 (continued)

10. Permanent Fund Dividend   Eliminated in FY 1989 [EXPFDIST].

11. Use of Permanent Fund   Half of the earnings allocated to the
    Earnings   general fund [EXPFTOGF].

12. Permanent Fund Principal   Continuous accumulation.

13. Personal Income Tax   Reimposed FY 1991.

14. Miscellaneous Local   Miscellaneous state-local transfers
    Revenue Sources   [RLTX], large project property taxes
                                   [RLPTX], petroleum-related federal
                                   transfers [RLTFPX] all set to zero.

15. New Federal-State   Zero [RSFDNX].
    Shared Revenues

16. Large Project Corporate   Zero [RTCSX].
    Income Taxes

C. INDUSTRY ASSUMPTIONS

    1. Trans-Alaska Pipeline   Operating employment remains constant
                                   at 885 through 2010 (TAP.S86).

    2. North Slope Petroleum   Petroleum employment increases through
       Production   the early 1990s to a peak of
                                   4.6 thousand and subsequently tapers
                                   off gradually. Construction employ-
                                   ment is eliminated by the late 1990s.
                                   This case presumes no significant
                                   change in current oil price trends
                                   (NSO.86B).

    3. Upper Cook Inlet   Employment in exploration and devel-
       Petroleum Production   opment of oil and gas in the Upper
                                   Cook Inlet area declines gradually
                                   beginning in 1983 by approximately
                                   2.5 percent per year (UPC.S86).

    4. OCS Development on Areas   Employment in exploration and develop-
       Leased to January 1987   ment activity peaks at around 3,000 in
                                   1993. Direct employment continues
                                   through the following decade at a
                                   reduced level of approximately 1,100
                                   (OCS.6NGL).

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TABLE 1 (continued)

5. Oil Industry Headquarters

Oil company headquarters employment in Anchorage remains at around 3,900 through 2010 (OHQ.S86).

6. Beluga Chuitna Coal Production

Development of 4.4 million ton/year mine for export beginning in 1990 provides total employment of 524 (BCL.O4T(-4)).

7. Healy Coal Mining

Export of approximately 1 million tons of coal annually will add 25 new workers to current base of 100 by 1986 (HCL.84X).

8. U.S. Borax

The U.S. Borax mine near Ketchikan is brought into production with operating employment of 790 beginning in 1989 and eventually increasing to 1,020 (BXM.F84).

9. Greens Creek Mine

Production from the Greens Creek Mine on Admiralty Island results in employment of 150 people from 1988 through 2003 (GCM.F84).

10. Red Dog Mine

The Red Dog Mine in the Western Brooks Range reaches full production with operating employment of 428 by 1993 (RED.F84).

11. Other Mining Activity

Mining employment not included in special projects increases from current level at 1 percent annually (OMN.S86).

12. Agriculture

Reduction in state support results in constant employment in agriculture (AGR.S86).

13. Logging and Sawmills

Logging for export by Native corporations expands employment to over 3,200 by 1995 before declining gradually to about 2,800 after 2005 (FLL.S86).

14. Pulp Mills

Employment declines at a rate of 1 percent per year after 1991 from the already depressed level of 600 (FPU.S86).

TABLE 1 (continued)

15. Commercial Fishing--
    Nonbottomfish

    Employment levels in traditional fisheries harvest remain constant at 7,500 through 2010 (TCF.S86).

16. Commercial Fish
    Processing--Nonbottomfish

    Employment in processing traditional fisheries harvests remains at the level of the average figure for the period 1982-1984, or around 6,500 (TFP.S86).

17. 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.F83).

18. Federal Military
    Employment

    Employment declines at 1 percent per year, consistent with the long-term trend since 1960 (GFM.S86).

19. Light Army Division
    Deployment

    A portion of a new Army division is deployed to Fairbanks and Anchorage beginning in 1986, augmenting active-duty personnel by 2,600 (GFM.JPR)

20. Federal Civilian
    Employment

    After declining by 1 percent per year from 1986 to 1990, employment rises at 0.5 percent annual rate consistent with the long-term trend since 1960 (GFC.S86).

21. Tourism

    Number of visitors to Alaska increases by 30,000 per year to over 1.3 million by 2010 (TRS.J85).

22. State Hydroelectric
    Projects

    Construction employment from Alaska Power Authority projects peaks at over 700 in 1990 for construction of several projects in Southcentral and Southeast Alaska (SHP.F83).

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TABLE 1 (continued)

D. <u>NATIONAL VARIABLE ASSUMPTIONS</u>

   1. U.S. Inflation Rate   Consumer prices rise at an annual rate of 5 percent in the late 1980s, rising gradually to 6.4 percent after 2000.

   2. Real Average Weekly Earnings   Growth in real average weekly earnings averages 1 percent annually.

   3. Real Per Capita Income   Growth in real per capita income averages 1.5 percent annually.

   4. Unemployment Rate   Long-run rate of 7 percent.

over the next five years are expected to be 28 percent lower (using the Department of Revenue's 30 percent projections dated March 1986). Our scenario assumptions for the five types of petroleum revenues are shown in Table 2.

STATE FISCAL POLICY ASSUMPTIONS

Assumptions about state spending and taxation policy follow the rules noted in Table 1. We assume the permanent fund principal remains intact, but that the earnings of the fund are diverted to fund state operations within approximately four years. As total unrestricted revenues decline net of inflation, we assume that permanent fund dividends and loan subsidies are eliminated first and that the personal income tax is reinstated two years after curtailment of the dividend program. After these adjustments, expenditures are reduced to match revenues.

EXOGENOUS INDUSTRY ASSUMPTIONS

Exogenous industry assumptions for the base-case scenario are either assumptions about special projects or assumptions about industries. Despite falling world oil prices, we assume development activities now underway on North Slope fields continue, consistent with projections of petroleum revenues. OCS development scenarios for leased areas are provided by the Minerals Management Service, based on Cooke (1985).

The nonpetroleum industry assumptions summarized in Table 1 show a general pattern of modest growth. We project baseline employment serving markets outside the state to increase at a relatively slow rate in forest

TABLE 2. EXOGENOUS REVENUE ASSUMPTIONS FOR MAP STATEWIDE MODEL
OIL ONLY LEASED CASE

(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	506.200	916.700	456.100	168.900	547.500
1981	1169.900	1496.300	10.200	143.000	860.100
1982	1581.100	1547.600	6.700	142.700	668.900
1983	1493.000	1472.400	49.400	152.600	236.000
1984	1392.400	1403.500	13.500	131.000	265.100
1985	1388.700	1392.600	15.500	128.400	168.600
1986	1360.000	1390.000	16.300	113.600	219.800
1987	1180.000	1230.000	0.000	117.400	236.400
1988	870.000	1100.000	0.000	121.881	237.900
1989	810.000	1070.000	0.000	124.943	236.100
1990	750.000	1030.000	0.000	129.400	232.200
1991	740.000	1020.000	0.000	124.952	225.400
1992	730.000	1020.000	0.000	123.410	219.300
1993	750.000	1030.000	0.000	127.044	216.500
1994	740.000	1030.000	0.000	127.599	212.800
1995	750.000	1050.000	0.000	123.440	206.200
1996	700.000	1020.000	0.000	124.748	198.100
1997	690.000	1020.000	0.000	144.661	189.100
1998	670.000	1000.000	0.000	157.975	178.600
1999	410.000	740.000	0.000	157.258	153.400
2000	350.000	680.000	0.000	145.977	128.300
2001	260.000	570.000	0.000	133.023	113.600
2002	170.000	420.000	0.000	116.749	98.200
2003	170.000	420.000	0.000	87.450	81.900
2004	170.000	420.000	0.000	52.065	67.400
2005	170.000	420.000	0.000	37.401	54.800
2006	170.000	420.000	0.000	36.113	54.800
2007	170.000	420.000	0.000	34.853	54.800
2008	170.000	420.000	0.000	33.587	54.800
2009	170.000	420.000	0.000	32.324	54.800
2010	170.000	420.000	0.000	31.055	54.800

SOURCE: MAP MODEL INPUT SCENARIO S86.B2—CREATED MARCH, 1986

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products, mining, fishing and processing, transportation, and agriculture, based upon supply and demand trends for these products. Tourism activity, as represented by the number of pleasure visitors to Alaska, increases more rapidly. We project that total federal employment will remain essentially unchanged at current levels. We anticipate that current civilian federal budget cuts and the deployment of a new light infantry division in 1986 will largely offset each other in the short run and that the long-term trends of slowly growing federal civilian employment and slowly declining military employment will not change.

In addition to these baseline industry assumptions, we include a number of special projects. Our method is to include some major projects that might occur, while excluding others that might also occur. We seek to project the pattern of total exogenous employment in the industry, using actual proposed projects as examples of the type of economic activity that might take place. As such, we are not necessarily discounting the potential viability of certain specific projects as opposed to others. Rather, we develop a scenario of possible development consistent with our expectations for overall growth of that type of activity in Alaska.

The median scenario assumes completion of a number of state-funded hydroelectric projects, including Bradley Lake project but not the Susitna Dam. If these state hydro projects are not constructed, a corresponding amount of state expenditures would occur elsewhere,

most likely in the capital budget. Thus, any changes in exogenous construction employment occurring from changes in the projected portfolio of hydro projects would largely be offset by equivalent changes in other state capital expenditures (included in endogenous construction).

We categorize most construction and manufacturing employment as "low wage," associating the "high wage" categories only with specific activities likely to pay wages substantially above the projected average scale for the industry as a whole. Examples of high wage construction and manufacturing activities would be pipeline construction and petroleum processing on the North Slope and the Outer Continental Shelf.

Except for construction required for OCS development activities, exogenous construction employment declines in the 1990s. We project that the trend toward an increasing role for local industry and household demand in determining the level of construction in Alaska will continue. The figures for low-wage exogenous construction include primarily employment resulting from state-sponsored hydroelectric projects noted in Table 1. High-wage exogenous construction assumptions reflect an arbitrary division of North Slope onshore oil and gas operations between construction and mining employment in an attempt to provide consistency with historical Alaska Department of Labor employment figures.

We aggregate industry and special project assumptions into ten categories of exogenous employment. These are employment in agriculture, mining, commercial fishing, exogenous transportation, high-wage and low-wage exogenous construction and manufacturing, active-duty military, and federal civilian government. Table 3 presents the aggregated base-case projections for the ten categories of exogenous employment over the period 1985 to 2010.

Fluctuations in year-to-year totals in some categories of employment reflect the timing of employment assumed for individual projects. While changes in the timing of particular projects could affect considerably the employment assumptions for certain years, such fluctuations have a relatively minor impact upon long-term projections of employment and population.

Not included in the exogenous employment assumptions for the MAP model in Table 3 is employment resulting from tourism. The MAP model projects the economic effects of tourism in the form of a series of increments to employment in transportation and various service industries. The size of the increments depend on the projected number of out-of-state visitors. Table 4 shows the projected number of tourists visiting Alaska consistent with the assumption summarized in Table 1. This projection of visitors results in strong growth in employment in tourist-affected industries.

TABLE 3. EXOGENOUS EMPLOYMENT ASSUMPTIONS
FOR MAP STATEWIDE MODEL
OIL ONLY LEASED CASE

(thousands of employees)

	Agricultural Employment	Mining Employment	High Wage Exogenous Construction Employment	Low Wage Exogenous Construction Employment	Exogenous Transportation Employment
1980	0.286	6.684	0.090	0.050	1.100
1981	0.330	8.915	0.090	0.163	1.100
1982	0.355	8.976	0.090	0.442	1.100
1983	0.370	8.179	2.847	0.672	1.100
1984	0.458	8.702	1.724	0.242	1.000
1985	0.458	9.340	2.246	0.218	0.948
1986	0.458	10.160	2.897	0.644	0.982
1987	0.458	11.526	1.286	1.630	1.046
1988	0.458	10.732	0.429	1.391	1.006
1989	0.458	11.595	0.489	0.890	0.957
1990	0.458	11.861	0.489	1.025	0.997
1991	0.458	11.541	0.445	1.130	0.913
1992	0.458	11.880	0.601	1.290	0.943
1993	0.458	13.356	0.619	0.571	1.238
1994	0.458	12.929	0.079	0.100	1.186
1995	0.458	12.322	0.079	0.000	1.218
1996	0.458	12.150	0.028	0.000	1.218
1997	0.458	12.095	0.000	0.000	1.218
1998	0.458	11.888	0.000	0.000	1.218
1999	0.458	11.732	0.028	0.000	1.218
2000	0.458	11.728	0.000	0.000	1.218
2001	0.458	11.583	0.000	0.000	1.218
2002	0.458	10.823	0.028	0.000	1.218
2003	0.458	10.819	0.000	0.000	1.218
2004	0.458	10.303	0.000	0.000	1.218
2005	0.458	10.300	0.028	0.000	1.218
2006	0.458	10.295	0.000	0.000	1.218
2007	0.458	9.674	0.000	0.000	1.218
2008	0.458	9.679	0.028	0.000	1.218
2009	0.458	9.675	0.000	0.000	1.218
2010	0.458	9.671	0.028	0.000	1.218

SOURCE: MAP MODEL INPUT SCENARIO S86.B2--CREATED MARCH 1986

TABLE 3 (continued)

	High Wage Exogenous Manufacturing Employment	Low Wage Exogenous Manufacturing Employment	Fish Harvesting Employment	Active Duty Military Employment	Civilian Federal Employment
1980	0.000	11.545	7.620	22.707	17.820
1981	0.000	11.280	7.783	22.451	17.474
1982	0.000	9.794	8.278	22.103	17.641
1983	0.000	8.938	7.946	22.261	17.729
1984	0.000	8.059	7.581	22.579	18.075
1985	0.000	8.013	7.608	22.579	17.906
1986	0.000	9.012	7.636	24.953	17.727
1987	0.000	9.216	7.664	24.730	17.550
1988	0.000	9.422	7.681	24.508	17.374
1989	0.000	9.627	7.716	24.289	17.200
1990	0.000	9.857	7.729	24.072	17.028
1991	0.000	10.097	7.745	23.858	17.114
1992	0.000	10.310	7.766	23.645	17.199
1993	0.000	10.535	7.792	23.435	17.285
1994	0.000	10.679	7.826	23.226	17.371
1995	0.000	10.794	7.868	23.020	17.458
1996	0.000	10.909	7.921	22.816	17.546
1997	0.000	11.005	7.988	22.614	17.633
1998	0.000	11.138	8.072	22.413	17.722
1999	0.000	11.324	8.178	22.215	17.810
2000	0.000	11.581	8.233	22.019	17.899
2001	0.000	11.576	8.233	21.825	17.989
2002	0.000	11.570	8.233	21.633	18.079
2003	0.000	11.565	8.233	21.442	18.169
2004	0.000	11.560	8.233	21.254	18.260
2005	0.000	11.555	8.233	21.067	18.351
2006	0.000	11.527	8.233	20.883	18.443
2007	0.000	11.476	8.233	20.700	18.535
2008	0.000	11.448	8.233	20.519	18.628
2009	0.000	11.420	8.233	20.340	18.721
2010	0.000	11.392	8.233	20.162	18.814

TABLE 4.   EXOGENOUS TOURISM ASSUMPTIONS FOR MAP STATEWIDE MODEL
OIL ONLY LEASED CASE

(thousands of tourists visiting Alaska)

1980	451.000	1996	920.000
1981	477.000	1997	950.000
1982	505.000	1998	980.000
1983	523.000	1999	1010.000
1984	560.000	2000	1040.000
1985	590.000		
1986	620.000	2001	1070.000
1987	650.000	2002	1100.000
1988	680.000	2003	1130.000
1989	710.000	2004	1160.000
1990	740.000	2005	1190.000
1991	770.000	2006	1220.000
1992	800.000	2007	1250.000
1993	830.000	2008	1280.000
1994	860.000	2009	1310.000
1995	890.000	2010	1340.000

SOURCE: MAP MODEL INPUT SCENARIO S86.B2--CREATED MARCH, 1986

NATIONAL VARIABLE ASSUMPTIONS

The national variable assumptions define the benchmarks used by the MAP model for the national economy. These are important for our projections because national economic trends in the long run mainly determine Alaskan prices, earnings, and labor market conditions. In the current study, we assume a long-run U.S. inflation rate approaching 6.4 percent, a long-run U.S. unemployment rate of 7 percent, and real wage and real per-capita income levels growing at 1.0 and 1.5 percent per year, respectively.

Changing the rate of inflation has little effect on projections in constant dollars. A different long-run unemployment rate would affect the ratio of population to employment in Alaska without changing the projected employment levels significantly. If one were to assume a higher rate of growth of U.S. wage rates and per capita income, projected Alaska support-sector employment would increase at a faster rate due to the increased spending power than the model would project for Alaska. A slower growth in U.S. earnings would result in projections with reduced growth in Alaska's support industries. Our assumptions for growth in real earnings and income are slightly less optimistic but generally consistent with federal agency projections.*

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*The U.S. Bureau of Economic Analysis (Johnson and Friedenberg, 1985) projects that real personal income will grow at an average annual rate of 1.8 percent through 2000. The Bureau of Labor Statistics projected an approximate rate of growth of 1 percent for real wages and 1.5 to 2 percent for real disposable income through 1995 (Andreassen, 1983).

Appendix F details the exogenous employment assumptions for each of the special projects and industries summarized in Table 1 except for OCS exploration and development. Direct OCS employment and revenue assumptions, provided by MMS, are discussed in in Appendix G. Appendix H describes a review of the median scenario assumptions and of certain other assumptions used in the MAP model projections and in this report.

Statewide Projections

SUMMARY

Table 5 summarizes the base-case projection of the Alaska economy and population to 2010, using the MAP model and the revenue, fiscal, industry, and national economic assumptions discussed above. The industry assumptions used for this projection include exploration and development activities likely to occur on OCS areas already leased and scheduled to be leased by January 1987.

Tha base-case projection shown in Table 5 shows growth in total population from 537,000 in 1985 to 608,000 in 2010, or 13 percent over the period. Total employment grows from 272,000 in 1985 (including military and self-employed) to 295,000 in 2010, or just 8 percent. According to this projection, the Alaska economy is beginning a prolonged period of relative stability. We project total employment to decline slowly from the 1986-87 level of around 280,000 by 3.2 percent to 271,000 in 1989. From this level, employment remains nearly constant (with slight dips in 1991 and 1995) until 2005, when it begins rising again.

TABLE 5. MAP STATE MODEL PROJECTION SUMMARY
OIL ONLY DEVELOPED FROM AREAS LEASED TO JANUARY 1987

(thousands)

Year	Total Population	Total Employment	Real General Fund Revenues (1985 $)	Real General Fund Expenditures (1985 $)	Real Per-capita Income (1985 $)
1983*	495	257	4095	4091	17644
1984*	523	265	3778	3800 [a]	16939
1985	537	272	3221	3640	16815
1986	551	279	3095	3098	16932
1987	556	280	2789	2891	16976
1988	555	275	2312	2628	16716
1989	555	271	2112	2364	16584
1990	557	271	2211	2313	16153
1991	557	269	2241	2338	16059
1992	560	270	2285	2369	16098
1993	562	270	2267	2345	16792
1994	561	270	2196	2263	16740
1995	561	268	2138	2186	16680
1996	561	267	2029	2074	16673
1997	562	267	1975	2001	16918
1998	563	267	1932	1948	17144
1999	561	265	1629	1683	17319
2000	562	265	1519	1540	17592
2001	562	266	1395	1416	17860
2002	562	265	1266	1287	18078
2003	564	267	1229	1232	18390
2004	566	268	1195	1199	18660
2005	570	271	1175	1175	18983
2006	575	275	1168	1165	19299
2007	580	278	1162	1157	19544
2008	588	283	1158	1152	19846
2009	597	289	1156	1148	20132
2010	608	295	1156	1150	20415

*Historical data
[a]Preliminary

SOURCE: MAP State Model simulation A86.B2.3, created March 1986;
Variables POP, EM99, DF.RSGFB, DF.EXGFB, DFP.PI

Projected Alaska population grows slowly from a current level of around 550,000, to around 560,000 in 1992. After remaining at that level for a decade, steady growth resumes after the 2000s. Real per capita personal income actually declines from around $17,000 (in 1985 dollars) to $16,000 in 1991. For the following two decades, real per capita income increases more slowly--averaging 1.2 percent annual growth--than the assumed national average growth rate of 1.5 percent per year.

The three recessions projected for the Alaska economy--in 1988, 1991, and 1995--derive from related events. The near-term recession results from anticipated reductions in state spending levels over the next two years due to the declining state petroleum revenues. The figures for real general fund revenues and expenditures in Table 5 clearly show the deteriorating state fiscal position caused by declining world oil prices. Since world oil prices have declined more rapidly than assumed in the projection of state petroleum revenues used for this study, this short-term recession is likely to be more severe than shown in Table 5.

The two milder recessions in the first half of the 1990s derive from the effects of petroleum-related employment associated with development of North Slope and OCS oil fields, respectively. Renewed downward pressure on state revenues and spending in the late 1990s due now to declining state oil production delay resumption of economic growth until after the turn of the century.

COMPOSITION OF EMPLOYMENT

Table 6 shows the composition of total employment in the base-case projection by sector. According to the figures in this table, the support sector provides all the net new growth in Alaska employment to 2010. Basic sector employment remains nearly constant at around 70,000. Government sector employment actually declines by one-fourth, but this effect is largely offset by the gradual increase in the number of jobs in the support sector.

The industry composition of private sector employment, shown in Table 7, further illustrates the importance of the support sector in sustaining the Alaska economy through projected economic slowdowns. Mining employment swells by 30 percent to 13,000 in the early 1990s, reflecting mainly the effects of increasing petroleum development activities on Alaska's North Slope and the federal OCS. As petroleum activities move into the production phase, employment returns to near current levels and remains stable throughout the period. Employment in construction declines rapidly by 5,000 to around 12,000 in 1989, due mainly to the projected decline in state capital expenditures. After remaining at that level for five years, construction employment again declines gradually in the 1990s following the completion of large-scale petroleum-related construction. Agriculture, forestry and fisheries (mainly fisheries), manufacturing, transportation, communications, and public utilities all grow steadily. The trade, finance, and services industry grows even faster, however.

TABLE 6. EMPLOYMENT BY SECTOR
OIL ONLY DEVELOPED FROM AREAS LEASED TO JANUARY 1987

(thousands of employees)

Year	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	257	71	102	84
1984*	265	68	109	87
1985	272	69	114	89
1986	279	72	118	88
1987	280	72	121	86
1988	275	70	121	85
1989	271	69	119	83
1990	271	70	118	83
1991	269	70	116	84
1992	270	72	114	84
1993	270	74	116	80
1994	270	73	117	80
1995	268	72	117	80
1996	267	71	117	79
1997	267	71	118	77
1998	267	72	120	76
1999	265	72	121	73
2000	265	72	122	71
2001	266	72	124	70
2002	265	72	125	68
2003	267	72	127	68
2004	268	72	130	67
2005	271	72	132	67
2006	275	73	135	67
2007	278	73	139	67
2008	283	74	142	67
2009	289	75	146	67
2010	295	76	151	67

*Historical data

SOURCE: MAP State Model simulation A86.B2.3, created March 1986;
         Variables EM99, EM.B, EM.S, EMG9

TABLE 7. PRIVATE SECTOR EMPLOYMENT BY INDUSTRY
OIL ONLY DEVELOPED FROM AREAS LEASED TO JANUARY 1987

(thousands of employees)

Year	Total Private Employment	Agriculture[a] Forestry Fisheries	Mining	Construction	Manufacturing	Transport. Communicat. Public Util.	Trade[b] Finance Services
1983*	173.4	9.9	8.2	20.8	11.9	18.6	89.4
1984*	177.5	NA	8.7	20.3	11.3	18.9	96.4
1985	183.2	9.5	9.3	17.1	11.3	20.7	115.3
1986	190.5	9.5	10.2	17.5	12.3	21.2	119.7
1987	193.5	9.6	11.5	15.4	12.5	21.5	123.0
1988	190.1	9.6	10.7	13.2	12.7	21.4	122.5
1989	188.3	9.6	11.6	12.1	12.9	21.3	120.8
1990	187.6	9.6	11.9	11.8	13.1	21.2	120.1
1991	185.4	9.6	11.5	11.8	13.2	20.9	118.3
1992	186.1	9.7	11.9	12.9	13.5	20.9	117.3
1993	189.9	9.7	13.4	12.8	13.8	21.6	118.7
1994	190.0	9.7	12.9	11.6	13.9	21.6	120.2
1995	188.7	9.8	12.3	10.4	14.0	21.7	120.4
1996	188.5	9.8	12.2	9.8	14.1	21.8	120.9
1997	189.7	9.9	12.1	9.6	14.3	22.0	121.9
1998	191.1	10.0	11.9	9.5	14.4	22.2	123.1
1999	192.3	10.1	11.7	9.4	14.6	22.4	124.1
2000	193.9	10.1	11.7	9.1	14.9	22.6	125.4
2001	195.8	10.1	11.6	9.0	14.9	22.9	127.3
2002	196.9	10.1	10.8	8.9	14.9	23.1	129.0
2003	199.1	10.1	10.8	8.7	15.0	23.4	131.0
2004	201.4	10.1	10.3	8.7	15.0	23.7	133.5
2005	204.6	10.1	10.3	8.7	15.1	24.1	136.3
2006	208.4	10.1	10.3	8.7	15.1	24.5	139.6
2007	211.8	10.1	9.7	8.8	15.1	24.9	143.2
2008	216.2	10.1	9.7	8.9	15.1	25.4	147.0
2009	221.4	10.1	9.7	9.1	15.1	26.0	151.4
2010	227.3	10.1	9.7	9.6	15.2	26.5	156.2

[a]Includes fisheries proprietors and unclassified
[b]Includes proprietors after 1985
*Historical data

SOURCE: MAP State Model simulation A86.B2.3, created March 1986; Variables EMPVT, EMAFF, EMP9, EMCN, EMM9, EMTCU, EMSUP

The composition of government employment is shown in Table 8. Military employment rises in the short term, reflecting deployment of the new light infantry division beginning in 1986. The incease in military spending in Alaska associated with this new unit temporarily replaces declining state and local employment caused by declining state petroleum revenues. Indeed, military spending is the main factor that effectively puts off the oil-price-induced economic recession until 1987 in the base-case projection (although recent oil price trends may change that optimistic projection). State government employment continues to fall in the 1990s as real petroleum revenues keep falling. Local government employment falls somewhat more slowly than state employment, reflecting our fiscal policy assumptions supporting transfers to local governments and school districts in the state operating budget, and the more diversified tax base available to some local jurisdictions.

COMPOSITION OF POPULATION

Tables 9, 10, and 11 show the composition of the population by type, components of change, and age, respectively. While the military and civilian non-native populations remain quite stable over the next 25 years, Table 9 shows that the native population grows rapidly. This projection reflects the assumption in the MAP demographic model that civilian migration affects only the non-native population. While this will not be strictly true in practice, the conclusion remains that the trend of a declining share of Alaska natives in the state population is likely to reverse over the next 25 years due to a lower out-migration rate than non-natives.

TABLE 8. GOVERNMENT EMPLOYMENT
OIL ONLY DEVELOPED FROM AREAS LEASED TO JANUARY 1987

(thousands of employees)

Year	Total Government Employment	Active-Duty Military	Federal Civilian Government	Alaska State Government	Local Government
1983*	84.1	22.3	17.7	18.9	25.2
1984*	87.1	22.6	18.1	19.3	27.1
1985	88.7	22.6	17.9	20.3	27.9
1986	88.4	25.0	17.7	19.8	25.9
1987	86.3	24.7	17.5	19.9	24.1
1988	85.0	24.5	17.4	18.8	24.3
1989	83.1	24.3	17.2	17.8	23.8
1990	83.3	24.1	17.0	18.1	24.1
1991	83.7	23.9	17.1	18.3	24.5
1992	84.3	23.6	17.2	18.8	24.7
1993	80.4	23.4	17.3	17.0	22.7
1994	79.6	23.2	17.4	16.4	22.6
1995	79.7	23.0	17.5	15.9	23.3
1996	78.7	22.8	17.5	15.4	23.0
1997	77.3	22.6	17.6	14.7	22.4
1998	76.3	22.4	17.7	14.1	22.0
1999	72.7	22.2	17.8	12.1	20.6
2000	71.4	22.0	17.9	11.3	20.2
2001	69.8	21.8	18.0	10.5	19.5
2002	68.2	21.6	18.1	9.6	18.9
2003	67.6	21.4	18.2	9.2	18.8
2004	67.0	21.3	18.3	8.9	18.6
2005	66.6	21.1	18.4	8.7	18.5
2006	66.5	20.9	18.4	8.5	18.7
2007	66.6	20.7	18.5	8.3	19.0
2008	66.9	20.5	18.6	8.2	19.5
2009	67.2	20.3	18.7	8.2	20.0
2010	67.4	20.2	18.8	8.0	20.5

*Historical data

SOURCE: MAP State Model simulation A86.B2.3, created March 1986;
Variables EMG9, EMGM, EMGC, EMGS, EMGL

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TABLE 9.   TOTAL POPULATION AND ITS COMPONENTS
OIL ONLY DEVELOPED FROM AREAS LEASED TO JANUARY 1987

(thousands)

Year	Total Population	Active-Duty Military and Dependents	Alaska Natives	Civilian Non-Native Population
1983*	495.3	46.3	69.9	379.1
1984*	523.0	46.9	71.8	404.3
1985	537.0	46.9	73.6	416.4
1986	550.8	51.8	75.5	423.4
1987	555.7	51.4	77.4	426.9
1988	555.3	50.9	79.3	425.2
1989	555.1	50.5	81.1	423.5
1990	556.8	50.0	83.0	423.8
1991	557.2	49.6	84.9	422.6
1992	560.0	49.1	86.9	424.0
1993	561.6	48.7	88.8	424.1
1994	561.4	48.3	90.7	422.5
1995	561.2	47.8	92.7	420.7
1996	561.0	47.4	94.7	418.9
1997	561.7	47.0	96.7	418.1
1998	562.7	46.6	98.8	417.4
1999	561.2	46.2	100.8	414.2
2000	561.6	45.7	103.0	412.9
2001	561.9	45.3	105.1	411.5
2002	561.8	44.9	107.3	409.5
2003	563.5	44.5	109.5	409.5
2004	565.7	44.2	111.8	409.8
2005	569.5	43.8	114.1	411.7
2006	574.7	43.4	116.5	414.8
2007	580.4	43.0	118.9	418.5
2008	588.0	42.6	121.3	424.1
2009	597.2	42.3	123.8	431.1
2010	607.8	41.9	126.3	439.5

*Historical data

SOURCE: MAP State Model simulation A86.B2.3, created March 1986;
          Variables POP, MILTOT, NATTOT, CNNTOT

TABLE 10. COMPONENTS OF POPULATION CHANGE
OIL ONLY DEVELOPED FROM AREAS LEASED TO JANUARY 1987

(thousands)

Year	Total Population	Change in Population	Natural Increase	Net Civilian Migration	Net Military Migration
1983*	495.3	34.5	9.9	24.4	0.2
1984*	523.0	27.7	10.3	17.2	0.3
1985	537.0	13.9	10.2	3.1	0.6
1986	550.8	13.8	10.4	-0.3	3.8
1987	555.7	4.9	10.3	-3.8	-1.6
1988	555.3	-0.3	10.2	-8.9	-1.6
1989	555.1	-0.3	9.9	-8.6	-1.6
1990	556.8	1.7	9.6	-6.5	-1.5
1991	557.2	0.3	9.5	-7.8	-1.4
1992	560.0	2.8	9.3	-5.2	-1.4
1993	561.6	1.6	9.3	-6.3	-1.4
1994	561.4	-0.2	9.2	-8.0	-1.4
1995	561.2	-0.3	9.0	-7.9	-1.4
1996	561.0	-0.2	8.9	-7.7	-1.4
1997	561.7	0.7	8.9	-6.7	-1.4
1998	562.7	1.0	8.7	-6.4	-1.4
1999	561.2	-1.5	8.7	-8.8	-1.4
2000	561.6	0.4	8.5	-6.7	-1.4
2001	561.9	0.3	8.4	-6.8	-1.3
2002	561.8	-0.1	8.3	-7.2	-1.3
2003	563.5	1.8	8.2	-5.3	-1.3
2004	565.7	2.2	8.2	-4.8	-1.3
2005	569.5	3.8	8.2	-3.2	-1.3
2006	574.7	5.1	8.3	-1.9	-1.3
2007	580.4	5.7	8.4	-1.4	-1.3
2008	588.0	7.6	8.5	0.4	-1.3
2009	597.2	9.1	8.6	1.8	-1.3
2010	607.8	10.6	8.8	3.1	-1.3

*Historical data

SOURCE: MAP State Model simulation A86.B2.4, created March 1986;
         Variables POP, DELPOP, POPNI9, POPMIG, POPMIGM

TABLE 11. POPULATION BY AGE COHORTS
OIL ONLY DEVELOPED FROM AREAS LEASED TO JANUARY 1987

(thousands)

Year	Total Population	Pre-school Population (Age 0-4)	School-age Population (Age 5-19)	Working-age Population (Age 20-64)	Elderly Population (Age 65+)
1983*	495.3	51.8	125.4	304.4	13.7
1984*	523.0	55.2	128.7	324.4	14.7
1985	537.0	54.9	128.1	336.9	17.2
1986	550.8	56.4	131.0	345.1	18.3
1987	555.7	56.7	131.9	347.7	19.4
1988	555.3	56.4	131.8	346.8	20.4
1989	555.1	56.0	131.7	346.0	21.4
1990	556.8	55.7	132.1	346.6	22.4
1991	557.2	55.3	132.1	346.3	23.4
1992	560.0	55.2	132.7	347.7	24.4
1993	561.6	55.0	133.0	348.3	25.4
1994	561.4	54.6	132.8	347.6	26.4
1995	561.2	54.3	132.6	346.9	27.4
1996	561.0	54.0	132.4	346.3	28.4
1997	561.7	53.8	132.3	346.2	29.4
1998	562.7	53.7	132.3	346.3	30.5
1999	561.2	53.3	131.8	344.6	31.5
2000	561.6	53.2	131.6	344.2	32.5
2001	561.9	53.2	131.5	343.8	33.5
2002	561.8	53.1	131.2	342.9	34.6
2003	563.5	53.2	131.4	343.4	35.6
2004	565.7	53.3	131.7	344.1	36.6
2005	569.5	53.7	132.4	345.8	37.6
2006	574.7	54.2	133.4	348.5	38.6
2007	580.4	54.8	134.6	351.4	39.6
2008	588.0	55.6	136.2	355.7	40.6
2009	597.2	56.5	138.2	360.9	41.5
2010	607.8	57.6	140.5	367.1	42.5

*Historical data

SOURCE: MAP State Model simulation A86.B2.3, created March 1986;
Variables POP, POPTINY, POPSKUL, POPADS, POPGER

Table 10 further illustrates the changing composition of employment projected in the base case. The total population changes very little, except for minor fluctuations, until growth picks up after 2000. Natural increase declines by around 2,000 during this period, averaging about 9,000 per year. Thus, in order for total population to remain unchanged, net out-migration--civilian and military--averages around 9,000 per year through the 1990s.

The age distribution of Alaska's population shows additional shifts. Although the number of children and working-age adults remains roughly constant, the number of elderly increases by nearly 250 percent by 2010. This aging of Alaska's population parallels national trends, but exaggerates them due to the relatively small share of older persons in the present population. Even with the projected rapid increase in the population of older adults, their share of Alaska's population will remain far lower than their share of the national population. People 65 and over represent 7 percent of projected Alaska population in 2010, up from 3 percent in 1980. For comparison, the U.S. Census Bureau (1983) projects that 13 percent of the U.S. population will be 65 or older by 2000, up from 11 percent in 1980.

STATE REVENUES AND SPENDING

Table 12 shows the projection of sources of real Alaska state revenues. Petroluem revenues, currently the source of 76 percent of total revenues, will decline to less than ten percent of their

TABLE 12. REAL STATE REVENUES BY SOURCE
OIL ONLY DEVELOPED FROM AREAS LEASED TO JAN. 1987

(millions of 1985 dollars)

Year	Total Revenues	Petroleum Revenues	Federal Grants-in-Aid	Investment Earnings	Other Revenues
1983*	4927	3674	197	784	272
1984*	4694	3306	276	831	281
1985	4145	3130	200	576	238
1986	4086	3046	204	595	241
1987	3785	2628	209	704	244
1988	3336	2116	212	771	238
1989	3140	1940	215	754	231
1990	2953	1768	218	743	225
1991	3001	1661	221	738	381
1992	3044	1570	224	735	515
1993	3078	1516	229	809	524
1994	3009	1434	234	810	531
1995	2958	1383	238	813	524
1996	2847	1270	243	815	519
1997	2794	1209	248	818	519
1998	2772	1124	253	873	521
1999	2429	784	259	862	523
2000	2311	667	264	854	526
2001	2173	527	270	847	529
2002	2027	381	275	838	532
2003	1991	343	281	831	537
2004	1961	305	287	826	542
2005	1943	279	293	821	549
2006	1940	265	300	817	559
2007	1937	251	306	813	567
2008	1936	237	313	809	577
2009	1938	224	320	805	589
2010	1943	212	327	802	602

*Historical data

SOURCE: MAP State Model simulation A86.B2.3, created March 1986;
Variables DF.R99S, DF.RP9S, DF.RSFD, DF.RSI99, DF.RSEN

current magnitude by 2010. Fluctuations in world oil prices may affect the timing of revenues somewhat—for example, the figures for 1986-88 do not fully reflect the recent crash in world oil prices—but not the overall trend. That is because of the overwhelming size of the Prudhoe Bay field compared to all other onshore oil prospects put together and the limited revenues Alaska would receive from discoveries on the federal OCS.

Non-tax sources of revenues such as federal grants and earnings on state investments such as the permanent fund grow very slowly over the projection period. The other revenues category—chiefly taxes—gets a boost in 1991-92 due to the projected reimposition of the state personal income tax (or other new tax collecting a similar amount of revenue) around that time.

Revenues affect the state economy and population as they are appropriated and spent. Table 13 presents real general fund appropriations in three categories as well as projected permanent fund dividend payments and the combined balance on the state's general and permanent funds. Appropriations for the operating budget affect the economy within the year; spending of appropriations for capital projects may be spread over several years; and debt service payments have no direct effect on the state's economy.

TABLE 13. REAL STATE GENERAL FUND APPROPRIATIONS,
DIVIDENDS, AND FUNDS BALANCE
OIL ONLY DEVELOPED FROM AREAS LEASED TO JANUARY 1987

(millions of 1985 dollars)

Year	Total[a] General Fund Appropriations	Capital[a] Appropriations	Operating[a] Appropriations	Debt Service	Permanent Fund Dividends	Combined Funds Balance
1983*	3247	1071	1823	153	127	7114
1984*	3231	973	1997	170	156	7812
1985	3220	981	2082	156	175	8056
1986	3036	863	2014	159	203	9304
1987	2831	747	1933	151	213	9440
1988	2567	624	1804	139	215	9252
1989	2307	513	1672	122	215	9136
1990	2367	566	1697	104	0	9102
1991	2360	570	1709	81	0	9088
1992	2398	584	1751	63	0	9084
1993	2353	567	1701	85	0	9124
1994	2262	538	1613	111	0	9168
1995	2188	515	1544	129	0	9229
1996	2073	488	1464	122	0	9283
1997	2008	474	1421	113	0	9351
1998	1957	462	1386	110	0	9392
1999	1648	387	1160	101	0	9346
2000	1538	363	1090	85	0	9323
2001	1409	334	1003	72	0	9283
2002	1277	303	909	66	0	9222
2003	1237	294	881	63	0	9177
2004	1205	287	860	59	0	9132
2005	1183	282	845	56	0	9089
2006	1174	280	840	54	0	9050
2007	1166	279	837	50	0	9012
2008	1164	281	844	38	0	8973
2009	1161	285	854	22	0	8936
2010	1160	283	850	26	0	8896

[a]Represents general fund expenditures in 1983, 1984.
*Historical data

SOURCE: MAP State Model simulation A86.B2.3, created March 1986; Variables DF.APGF,
DF.APGFC, DF.APGFO, DF.EXDSS, DF.EXTRN, DF.BAL99

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PERSONAL INCOME

Tables 14 and 15 show how the projected sources of real total and per capita personal income, respectively, vary over time in the base-case projection. While no dramatic trends are apparent in the tables, the figures show a few interesting changes. Transfer payments increase more rapidly than any other form of income, approximately doubling by 2010. This projected increase is linked in the MAP model to the anticipated rise in the population of older Alaskans, who receive the pension funds, social security, and life insurance payments that constitute most of transfer income.

The residence adjustment shown in Tables 14 and 15 shows the difference between wages and salaries and proprietors' income which are earned in Alaska and earnings of Alaska residents. The negative sign for the numbers indicates that nonresidents earned more from working in Alaska than Alaska residents earned from working outside the state. The residence adjustment depends mainly on the industry mix of employment.

Another shift noticeable in the figures is the declining share of personal income that remains as disposable personal income around 1990. This is due to the projected increase in personal taxes needed to help offset the fiscal effects of declining petroleum revenues. The combination of the end of permanent fund dividends (part of transfer payments) and the initiation of the personal income tax causes Alaskans' real disposable personal income to

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TABLE 14. REAL PERSONAL INCOME BY SOURCE
OIL ONLY DEVELOPED FROM AREAS LEASED TO JANUARY 1987

(millions of 1985 dollars)

Year	Wage and Salary Income	Proprietors' Income	Residence Adjustment	Property Income	Transfer Payments	Personal Income	Disposable Personal Income
1983*	6923	395	−615	981	982	8739	7295
1984*	6976	448	−595	1112	817	8680	7567
1985	7158	377	−623	1156	898	9029	7569
1986	7321	385	−657	1233	978	9326	7816
1987	7255	386	−584	1271	1040	9433	7906
1988	7008	381	−528	1273	1086	9283	7782
1989	6891	377	−521	1266	1130	9205	7716
1990	6856	376	−518	1258	958	8994	7528
1991	6781	374	−510	1238	1001	8947	7265
1992	6829	376	−520	1222	1043	9015	7316
1993	7225	376	−554	1222	1093	9431	7647
1994	7111	375	−521	1222	1143	9399	7622
1995	7010	373	−513	1228	1193	9360	7591
1996	6932	372	−504	1241	1245	9354	7585
1997	7017	372	−509	1256	1297	9503	7704
1998	7107	373	−516	1260	1351	9647	7818
1999	7119	371	−518	1269	1406	9719	7875
2000	7213	371	−524	1283	1461	9879	8002
2001	7298	372	−530	1303	1518	10036	8126
2002	7344	371	−535	1324	1575	10155	8222
2003	7477	373	−544	1346	1633	10364	8387
2004	7591	375	−553	1371	1692	10557	8541
2005	7769	378	−568	1399	1751	10812	8744
2006	7964	383	−582	1431	1811	11091	8966
2007	8128	387	−595	1465	1871	11343	9168
2008	8368	393	−616	1503	1931	11670	9427
2009	8627	399	−635	1545	1992	12022	9708
2010	8919	407	−660	1591	2053	12408	10015

*Historical data

SOURCE: MAP State Model simulation A86.B2.3, created March 1986; Variables DF.WS98, DF.PIPRO, DF.PIRAD, DF.PIDIR, DF.PITRA, DF.PI, DF.DPI

TABLE 15. REAL PER-CAPITA PERSONAL INCOME BY SOURCE
OIL ONLY DEVELOPED FROM AREAS LEASED TO JANUARY 1987

(1985 dollars)

Year	Wage and Salary Income	Proprietors' Income	Residence Adjustment	Property Income	Transfer Payments	Personal Income	Disposable Personal Income
1983*	13977	797	-1242	1981	1983	17644	14728
1984*	13338	857	-1138	2126	1562	16597	14468
1985	13331	701	-1160	2154	1672	16815	14097
1986	13291	699	-1193	2239	1776	16932	14190
1987	13056	695	-1051	2287	1871	16976	14229
1988	12620	686	-952	2292	1956	16716	14013
1989	12415	678	-939	2280	2036	16584	13901
1990	12313	675	-930	2260	1721	16153	13521
1991	12171	671	-915	2223	1796	16059	13039
1992	12196	671	-929	2182	1863	16098	13065
1993	12865	669	-986	2175	1946	16792	13616
1994	12665	667	-929	2177	2035	16740	13576
1995	12492	666	-914	2188	2126	16680	13527
1996	12357	664	-898	2211	2218	16673	13521
1997	12491	663	-907	2236	2310	16918	13714
1998	12630	663	-917	2240	2401	17144	13894
1999	12686	661	-923	2260	2505	17319	14032
2000	12844	661	-932	2285	2602	17592	14249
2001	12987	661	-943	2319	2702	17860	14462
2002	13073	660	-952	2356	2804	18078	14635
2003	13268	662	-965	2388	2898	18390	14883
2004	13418	663	-977	2424	2990	18660	15097
2005	13641	664	-998	2457	3074	18983	15352
2006	13858	666	-1013	2489	3151	19299	15602
2007	14004	667	-1026	2525	3223	19544	15795
2008	14231	668	-1047	2556	3284	19846	16032
2009	14446	669	-1064	2588	3335	20132	16256
2010	14675	670	-1086	2618	3378	20415	16477

*Historical data

SOURCE: MAP State Model simulation A86.B2.4, created March 1986; Variables DFP.WS98,
         DFP.PIPR, DFP.PIRA, DFP.PIDI, DFP.PITR, DFP.PI, DFP.DPI

decline by around $1,000 per capita between 1989 and 1991. In the base-case projection, real per capita personal income does not recover to current levels until 2000. The projected decline in real per capita personal income shown in Table 15 does not include the effects on the perceived standard of living caused by the reduction in public services that we also project to occur during the same period.

IV. STATEWIDE ECONOMIC AND DEMOGRAPHIC

EFFECTS OF OCS DEVELOPMENT

This chapter discusses the projected effects on the Alaska economy and population of petroleum exploration and development that might take place on areas of the federal Outer Continental Shelf scheduled for lease in the Five-Year Program beginning in January 1987. First, we discuss the direct contribution of OCS activity related to the Five-Year Program to the exogenous industry employment and state revenue assumptions used for the base-case projection discussed in Chapter III. Then using the MAP statewide model we present an impact-case projection of the Alaska economy and population including the contribution of Five-Year Program activity. We use the difference between the impact-case projection and the base-case projection to analyze the economic and demographic impacts of the Five-Year Leasing Program in Alaska.

Direct Employment and Revenue Effects

Table 16 summarizes the employment and revenue assumptions for OCS exploration and development associated with the Five-Year Program. The figures in this table represent the difference between direct employment and revenues including the Five-Year program and the employment and revenues that would occur from development of areas already under lease. We used employment assumptions provided to us by the Minerals Management Service Alaska OCS office, based on Cooke

TABLE 16. OCS EXPLORATION AND DEVELOPMENT ASSUMPTIONS

(thousands of employees)
(millions of current $)

	High-Wage Exogenous Construction Employment	Mining Employment	Exogenous Transportation Employment	State Property Tax Revenue
1985	0.000	0.000	0.000	0.000
1986	0.000	0.024	0.000	0.830
1987	0.133	0.255	0.089	0.778
1988	0.000	0.412	0.154	0.726
1989	0.000	0.250	0.094	0.667
1990	0.000	0.358	0.143	0.601
1991	0.000	0.412	0.158	0.525
1992	−0.156	0.146	0.079	2.758
1993	−0.139	1.931	0.358	7.835
1994	0.593	4.154	0.720	14.364
1995	0.000	2.232	0.479	14.335
1996	0.000	1.463	0.440	13.663
1997	0.000	1.535	0.440	13.010
1998	0.000	1.555	0.440	12.304
1999	0.000	1.625	0.440	11.457
2000	0.000	1.645	0.440	10.449
2001	0.000	1.645	0.440	9.396
2002	0.000	1.645	0.440	8.392
2003	0.000	1.645	0.440	7.429
2004	0.000	1.645	0.440	6.533
2005	0.000	1.643	0.440	5.710
2006	0.000	1.642	0.440	4.934
2007	0.000	1.641	0.440	4.178
2008	0.000	1.640	0.440	3.417
2009	0.000	1.639	0.440	2.660
2010	0.000	1.638	0.440	1.897

SOURCE: MAP MODEL CASE OCS.86IM
VARIABLES: EMCNX1 EMP9 EMT9X RPPS

(1985). They assume that Alaska is considered the place of work of all OCS workers, consistent with other employment data used in the MAP model. Direct employment effects of the exploration and development activities in areas proposed to be leased in the Five-Year Program are primarily in mining and transportation. The effect on mining employment rises by over 4,000 in 1994, then falls to 1,600 during the operations phase. Exogenous transportation employment increases by 440 after 1995. Although total construction employment is larger in the impact case, employment is actually lower in 1992 and 1993 due to different schedules assumed by the Minerals Management Service for development activities on the OCS.

The MAP model does not assume that all these additional OCS-related workers actually live in Alaska. Rather, the model projects population migration depending upon a number of labor market indicators, and it adjusts personal income for residence depending on the industry mix of total employment.

Production of oil and gas from the federal Outer Continental Shelf does not provide the state of Alaska with any shared royalties or severance tax revenue. The state and local governments can, however, tax petroleum property. We assumed new exploration, production, and pipeline property for OCS development would be built either on the North Slope or along the western or southwestern coast of Alaska. In both cases, we assumed that the state would collect the entire tax of 20 mills on the depreciated inflation-adjusted

construction cost. If a portion of the increase in property tax revenues were collected instead by organized local governments, there might be some difference in the regional allocation of public spending, but the total public expenditures would be relatively unaffected.

We project that onshore facilities constructed for OCS exploration and development activities associated with the Five-Year Program will yield the State of Alaska $14 million in property tax revenue in 1994 and 1995. The incremental revenues would decline to $2 million by 2010 as they depreciate. We assume a schedule of depreciation that follows the depletion schedule assumed for oil reserves associated with each facility. We used assumptions for production schedules, timing and construction cost of facilities and pipelines provided to us by the Minerals Management Service. Appendix G contains supporting documentation associated with these assumptions.

Projected Impact of the Five-Year Leasing Program

Appendix A contains a set of ten tables showing the projection of the state economy and population, including the effects of OCS exploration and development of areas proposed for lease under the Five-year Program. These tables, which are analogous to Tables 6 through 15 for the base-case projection, present a broadly similar view of the future of Alaska's economy and population as discussed in Chapter III. Rather than describe the results contained in these

tables, which would be somewhat repetitive, we choose to focus on the differences between the impact-case projection and the base-case projection. These differences can be interpreted as the effects of the Five-year Program.

Figure 2 shows the difference between employment by sector in the impact case and in the base case. The additional employment attributed to the Five-Year OCS Leasing Program rises to 10,000 in 1994, then declines to 7-8,000 for the rest of the period. The effect on basic and support employment is approximately equal, and government employment rises by a smaller amount over the base case projection.

Figure 3 shows the industry composition of private sector (basic and support) employment. The distribution of the basic sector employment effects show mainly the distribution of direct OCS employment related to exploration and development of areas leased under the Five-year Program. The trade, finance, and services industries reflect the indirect effects.

Most of the additional government employment generated as a by-product of additional OCS leasing is at the local level, as Figure 4 shows. These jobs would mainly be in local public services such as education, public safety, and municipal utilities that would be needed to serve a larger population.

FIGURE 2. IMPACT OF FIVE-YEAR PROGRAM
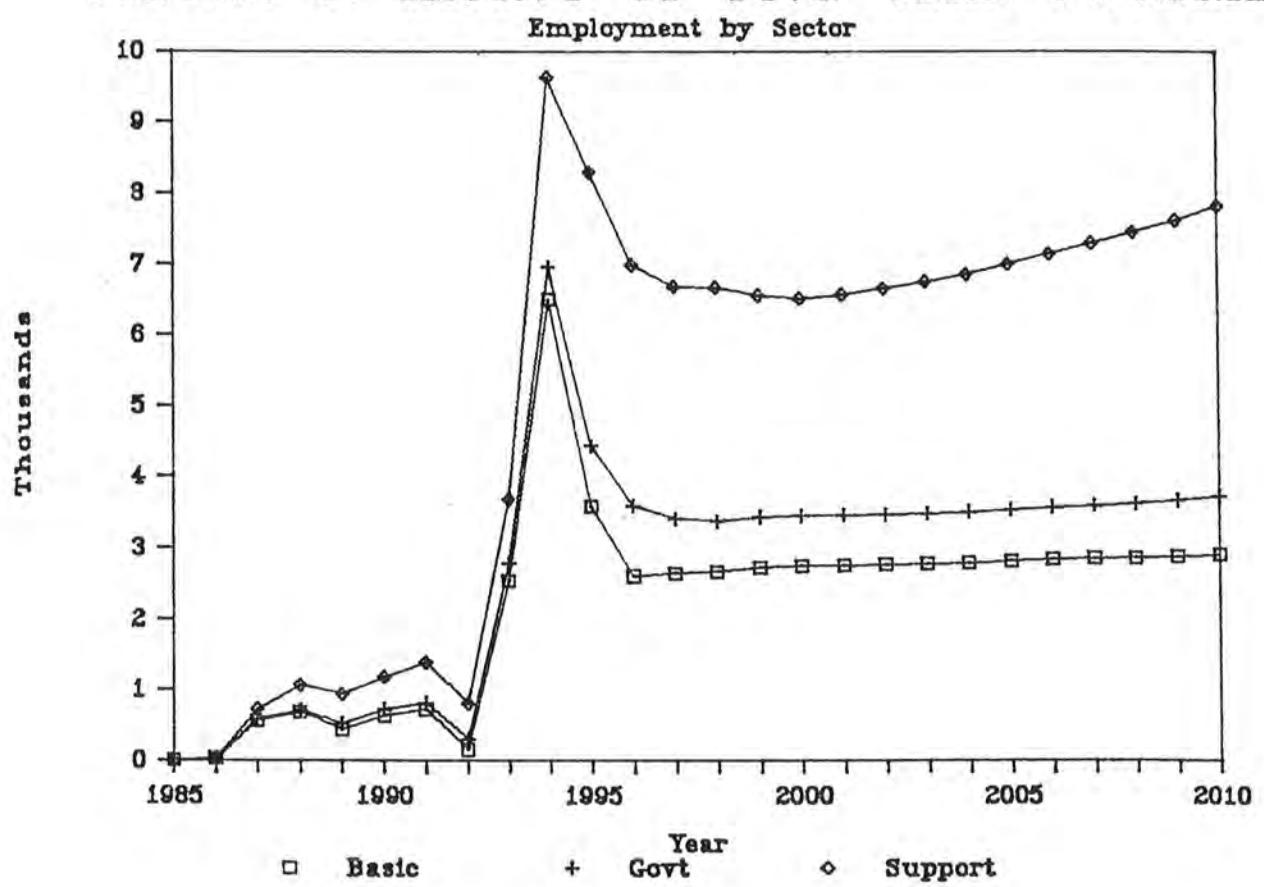
FIGURE 3. IMPACT OF FIVE-YEAR PROGRAM

Private Employment by Industry

Trade, Finance, and Services

□ Mining   + Construction   ◇ Manufacturing

△ Trans., Comm., Util.   ✕ Total Private Employment
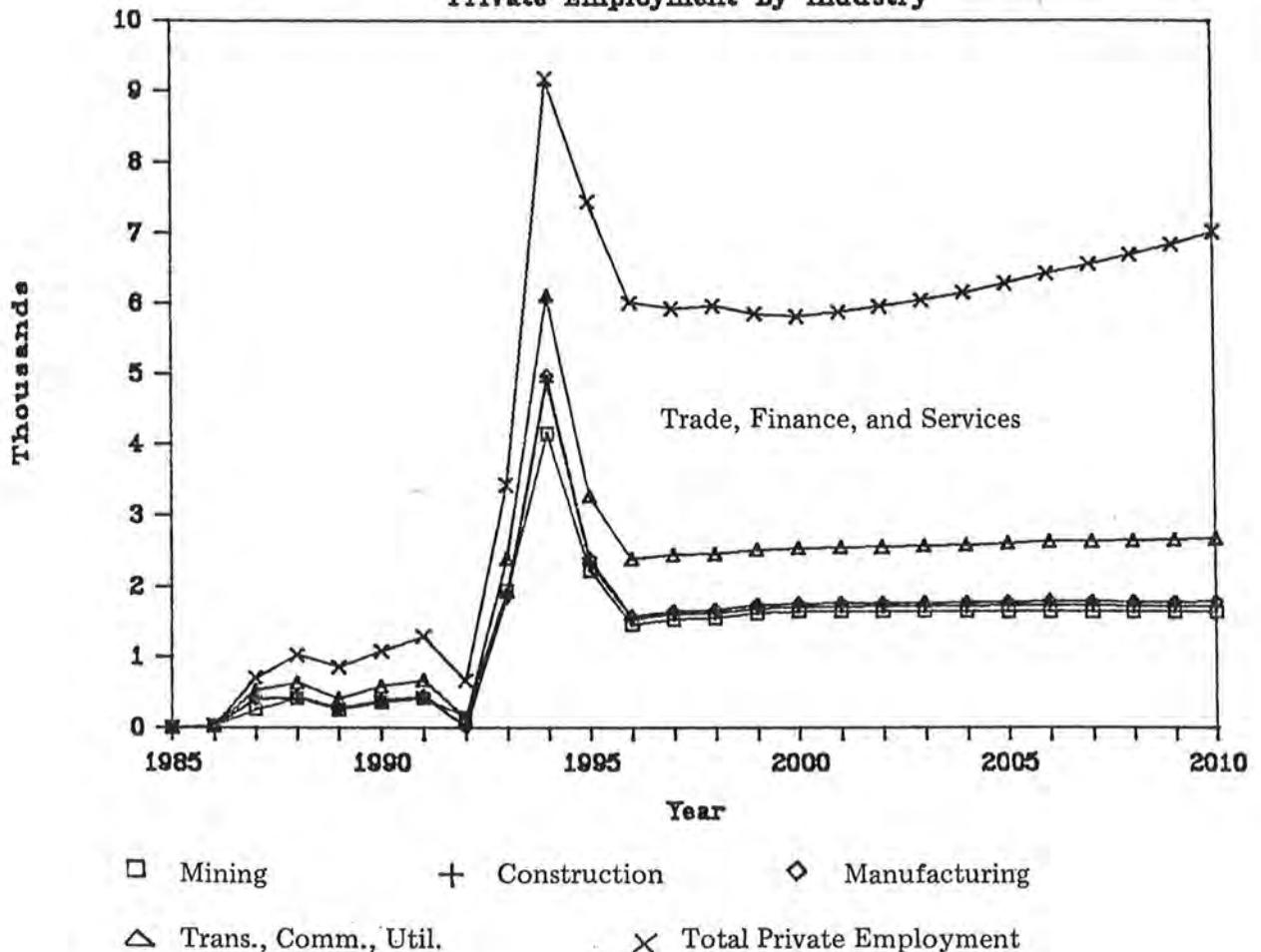
FIGURE 4. IMPACT OF 5 YEAR PROGRAM

Government Employment

□ Local   + State

54
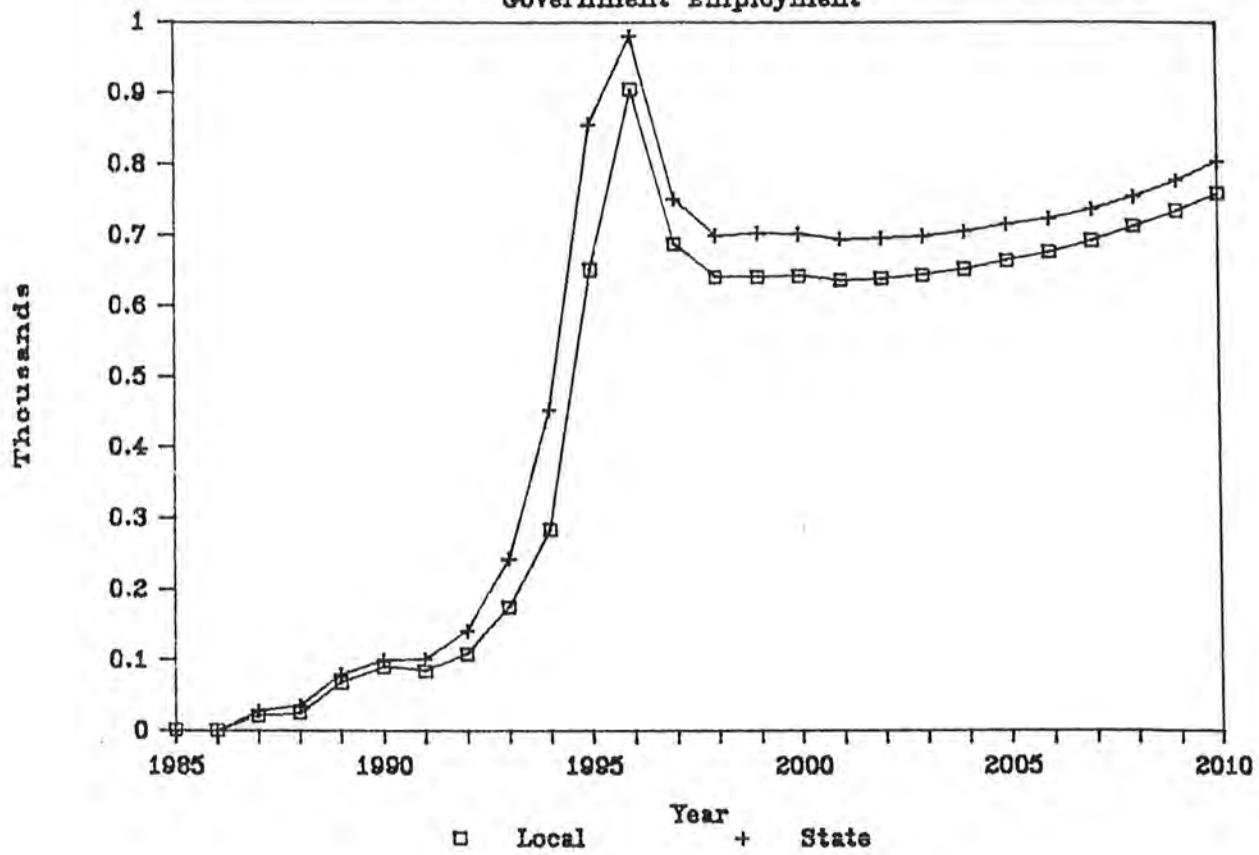
Figure 5 shows the difference between the impact case and the base case for natural increase and net migration. The impact on the components of the change in population is largest in 1994, when construction peaks for facilities needed to develop additional OCS petroleum resources leased in the Five-Year Program. Around 8,500 more people move to the state in 1993 and 1994 as a result of OCS development. After the economy has adjusted to this destabilizing shock, the Five-Year Program would continue to add about 300 to 500 more people to Alaska each year after 1997. Most of this later growth is natural increase--children of the residents who moved to Alaska in 1993 and 1994.

The demographic effects are illustrated further in Figure 6, which shows the changing age structure of the population. The difference in population between the base-case and impact projections rises rapidly between 1992 and 1994, leveling off at around 10,000, then rising slowly to 15,000 by 2010. This represents an increment of around 2 percent of projected state population. The impact population of preschool and school-age children increases rapidly as a result of the increase in the working-age populaton in 1993 and 1994. The effect on the elderly population begins very slowly, but by 2010 we project that there will be around 400 more older Alaskans as a result of Five-Year Program OCS development.

We project OCS development to bring a minimal increase in real state revenues, shown in Figure 7. State petroleum revenues are around

FIGURE 5. IMPACT OF 5 YEAR PROGRAM

Components of Population Change

□ Natural Increase ◇ Net Migration
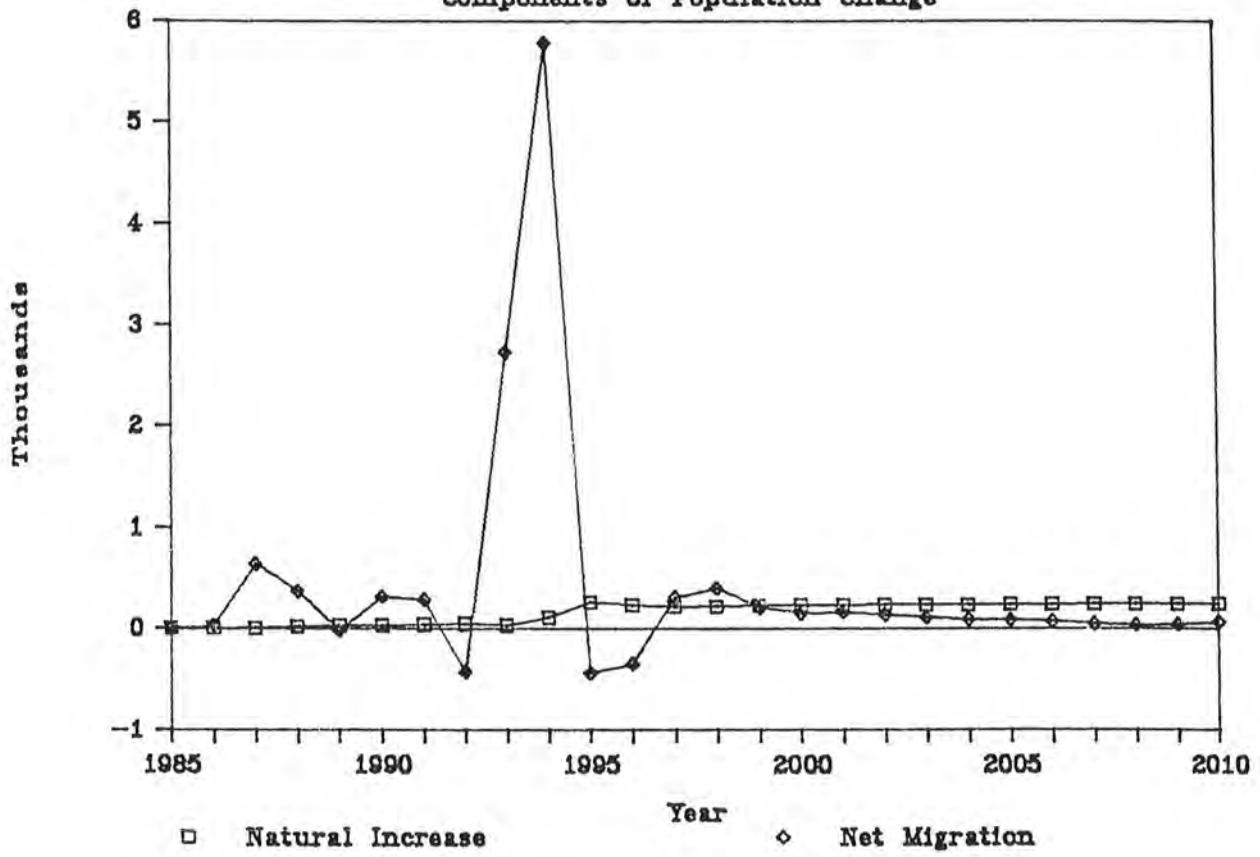
FIGURE 6. IMPACT OF 5 YEAR PROGRAM

Population by Age Cohorts

□ Age 20-64   + Age 0-4   ◇ Age 5-19   △ 65 and over
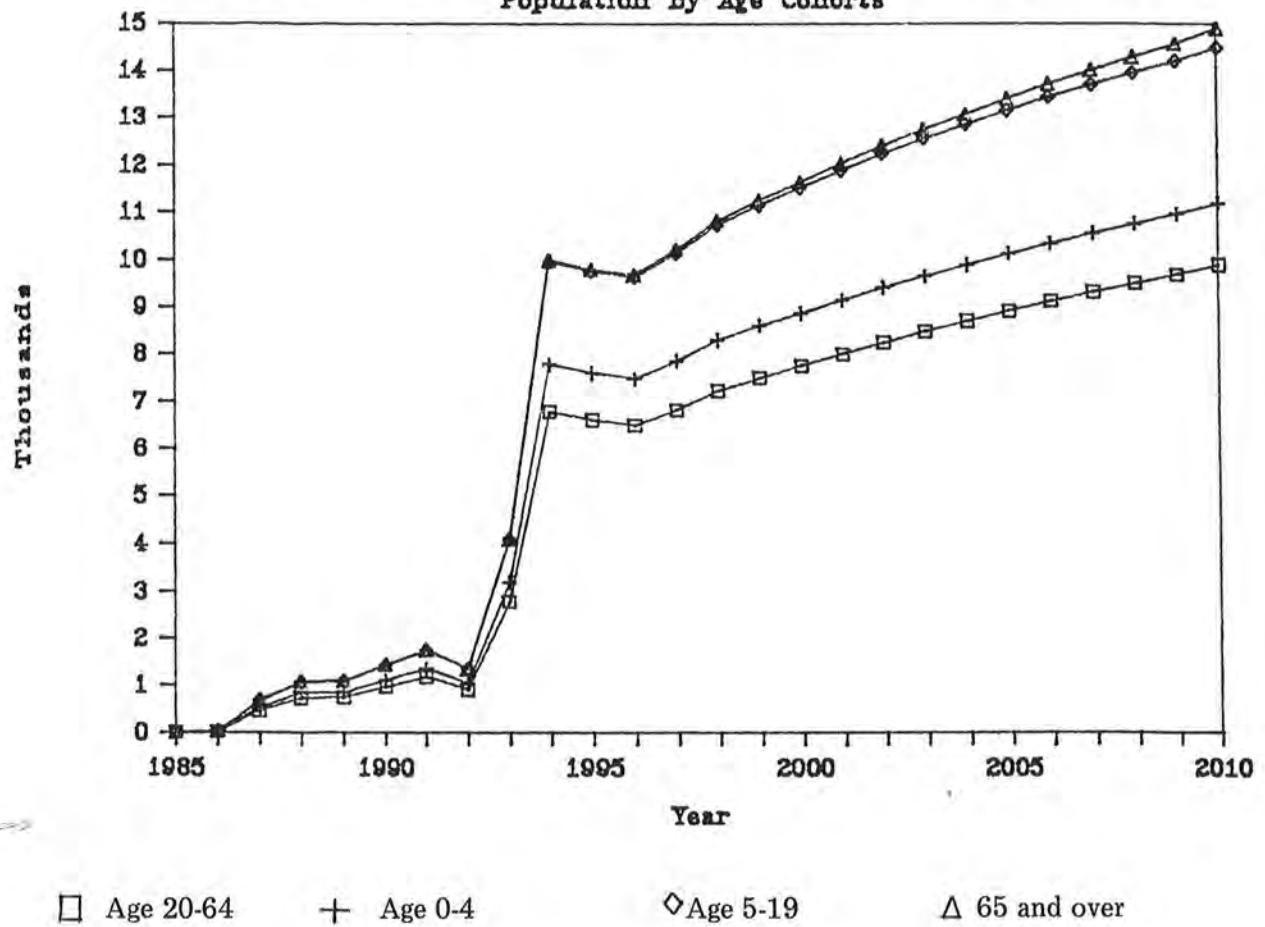
FIGURE 7. IMPACT OF 5 YEAR PROGRAM

Real State Revenues by Source

□ Oil Revenues   ◇ Investment   △ Fed. Grants in aid

+ Other   ✕ Total
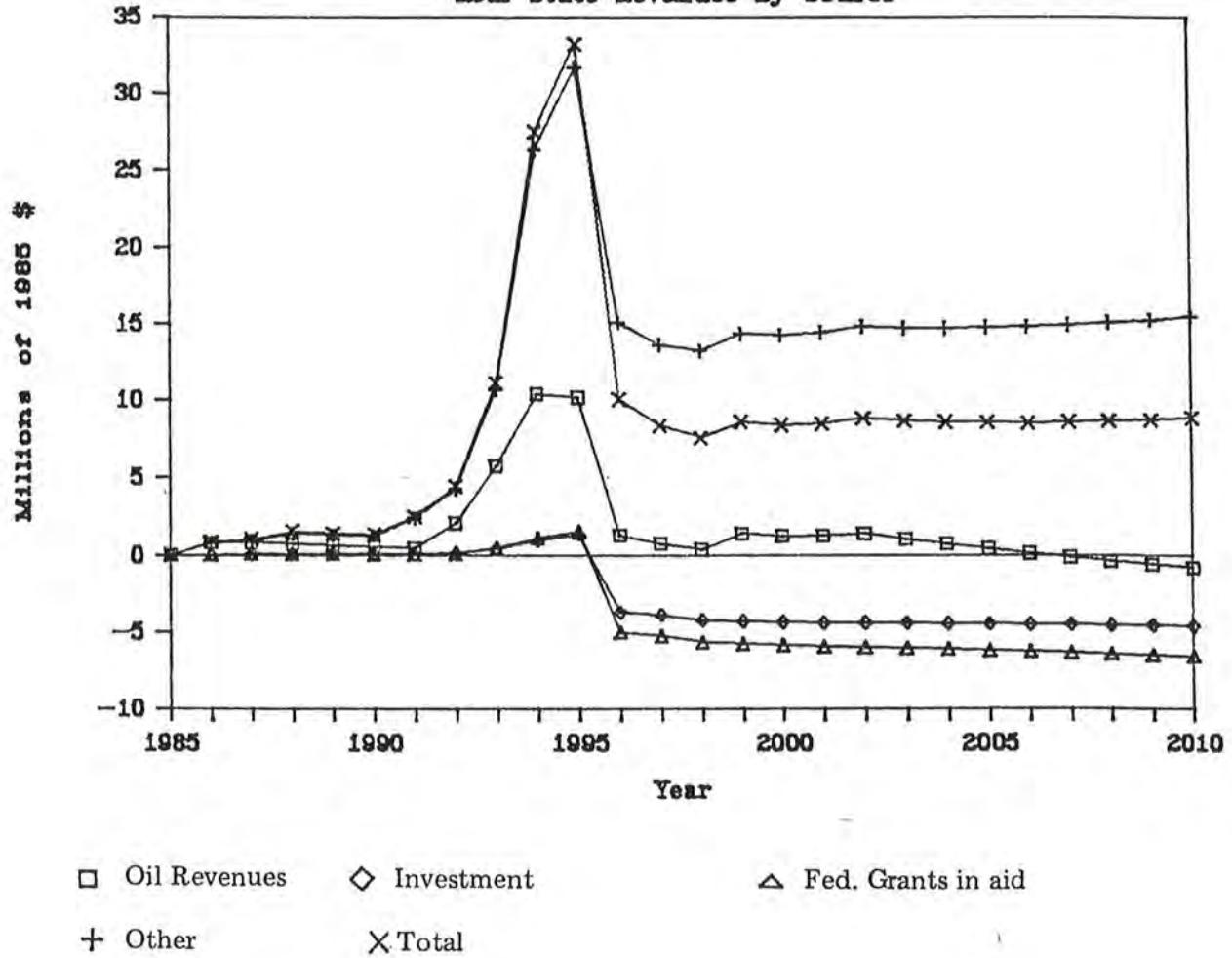
$10 million (in 1985 dollars) higher in 1994 and 1995 because more petroleum property taxes are collected from onshore OCS-related facilities. This effect does not last after 1995, however, because inflation is slightly higher in the impact case, neutralizing the higher revenues measured after inflation. Federal grants and investment earnings--basically fixed in nominal dollars between the two projections--actually decline as measured in constant Alaska prices because the Alaska price level is higher in the impact case. Thus the only positive contribution to state revenues comes in other revenues, such as income taxes, as an indirect result of higher taxable incomes.

Figure 8 shows the distribution of spending of the additional state revenues. Most of the increase goes into the operating budget (and much of this is likely to be transferred to local governments to help pay for the added demand for public services from the larger population). Higher population in the impact case, however, places a greater demand on public services than can be met by the added revenues. As a result of this impact, state and local governments must raise tax rates or reduce services, or both, in a period already characterized by fiscal retrenchment. Because of this demand, the combined state general and permanent fund balance declines by around $50 million as additional permanent fund interest earnings must be tapped to fund state government operations.

FIGURE 8. IMPACT OF 5 YEAR PROGRAM

Real State Approp. and Funds Balance

□ Capital   + Operating   ◇ Debt Service   △ Fund Balance

60
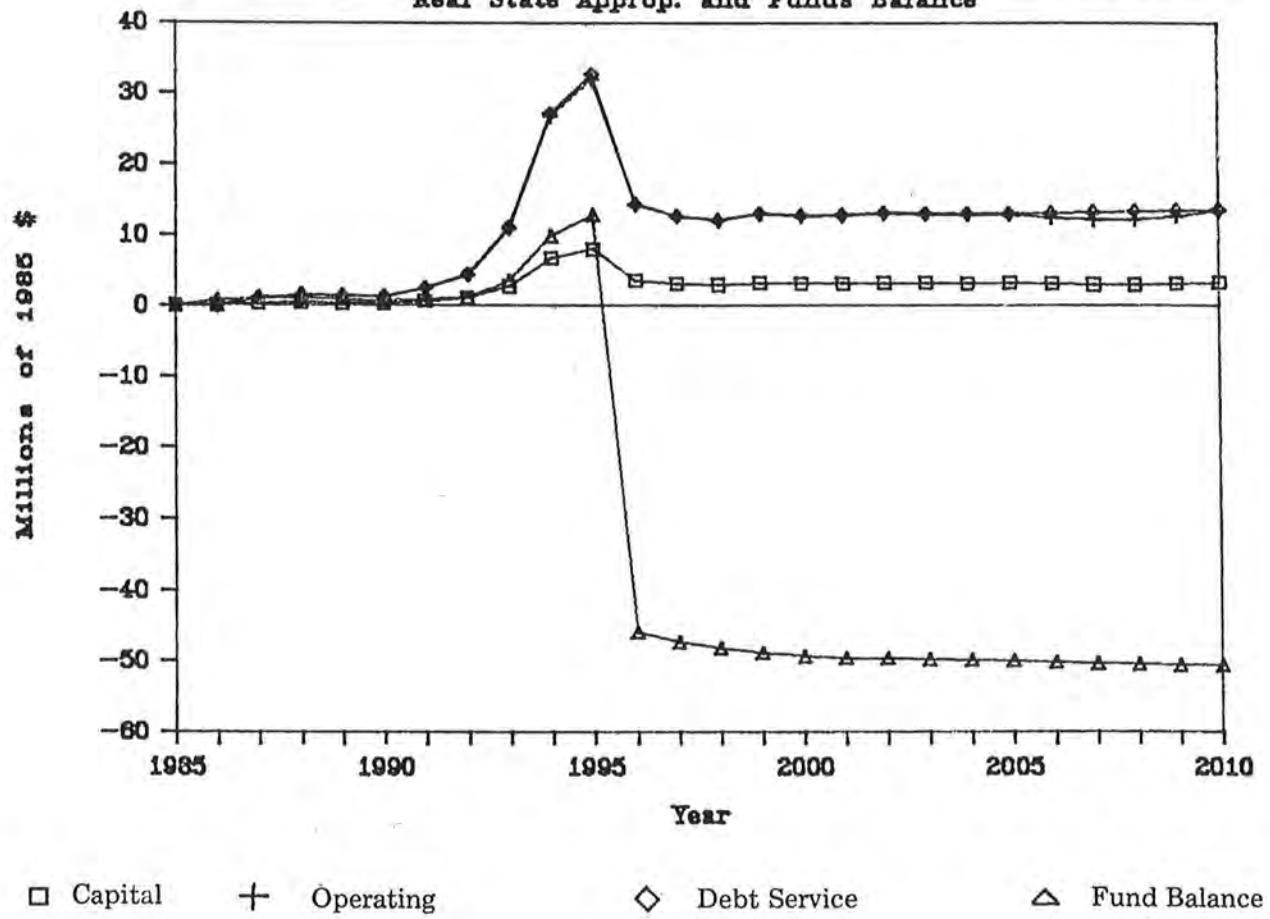
Figure 9 shows how total personal income and its sources are likely to change as a result of the Five-Year Leasing Program. Total personal income of Alaska residents rises by $400 million (in 1985 dollars) in 1994. The impact falls to $220 million in 1996, then rises slowly to around $340 million—around 2.7 percent of total state personal income—by 2010. Most of this increase is in wages and salaries (reported by place of work). We project that the residence adjustment—basically labor income earned in Alaska by nonresidents—accounts for eight to 13 percent of the incremental wages of salaries.

The higher personal income resulting from additional OCS development leads to an increase in average per capita personal income of $400 (1985 dollars) in 1994. Figure 10 shows that the impact quickly diminishes to around $50 per capita (in 1985 dollars) through 2010. The widening gap between the line showing personal income and the line showing disposable personal income in Figure 10 illustrates the increasing tax burden placed on income earners as state revenues decline and state and local governments are forced to tap new sources of revenue.

FIGURE 9. IMPACT OF 5 YEAR PROGRAM

Real Personal Income by Source

□ Wages, Salaries, & Proprietors   + Residence—Adjusted Wages, Salaries, & Proprietors

◇ Dividends, Interest, Transfers   △ Residence Adjustment

62
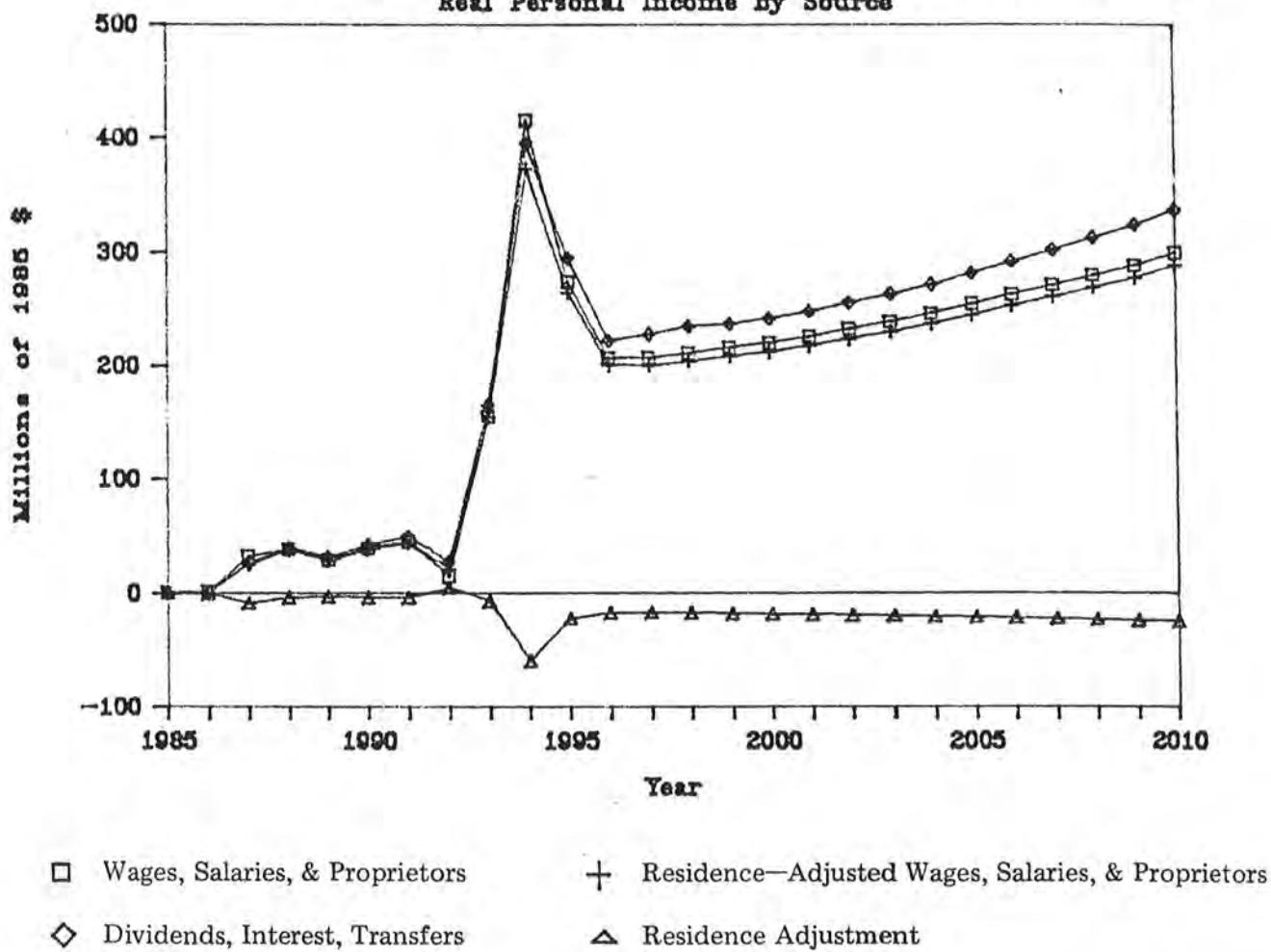
FIGURE 10. IMPACT OF FIVE-YEAR PROGRAM

Real Per-Capita Personal Income

□ Disposable Income   + Personal Income
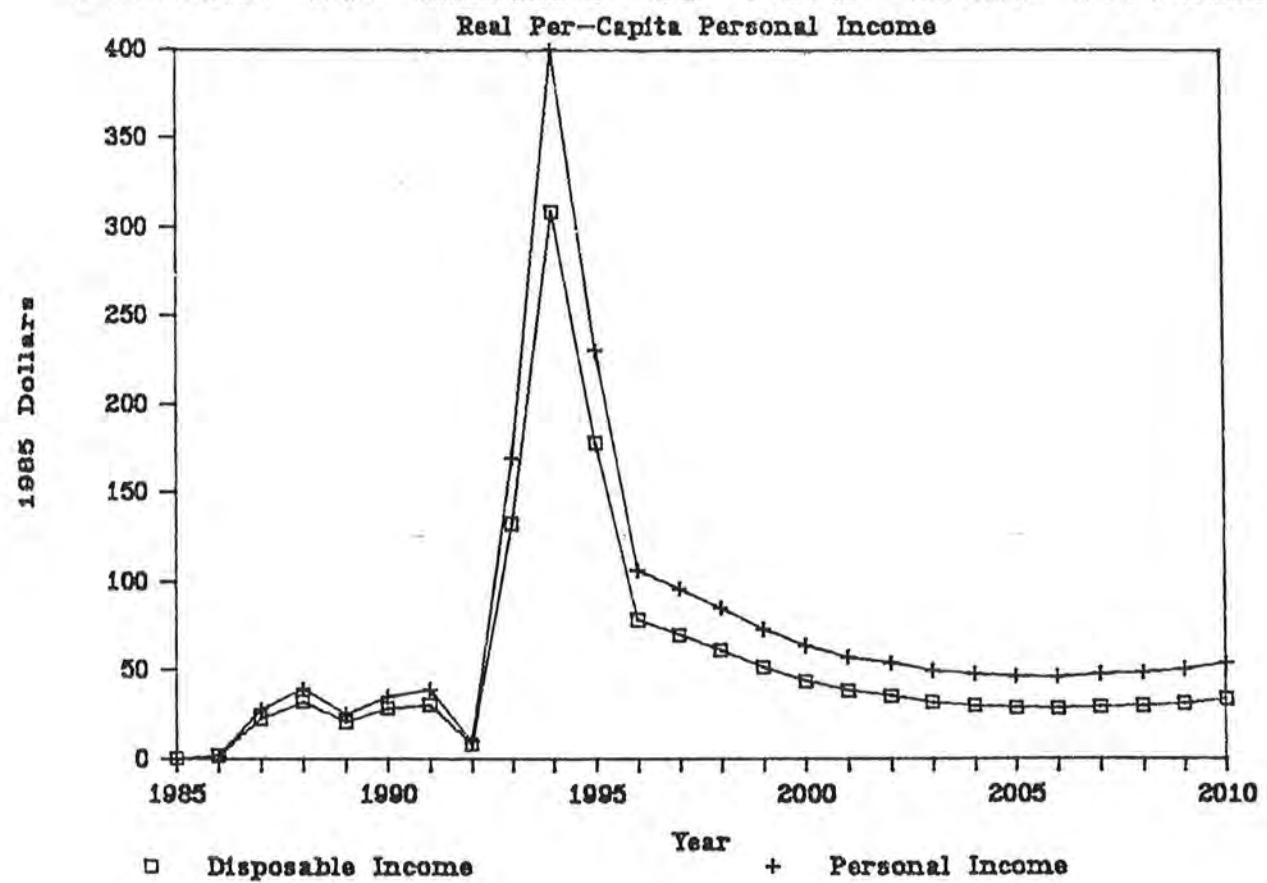
V. IMPACT OF THE FIVE-YEAR PLAN ON
SOUTHCENTRAL ALASKA

In this chapter, we discuss economic and demographic projections for the Southcentral Region of the state of Alaska using the MAP regional model outlined in Chapter II. We project the economy and population of the Southcentral region depending upon whether or not OCS exploration and development takes place on areas proposed for lease in the Five-Year Program.

The MAP regional model requires a set of assumptions about exogenous basic industry and federal government employment for each of twenty regions of the state. First, we discuss the base-case projections for the Southcentral Region. This regional projection corresponds to the statewide base-case projection discussed in Chapter III. Then we discuss the exogenous employment assumptions used for the regional model and present the regional impact-case projections.

Regional Base-Case Projections

Our regional exogenous employment assumptions follow the assumptions summarized in Table 1. In general, we assume the regional distribution of baseline exogenous employment in each industry remains the same as observed in recent years. Special projects--the new light infantry division and OCS development activities, for example-- change the regional distribution of statewide exogenous employment, as do differing rates of growth projected for different industries,

given the uneven distribution of employment by industry among Alaska regions. The complete set of regional base case exogenous employment assumptions (except for OCS activities, which are discussed in Appendix F) appears in Appendix E.

Table 17 shows projections of total population, total employment, and three categories of employment for Southcentral Alaska, using the MAP regional model. We project that total employment in 2010 will be around 13 percent greater than in 1985. In parallel with the statewide results, all the net growth comes from the support sector. While basic sector employment remains nearly constant, support employment increases by 36 percent over the period. Government employment, driven by falling state revenues, declines by 27 percent.

Southcentral Region population rises very slowly from the current level of around 315,000 to a level of around 320,000 in the mid-1990s. After remaining virtually constant for five years, population grows again to reach 363,000 by 2010, a gain of 17 percent over 1985.

Regional Effects of Development under the Five-Year Program

Other studies have analyzed potential impacts of offshore oil and gas development on the communities and regions that would receive the main direct impacts of OCS development (see Knapp, 1983, 1984).

TABLE 17. MAP MODEL REGIONAL PROJECTIONS
OIL ONLY FROM AREAS LEASED TO JAN. 1987
SOUTHCENTRAL ALASKA

(thousands)

Year	Total Population	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	287.1	140.3	NA	NA	39.0
1984*	311.9	148.9	NA	NA	40.2
1985	311.5	149.9	31.5	77.2	41.1
1986	317.3	151.7	31.7	79.4	40.5
1987	319.3	152.1	31.0	81.5	39.6
1988	319.5	150.6	30.4	81.2	39.0
1989	319.4	148.6	30.3	80.1	38.2
1990	319.5	147.7	30.3	79.2	38.2
1991	318.6	146.4	30.4	77.6	38.4
1992	318.8	146.2	31.0	76.6	38.6
1993	319.9	146.0	31.1	78.0	37.0
1994	320.4	146.3	30.9	78.8	36.7
1995	320.3	145.9	30.4	78.8	36.7
1996	320.4	145.4	30.0	79.1	36.3
1997	321.5	145.7	30.1	79.9	35.8
1998	322.7	146.2	30.1	80.8	35.3
1999	323.6	145.8	30.0	81.9	33.8
2000	324.6	146.2	30.1	82.9	33.3
2001	326.2	147.1	30.1	84.3	32.6
2002	327.3	147.8	30.1	85.7	32.0
2003	329.2	149.1	30.3	87.1	31.7
2004	331.7	150.9	30.5	88.9	31.5
2005	334.9	153.0	30.7	90.9	31.3
2006	339.0	155.6	31.1	93.2	31.3
2007	343.4	158.4	31.4	95.7	31.3
2008	348.9	161.6	31.8	98.4	31.4
2009	355.5	165.4	32.4	101.4	31.6
2010	363.2	169.6	33.1	104.8	31.7

*Historical data

SOURCE: MAP Regional Model simulation C86.B2, region AG, created
March 1986.

This study considers instead the potential regional impacts--mainly indirect--of potential development related to the entire Five-Year Leasing Program. Southcentral Alaska, the region of the state which includes Anchorage, is the state's major city and business center. We assume that all direct OCS employment related to areas leased under the Five-Year Program occurs in the coastal areas adjacent to the Bering and Beaufort Seas. While exploration could occur from bases in Southcentral Alaska, we assume that such ventures have a negligible impact on the region. We do assume, however, some additional oil industry headquarters employment in Anchorage associated with OCS activity.

Table 18 shows the regional distribution of employment in OCS petroleum exploration and development assumed for the regional simulation. The table shows Anchorage headquarters employment as well as on-site employment assumed to be located in the Aleutian Islands (Cold Bay) and the North Slope regions. These assumptions are provided by the Minerals Management Service. Like the statewide effects analyzed in Chapter IV, the regional direct employment assumptions are associated with the "oil-only" petroleum development scenarios summarized in Appendix G.

Although the direct effect of OCS employment is small in the Southcentral Region, the MAP regional model calculates much larger indirect effects that derive from two sources: (1) the model adjusts the residence to Southcentral Alaska of a fraction of workers in

TABLE 18. REGIONAL DISTRIBUTION OF EMPLOYMENT IN FIVE-YEAR
PROGRAM OCS DEVELOPMENT ACTIVITIES

(thousands)

	Aleutian Islands	Anchorage	North Slope
1985	0.000	0.000	0.000
1986	0.017	0.000	0.008
1987	0.163	0.000	0.314
1988	0.310	-0.002	0.258
1989	0.090	-0.003	0.258
1990	0.090	0.000	0.412
1991	0.237	-0.001	0.334
1992	-0.107	-0.004	0.181
1993	2.128	-0.002	0.026
1994	2.915	0.003	2.529
1995	1.555	0.015	1.142
1996	1.147	0.015	0.741
1997	1.192	0.015	0.768
1998	1.222	0.015	0.758
1999	1.252	0.015	0.798
2000	1.272	0.015	0.798
2001	1.272	0.015	0.798
2002	1.272	0.015	0.798
2003	1.272	0.015	0.798
2004	1.272	0.015	0.798
2005	1.272	0.013	0.798
2006	1.272	0.012	0.798
2007	1.272	0.011	0.798
2008	1.272	0.010	0.798
2009	1.272	0.009	0.798
2010	1.272	0.008	0.798

SOURCE: MAP MODEL CASE OCS.86IM
VARIABLES: B01 B02 B04

remote areas, and (2) the model allocates a large share of increased support-sector employment from the indirect effects of OCS development to the Southcentral Region.

Table 19 shows projections of the total population and components of total employment for Southcentral Alaska, including the effects of activities associated with the Five-Year Program. The regional impact projections include both the effects of changes in the regional distribution of exogenous employment and the effects of changes in statewide employment and population.

By 2010 total employment in the impact case increases by 17 percent-- four percent more than in the base case. While there is almost no effect on base-case employment, support employment increases by five percent more than in the base case, or 41 percent over the period. Government employment still falls by 28 percent, nearly the same amount as before.

Southcentral Region population in the impact case remains at around 320,000 until 1993. Population rises to 327,000 in 1994--7,000 higher than the base case. After the year 2000, however, higher support employment in the Southcentral Region causes population to increase again to 375,000 by 2010, gaining 20 percent over the 1985 population. Since most OCS development will occur outside of the Southcentral Region, the differences projected in Tables 17 and 19 result mainly from a different pattern of exogenous employment

TABLE 19. MAP MODEL REGIONAL PROJECTIONS
OIL ONLY FROM LEASED AND UNLEASED AREAS
SOUTHCENTRAL ALASKA

(thousands)

Year	Total Population	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	287.1	140.3	NA	NA	39.0
1984*	311.9	148.9	NA	NA	40.2
1985	311.5	149.9	31.5	77.2	41.1
1986	317.3	151.7	31.8	79.4	40.5
1987	319.7	152.2	31.1	81.6	39.6
1988	320.2	151.2	30.5	81.6	39.1
1989	320.4	149.3	30.4	80.6	38.3
1990	320.9	148.6	30.4	79.8	38.3
1991	320.3	147.4	30.5	78.3	38.5
1992	320.4	147.1	31.1	77.2	38.8
1993	322.2	147.6	31.4	79.1	37.2
1994	326.7	149.7	31.5	81.3	37.0
1995	327.1	150.1	30.9	82.0	37.1
1996	327.2	149.4	30.5	82.0	36.9
1997	329.0	149.7	30.6	82.9	36.2
1998	330.7	150.2	30.6	83.9	35.8
1999	332.0	149.7	30.5	84.9	34.3
2000	333.3	150.2	30.6	85.9	33.7
2001	335.2	151.1	30.6	87.4	33.0
2002	336.6	151.9	30.6	88.9	32.4
2003	338.8	153.3	30.8	90.4	32.1
2004	341.7	155.2	31.0	92.3	31.9
2005	345.2	157.4	31.3	94.4	31.7
2006	349.6	160.1	31.6	96.8	31.7
2007	354.3	163.1	32.0	99.4	31.7
2008	360.1	166.5	32.4	102.2	31.9
2009	367.0	170.4	33.0	105.4	32.0
2010	375.0	174.8	33.7	108.9	32.1

*Historical data

SOURCE: MAP Regional Model simulation C86.B4, region AG, created March 1986.

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projected in other regions (specifically, in the regions experiencing direct OCS developent impacts).

Figure 11 further illustrates the difference between the base-case and impact-case projections of Southcentral Region population and employment. The figure shows that the long-term effect of OCS development on Southcentral Alaska is significant, but not large. The contribution to the Southcentral Region population of Five-Year Program OCS developent rises rapidly between 1992 and 1994. The difference in regional population continues to rise to the end of the projection period, when it nearly reaches 12,000, or 3 percent of the base-case population in 2010.

The employment effect of OCS development rises quickly to around 3,000 jobs in 1995, near the time of peak statewide activity (as discussed in Chapter IV). The projected contribution of OCS development to regional employment continues to rise in the Southcentral Region after 1995, but more slowly than the population effect, reaching 5,000 (3.1 percent of total employment) by 2010.

As expected, nearly all jobs added in the Southcentral region from additional OCS development result from the indirect rather than the direct effects. Out of the 4,000 added jobs in the Southcentral Region in 2000, indirect effects (government and support sectors) account for all but about 15. Because the Southcentral Region's support sector responds to the basic sector growth occurring

FIGURE 11. IMPACT OF FIVE-YEAR PROGRAM

Southcentral Population and Employment

Support Employment

□ Population   + Total Employment   ◇ Basic Employment   △ Govt. Employment
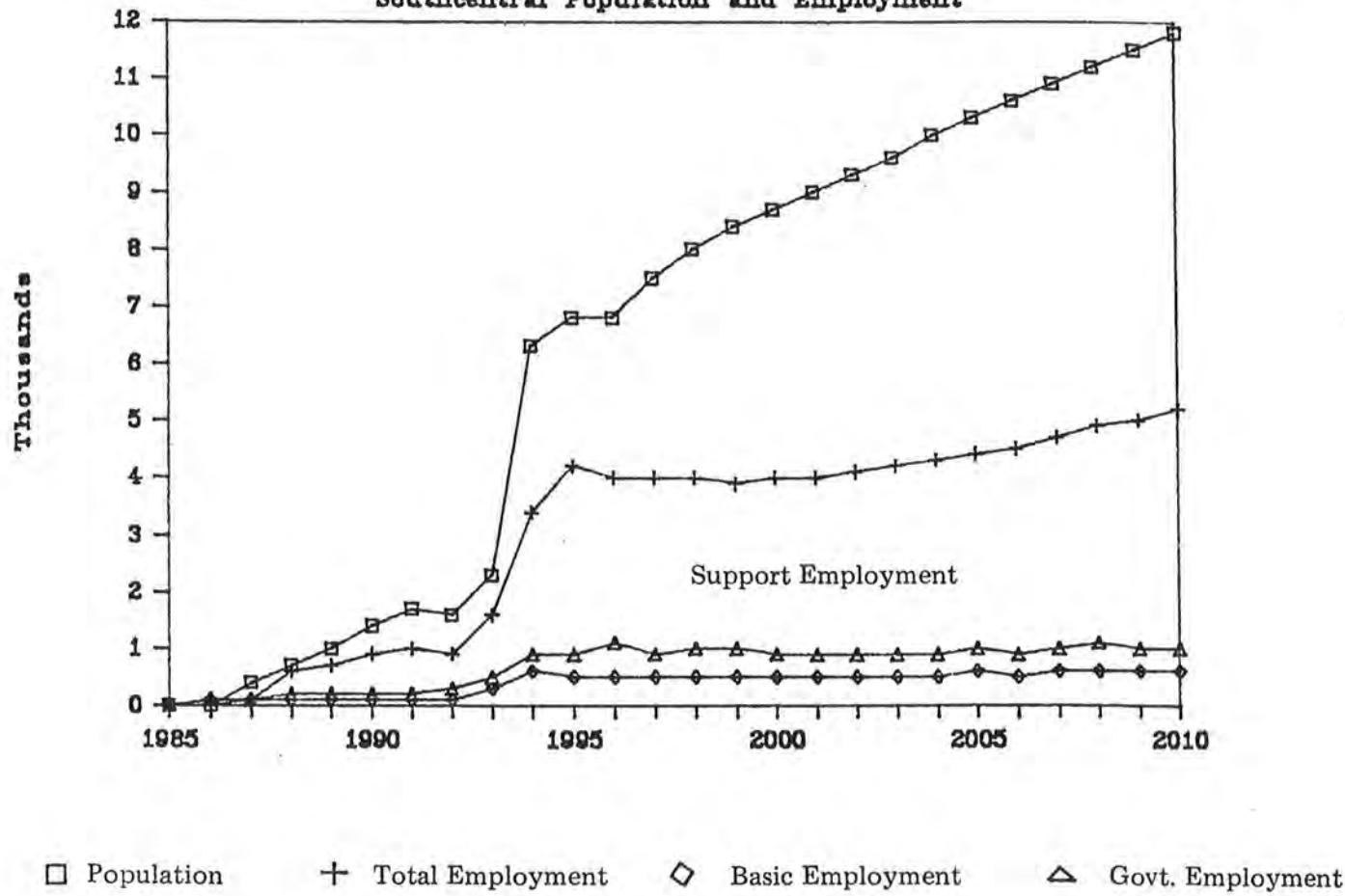
primarily elsewhere, Southcentral Region effects occur later on the average than the statewide effects.

Basically all of the indirect employment growth Alaska receives from the Five-Year Program will occur in the Southcentral Region. Figures 2 and 11 show that slightly less than one-half of all new jobs generated by OCS development during the period 1986-1995 will be located in the Southcentral Region. As OCS development moves more into the operation phase from the construction phase in 1996, Southcentral Alaska's employment impact increases by approximately one thousand jobs. Since the total number of impact jobs generated statewide does not increase after 1995, the Five-Year Program results in a slight decline in employment after 1995 outside the Southcentral Region of the state, as compared to the base case.

Of the total state population gain of 15,000 by 2010 (from Figure 6), we project that nearly 12,000, or almost 80 percent of the additional residents, will live in the Southcentral Region. These proportions derive from our assumptions used in the MAP regional model that the location of employment and population effects of OCS development in the Beaufort Sea and Bering Sea would be similar to those of the average basic industry job in the North Slope and Aleutian Islands census areas, respectively, in 1980.

VI. CONCLUSIONS

We project that the Alaska economy will go through an extended period of relative stability before resuming steady growth around the turn of the twenty-first century. Minor periods of cyclical instability appear within that general pattern of stable population and employment. These fluctuations are caused by projected fluctuations in onshore and OCS petroleum development activites as well as a decline in state spending due to declining oil revenues. After a recession in the late 1980s, private sector growth led by petroleum development takes over the slack in the economy left by declining state spending. The economy again is vulnerable to recessions in the 1990s as cycles of petroleum development activities are completed and as state revenues continue to fall. Steady growth resumes around the turn of the century as upward trends in national wages and per capita incomes cause Alaska wage rates to rise, stimulating support-sector growth.

OCS petroleum exploration and development activities related to the proposed Five-Year Leasing Program have a significant but not large effect on the Alaska economy. The long-term effect of Five-Year Program development on Alaska statewide population and employment rises steadily to around a 3 percent difference by 1995, and remains roughly constant through 2010. For the Southcentral Region of the state, the long-term effect--largely indirect--of OCS development continues to rise slowly after 1995, reaching nearly as large a

percentage difference by 2010. The effect of the Five-Year Program on Southcentral Region population and employment occurs later than for the state as a whole due to the lags in the multiplier process producing these largely indirect effects.

Onshore facilities constructed for petroleum development on areas leased under the Five-Year Program contribute a minor amount of new revenues to state and local governments. Indirectly, additional economic activities resulting from expanded economic activities generate some additional tax revenues. These increases in revenues, however, barely cover the increase in inflation expected from the higher level of activity. Consequently, the new revenues are not sufficient to offset the increased demand on public services created by the influx of new residents, an influx which occurs at a time of severe state fiscal pressure.

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APPENDIX A

MAP STATE MODEL PROJECTIONS
OIL ONLY DEVELOPED FROM LEASED AND UNLEASED AREAS

TABLE A.1. MAP STATE MODEL PROJECTION SUMMARY
OIL ONLY DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands)

Year	Total Population	Total Employment	Real General Fund Revenues (1985 $)	Real General Fund Expenditures (1985 $)	Real Per-capita Income (1985 $)
1983*	495	257	4095	4091	17644
1984*	523	265	3778	3800 a	16939
1985	537	272	3221	3640	16815
1986	551	279	3096	3098	16933
1987	556	281	2790	2892	17004
1988	556	276	2313	2629	16755
1989	556	272	2114	2365	16609
1990	558	272	2212	2315	16187
1991	559	271	2243	2340	16098
1992	561	271	2290	2373	16108
1993	566	274	2278	2355	16962
1994	571	279	2223	2287	17140
1995	571	277	2171	2217	16910
1996	571	274	2044	2089	16780
1997	572	274	1988	2014	17013
1998	574	274	1944	1960	17230
1999	572	272	1642	1696	17392
2000	573	272	1531	1553	17656
2001	574	272	1408	1429	17918
2002	574	272	1280	1300	18132
2003	576	273	1242	1245	18440
2004	579	275	1208	1212	18708
2005	583	278	1188	1188	19030
2006	588	282	1181	1178	19346
2007	594	286	1175	1170	19592
2008	602	291	1171	1165	19894
2009	612	296	1169	1161	20183
2010	623	303	1170	1164	20469

*Historical data
aPreliminary

SOURCE: MAP State Model simulation A86.B4.3, created March 1986;
         Variables POP, EM99, DF.RSGFB, DF.EXGFB, DFP.PI

TABLE A.2. EMPLOYMENT BY SECTOR
OIL ONLY DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands of employees)

Year	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	257	71	102	84
1984*	265	68	109	87
1985	272	69	114	89
1986	279	72	118	88
1987	281	73	121	86
1988	276	70	121	85
1989	272	70	119	83
1990	272	70	118	83
1991	271	71	116	84
1992	271	72	115	84
1993	274	77	117	81
1994	279	79	120	80
1995	277	75	121	81
1996	274	74	121	80
1997	274	74	122	78
1998	274	74	123	77
1999	272	74	124	73
2000	272	75	125	72
2001	272	75	127	70
2002	272	74	129	69
2003	273	75	130	68
2004	275	75	133	68
2005	278	75	136	67
2006	282	76	139	67
2007	286	76	142	67
2008	291	77	146	68
2009	296	78	150	68
2010	303	79	155	68

*Historical data

SOURCE: MAP State Model simulation A86.B4.3, created March 1986;
         Variables EM99, EM.B, EM.S, EMG9

TABLE A.3. PRIVATE SECTOR EMPLOYMENT BY INDUSTRY
OIL ONLY DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands of employees)

Year	Total Private Employment	Agriculture[a] Forestry Fisheries	Mining	Construction	Manufacturing	Transport. Communicat. Public Util.	Trade[b] Finance Services
1983*	173.4	9.9	8.2	20.8	11.9	18.6	89.4
1984*	177.5	NA	8.7	20.3	11.3	18.9	96.4
1985	183.2	9.5	9.3	17.1	11.3	20.7	115.3
1986	190.5	9.5	10.2	17.5	12.3	21.3	119.7
1987	194.2	9.6	11.8	15.5	12.5	21.7	123.1
1988	191.2	9.6	11.1	13.2	12.7	21.6	122.9
1989	189.2	9.6	11.8	12.1	12.9	21.5	121.3
1990	188.7	9.6	12.2	11.8	13.1	21.4	120.6
1991	186.7	9.6	12.0	11.8	13.3	21.1	118.9
1992	186.8	9.7	12.0	12.7	13.5	21.0	117.8
1993	193.4	9.7	15.3	12.7	13.8	22.1	119.7
1994	199.1	9.7	17.1	12.4	14.0	22.7	123.2
1995	196.2	9.8	14.6	10.6	14.1	22.6	124.6
1996	194.5	9.8	13.6	9.8	14.2	22.6	124.5
1997	195.7	9.9	13.6	9.7	14.3	22.8	125.4
1998	197.0	10.0	13.4	9.5	14.5	23.0	126.6
1999	198.2	10.1	13.4	9.4	14.7	23.2	127.5
2000	199.7	10.1	13.4	9.2	15.0	23.4	128.7
2001	201.6	10.1	13.2	9.0	15.0	23.7	130.6
2002	202.8	10.1	12.5	8.9	15.0	23.9	132.4
2003	205.1	10.1	12.5	8.8	15.0	24.2	134.5
2004	207.5	10.1	11.9	8.8	15.1	24.6	137.1
2005	210.9	10.1	11.9	8.8	15.1	24.9	140.0
2006	214.8	10.1	11.9	8.8	15.1	25.4	143.4
2007	218.3	10.1	11.3	8.9	15.1	25.8	147.1
2008	222.9	10.1	11.3	9.0	15.2	26.3	151.0
2009	228.2	10.1	11.3	9.2	15.2	26.8	155.6
2010	234.3	10.1	11.3	9.7	15.3	27.4	160.5

[a]Includes fisheries proprietors and unclassified
[b]Includes proprietors after 1985
*Historical data

SOURCE: MAP State Model simulation A86.B4.3, created March 1986; Variables EMPVT,
EMAFF, EMP9, EMCN, EMM9, EMTCU, EMSUP

TABLE A.4. GOVERNMENT EMPLOYMENT
OIL ONLY DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands of employees)

Year	Total Government Employment	Active-Duty Military	Federal Civilian Government	Alaska State Government	Local Government
1983*	84.1	22.3	17.7	18.9	25.2
1984*	87.1	22.6	18.1	19.3	27.1
1985	88.7	22.6	17.9	20.3	27.9
1986	88.4	25.0	17.7	19.8	25.9
1987	86.3	24.7	17.5	19.9	24.2
1988	85.0	24.5	17.4	18.8	24.3
1989	83.1	24.3	17.2	17.8	23.9
1990	83.4	24.1	17.0	18.1	24.2
1991	83.8	23.9	17.1	18.3	24.6
1992	84.5	23.6	17.2	18.8	24.8
1993	80.6	23.4	17.3	17.1	22.9
1994	80.1	23.2	17.4	16.6	22.9
1995	80.5	23.0	17.5	16.1	23.9
1996	79.7	22.8	17.5	15.4	23.9
1997	78.1	22.6	17.6	14.8	23.1
1998	77.0	22.4	17.7	14.2	22.7
1999	73.4	22.2	17.8	12.2	21.2
2000	72.1	22.0	17.9	11.4	20.8
2001	70.5	21.8	18.0	10.5	20.1
2002	68.9	21.6	18.1	9.7	19.6
2003	68.3	21.4	18.2	9.3	19.4
2004	67.7	21.3	18.3	9.0	19.2
2005	67.3	21.1	18.4	8.7	19.2
2006	67.2	20.9	18.4	8.5	19.4
2007	67.4	20.7	18.5	8.4	19.7
2008	67.6	20.5	18.6	8.3	20.2
2009	68.0	20.3	18.7	8.2	20.7
2010	68.2	20.2	18.8	8.0	21.2

*Historical data

SOURCE: MAP State Model simulation A86.B4.3, created March 1986;
         Variables EMG9, EMGM, EMGC, EMGS, EMGL

TABLE A.5. TOTAL POPULATION AND ITS COMPONENTS
OIL ONLY DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands)

Year	Total Population	Active-Duty Military and Dependents	Alaska Natives	Civilian Non-Native Population
1983*	495.3	46.3	69.9	379.1
1984*	523.0	46.9	71.8	404.3
1985	537.0	46.9	73.6	416.4
1986	550.8	51.8	75.5	423.5
1987	556.3	51.4	77.4	427.6
1988	556.4	50.9	79.3	426.2
1989	556.1	50.5	81.1	424.5
1990	558.2	50.0	83.0	425.2
1991	558.9	49.6	84.9	424.4
1992	561.3	49.1	86.9	425.4
1993	565.7	48.7	88.8	428.2
1994	571.4	48.3	90.7	432.4
1995	571.0	47.8	92.7	430.5
1996	570.7	47.4	94.7	428.6
1997	571.9	47.0	96.7	428.3
1998	573.5	46.6	98.8	428.2
1999	572.4	46.2	100.8	425.5
2000	573.2	45.7	103.0	424.5
2001	573.9	45.3	105.1	423.5
2002	574.2	44.9	107.3	421.9
2003	576.3	44.5	109.5	422.2
2004	578.8	44.2	111.8	422.8
2005	582.9	43.8	114.1	425.0
2006	588.4	43.4	116.5	428.5
2007	594.4	43.0	118.9	432.5
2008	602.3	42.6	121.3	438.4
2009	611.7	42.3	123.8	445.6
2010	622.6	41.9	126.3	454.4

*Historical data

SOURCE: MAP State Model simulation A86.B4.3, created March 1986;
         Variables POP, MILTOT, NATTOT, CNNTOT

TABLE A.6. COMPONENTS OF POPULATION CHANGE
OIL ONLY DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands)

Year	Total Population	Change in Population	Natural Increase	Net Civilian Migration	Net Military Migration
1983*	495.3	34.5	9.9	24.4	0.2
1984*	523.0	27.7	10.3	17.2	0.3
1985	537.0	13.9	10.2	3.1	0.6
1986	550.8	13.8	10.4	-0.3	3.8
1987	556.3	5.5	10.3	-3.2	-1.6
1988	556.4	0.1	10.2	-8.5	-1.6
1989	556.1	-0.3	10.0	-8.6	-1.6
1990	558.2	2.1	9.7	-6.1	-1.5
1991	558.9	0.7	9.5	-7.5	-1.4
1992	561.3	2.4	9.4	-5.6	-1.4
1993	565.7	4.4	9.3	-3.5	-1.4
1994	571.4	5.7	9.3	-2.2	-1.4
1995	571.0	-0.4	9.3	-8.4	-1.4
1996	570.7	-0.3	9.1	-8.0	-1.4
1997	571.9	1.2	9.0	-6.4	-1.4
1998	573.5	1.6	8.9	-6.0	-1.4
1999	572.4	-1.1	8.9	-8.6	-1.4
2000	573.2	0.8	8.8	-6.6	-1.4
2001	573.9	0.7	8.6	-6.7	-1.3
2002	574.2	0.2	8.5	-7.1	-1.3
2003	576.3	2.1	8.5	-5.1	-1.3
2004	578.8	2.5	8.5	-4.7	-1.3
2005	582.9	4.1	8.5	-3.1	-1.3
2006	588.4	5.4	8.5	-1.8	-1.3
2007	594.4	6.0	8.6	-1.3	-1.3
2008	602.3	7.9	8.7	0.5	-1.3
2009	611.7	9.4	8.8	1.8	-1.3
2010	622.6	10.9	9.0	3.2	-1.3

*Historical data

SOURCE: MAP State Model simulation A86.B4.4, created March 1986;
         Variables POP, DELPOP, POPNI9, POPMIG, POPMIGM

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TABLE A.7. POPULATION BY AGE COHORTS
OIL ONLY DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands)

Year	Total Population	Pre-school Population (Age 0-4)	School-age Population (Age 5-19)	Working-age Population (Age 20-64)	Elderly Population (Age 65+)
1983*	495.3	51.8	125.4	304.4	13.7
1984*	523.0	55.2	128.7	324.4	14.7
1985	537.0	54.9	128.1	336.9	17.2
1986	550.8	56.5	131.0	345.1	18.3
1987	556.3	56.8	132.0	348.2	19.4
1988	556.4	56.5	132.0	347.5	20.4
1989	556.1	56.1	131.9	346.7	21.4
1990	558.2	55.9	132.4	347.5	22.5
1991	558.9	55.5	132.5	347.4	23.4
1992	561.3	55.3	133.0	348.6	24.4
1993	565.7	55.4	133.9	351.0	25.4
1994	571.4	55.6	135.0	354.4	26.5
1995	571.0	55.3	134.7	353.5	27.5
1996	570.7	54.9	134.5	352.8	28.5
1997	571.9	54.8	134.6	353.0	29.5
1998	573.5	54.7	134.8	353.5	30.5
1999	572.4	54.5	134.3	352.1	31.6
2000	573.2	54.4	134.3	352.0	32.6
2001	573.9	54.3	134.2	351.7	33.7
2002	574.2	54.2	134.0	351.2	34.7
2003	576.3	54.3	134.3	351.8	35.8
2004	578.8	54.5	134.7	352.8	36.8
2005	582.9	54.9	135.4	354.7	37.9
2006	588.4	55.5	136.5	357.6	38.9
2007	594.4	56.1	137.7	360.7	39.9
2008	602.3	56.9	139.4	365.2	40.9
2009	611.7	57.8	141.4	370.6	41.9
2010	622.6	58.9	143.8	377.0	42.9

*Historical data

SOURCE: MAP State Model simulation A86.B4.3, created March 1986;
Variables POP, POPTINY, POPSKUL, POPADS, POPGER

TABLE A.8. REAL STATE REVENUES BY SOURCE
OIL ONLY DEVELOPED FROM LEASED AND UNLEASED AREAS

(millions of 1985 dollars)

Year	Total Revenues	Petroleum Revenues	Federal Grants-in-Aid	Investment Earnings	Other Revenues
1983*	4927	3674	197	784	272
1984*	4694	3306	276	831	281
1985	4145	3130	200	576	238
1986	4087	3047	204	595	241
1987	3786	2629	209	704	244
1988	3338	2116	212	771	239
1989	3141	1941	215	754	232
1990	2955	1769	218	743	226
1991	3004	1662	221	738	383
1992	3049	1572	224	735	517
1993	3089	1521	229	810	529
1994	3036	1444	234	811	547
1995	2991	1393	239	814	545
1996	2857	1271	242	811	533
1997	2803	1210	247	814	532
1998	2780	1125	252	869	534
1999	2437	786	257	858	536
2000	2319	668	263	850	539
2001	2182	529	268	843	542
2002	2036	383	274	833	546
2003	2000	344	280	827	550
2004	1969	306	285	821	556
2005	1952	280	292	817	564
2006	1948	265	298	812	573
2007	1945	250	304	808	582
2008	1945	237	311	805	592
2009	1947	224	318	801	605
2010	1952	212	325	797	618

*Historical data

SOURCE: MAP State Model simulation A86.B4.3, created March 1986;
Variables DF.R99S, DF.RP9S, DF.RSFD, DF.RSI99, DF.RSEN

TABLE A.9.   REAL STATE GENERAL FUND APPROPRIATIONS,
DIVIDENDS, AND FUNDS BALANCE
OIL ONLY DEVELOPED FROM LEASED AND UNLEASED AREAS

(millions of 1985 dollars)

Year	Total[a] General Fund Appropriations	Capital[a] Appropriations	Operating[a] Appropriations	Debt Service	Permanent Fund Dividends	Combined Funds Balance
1983*	3247	1071	1823	153	127	7114
1984*	3231	973	1997	170	156	7812
1985	3220	981	2082	156	175	8056
1986	3036	863	2014	159	203	9305
1987	2832	747	1933	151	213	9441
1988	2568	625	1805	139	215	9253
1989	2308	513	1673	122	215	9137
1990	2368	566	1698	104	0	9102
1991	2362	570	1711	81	0	9089
1992	2402	585	1755	63	0	9086
1993	2364	570	1709	85	0	9127
1994	2289	544	1633	111	0	9178
1995	2221	523	1568	130	0	9242
1996	2088	491	1474	122	0	9237
1997	2021	477	1431	113	0	9304
1998	1969	465	1395	110	0	9344
1999	1661	390	1170	101	0	9298
2000	1551	366	1099	85	0	9274
2001	1422	337	1012	73	0	9234
2002	1291	306	918	66	0	9172
2003	1250	297	891	63	0	9127
2004	1219	290	869	59	0	9082
2005	1196	285	855	56	0	9039
2006	1187	283	850	54	0	9000
2007	1180	282	846	51	0	8961
2008	1177	285	854	39	0	8922
2009	1174	288	864	22	0	8885
2010	1174	287	860	27	0	8845

[a]Represents general fund expenditures in 1983, 1984
*Historical data

SOURCE: MAP State Model simulation A86.B4.3, created March 1986; Variables DF.APGF,
DF.APGFC, DF.APGFO, DF.EXDSS, DF.EXTRN, DF.BAL99

TABLE A.10. REAL PERSONAL INCOME BY SOURCE
OIL ONLY DEVELOPED FROM LEASED AND UNLEASED AREAS

(millions of 1985 dollars)

Year	Wage and Salary Income	Proprietors' Income	Residence Adjustment	Property Income	Transfer Payments	Personal Income	Disposable Personal Income
1983*	6923	395	−615	981	982	8739	7295
1984*	6976	448	−595	1112	817	8680	7567
1985	7158	377	−623	1156	898	9029	7569
1986	7322	385	−657	1233	978	9327	7817
1987	7288	387	−592	1272	1040	9460	7928
1988	7047	382	−532	1275	1086	9323	7815
1989	6921	378	−524	1269	1130	9237	7742
1990	6895	377	−521	1263	959	9036	7563
1991	6826	376	−514	1244	1001	8997	7304
1992	6845	376	−515	1227	1044	9042	7338
1993	7380	380	−561	1231	1094	9596	7778
1994	7527	386	−580	1243	1145	9794	7934
1995	7285	383	−535	1255	1196	9656	7825
1996	7140	381	−521	1266	1240	9576	7761
1997	7224	380	−527	1287	1294	9731	7884
1998	7318	381	−534	1294	1348	9882	8004
1999	7336	379	−536	1300	1403	9956	8062
2000	7433	379	−542	1315	1459	10121	8193
2001	7524	379	−549	1335	1516	10284	8322
2002	7576	379	−554	1357	1574	10411	8423
2003	7716	381	−564	1380	1632	10627	8595
2004	7837	383	−573	1406	1692	10828	8756
2005	8023	387	−589	1435	1752	11093	8966
2006	8227	391	−604	1468	1813	11383	9196
2007	8399	396	−618	1503	1874	11645	9406
2008	8648	402	−639	1543	1935	11983	9674
2009	8915	409	−659	1586	1997	12346	9963
2010	9218	417	−685	1633	2060	12745	10281

*Historical data

SOURCE: MAP State Model simulation A86.B4.3, created March 1986; Variables DF.WS98, DF.PIPRO, DF.PIRAD, DF.PIDIR, DF.PITRA, DF.PI, DF.DPI

TABLE A.11. REAL PER-CAPITA PERSONAL INCOME BY SOURCE
OIL ONLY DEVELOPED FROM LEASED AND UNLEASED AREAS

(1985 dollars)

Year	Wage and Salary Income	Proprietors' Income	Residence Adjustment	Property Income	Transfer Payments	Personal Income	Disposable Personal Income
1983*	13977	797	−1242	1981	1983	17644	14728
1984*	13338	857	−1138	2126	1562	16597	14468
1985	13331	701	−1160	2154	1672	16815	14097
1986	13294	699	−1193	2239	1776	16933	14192
1987	13099	696	−1064	2286	1869	17004	14251
1988	12665	687	−955	2291	1952	16755	14045
1989	12444	679	−941	2281	2033	16609	13922
1990	12352	676	−934	2262	1717	16187	13549
1991	12214	672	−919	2226	1792	16098	13069
1992	12194	671	−918	2187	1859	16108	13073
1993	13046	672	−991	2176	1933	16962	13749
1994	13172	676	−1016	2175	2003	17140	13884
1995	12758	672	−937	2198	2095	16910	13705
1996	12511	667	−913	2218	2174	16780	13599
1997	12630	665	−921	2251	2262	17013	13785
1998	12760	664	−931	2257	2350	17230	13956
1999	12814	661	−936	2271	2450	17392	14084
2000	12967	661	−945	2294	2545	17656	14293
2001	13109	661	−956	2327	2641	17918	14501
2002	13195	660	−965	2363	2741	18132	14671
2003	13389	661	−978	2394	2833	18440	14915
2004	13541	662	−990	2429	2923	18708	15127
2005	13764	663	−1011	2462	3005	19030	15381
2006	13982	665	−1027	2494	3081	19346	15630
2007	14131	666	−1039	2529	3152	19592	15824
2008	14358	667	−1061	2561	3213	19894	16061
2009	14574	668	−1077	2593	3265	20183	16288
2010	14805	669	−1100	2623	3309	20469	16511

*Historical data

SOURCE: MAP State Model simulation A86.B4.4, created March 1986; Variables DFP.WS98, DFP.PIPR, DFP.PIRA, DFP.PIDI, DFP.PITR, DFP.PI, DFP.DPI

APPENDIX B

MAP STATE MODEL PROJECTIONS
OIL AND GAS DEVELOPED FROM AREAS LEASED TO JANUARY 1987

TABLE B.1. MAP STATE MODEL PROJECTION SUMMARY
OIL AND GAS DEVELOPED FROM AREAS LEASED TO JAN. 1987

(thousands)

Year	Total Population	Total Employment	Real General Fund Revenues (1985 $)	Real General Fund Expenditures (1985 $)	Real Per-capita Income (1985 $)
1983*	495	257	4095	4091	17644
1984*	523	265	3778	3800 [a]	16939
1985	537	272	3221	3640	16815
1986	551	279	3095	3098	16937
1987	556	280	2789	2891	16982
1988	556	276	2312	2628	16731
1989	555	272	2113	2364	16595
1990	557	271	2211	2313	16149
1991	558	269	2241	2338	16069
1992	560	270	2282	2367	16085
1993	564	272	2264	2342	16847
1994	564	273	2220	2282	16814
1995	565	271	2175	2220	16764
1996	565	270	2064	2109	16734
1997	566	270	2008	2035	16961
1998	567	270	1964	1980	17178
1999	566	268	1660	1714	17344
2000	567	268	1548	1569	17608
2001	567	268	1423	1444	17870
2002	567	268	1293	1314	18082
2003	569	269	1254	1258	18391
2004	571	271	1219	1224	18657
2005	575	274	1198	1198	18979
2006	580	278	1190	1186	19294
2007	586	281	1182	1177	19538
2008	594	286	1176	1171	19838
2009	603	291	1173	1165	20127
2010	613	297	1172	1166	20413

*Historical data
[a]Preliminary

SOURCE: MAP State Model simulation A86.B1.3, created March 1986;
         Variables POP, EM99, DF.RSGFB, DF.EXGFB, DFP.PI

TABLE B.2. EMPLOYMENT BY SECTOR
OIL AND GAS DEVELOPED FROM AREAS LEASED TO JAN. 1987

(thousands of employees)

Year	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	257	71	102	84
1984*	265	68	109	87
1985	272	69	114	89
1986	279	73	118	88
1987	280	73	121	86
1988	276	70	121	85
1989	272	70	119	83
1990	271	70	118	83
1991	269	70	116	84
1992	270	72	114	84
1993	272	76	116	80
1994	273	75	118	80
1995	271	73	118	80
1996	270	72	119	80
1997	270	72	120	78
1998	270	72	121	77
1999	268	72	122	74
2000	268	73	123	72
2001	268	73	125	71
2002	268	72	127	69
2003	269	73	128	68
2004	271	72	131	68
2005	274	73	134	67
2006	278	74	137	67
2007	281	74	140	67
2008	286	75	144	67
2009	291	76	148	68
2010	297	77	152	68

*Historical data

SOURCE: MAP State Model simulation A86.B1.3, created March 1986;
Variables EM99, EM.B, EM.S, EMG9

TABLE B.3. PRIVATE SECTOR EMPLOYMENT BY INDUSTRY
OIL AND GAS DEVELOPED FROM AREAS LEASED TO JAN. 1987

(thousands of employees)

Year	Total Private Employment	Agriculture[a] Forestry Fisheries	Mining	Construction	Manufacturing	Transport. Communicat. Public Util.	Trade[b] Finance Services
1983*	173.4	9.9	8.2	20.8	11.9	18.6	89.4
1984*	177.5	NA	8.7	20.3	11.3	18.9	96.4
1985	183.2	9.5	9.3	17.1	11.3	20.7	115.3
1986	190.6	9.5	10.2	17.5	12.3	21.3	119.8
1987	193.7	9.6	11.6	15.4	12.5	21.6	123.0
1988	190.5	9.6	10.9	13.2	12.7	21.5	122.6
1989	188.7	9.6	11.7	12.1	12.9	21.4	121.0
1990	187.7	9.6	11.8	11.8	13.1	21.2	120.2
1991	185.7	9.6	11.7	11.8	13.3	20.9	118.4
1992	185.9	9.7	11.8	12.7	13.5	20.9	117.3
1993	192.0	9.7	13.6	14.0	13.8	21.7	119.2
1994	192.8	9.7	13.3	12.6	13.9	21.8	121.4
1995	191.1	9.8	13.0	10.5	14.0	22.0	121.8
1996	190.6	9.8	12.6	9.8	14.2	22.0	122.2
1997	191.7	9.9	12.4	9.7	14.3	22.2	123.3
1998	193.1	10.0	12.2	9.5	14.4	22.4	124.5
1999	194.3	10.1	12.0	9.4	14.6	22.6	125.5
2000	195.9	10.1	12.0	9.2	14.9	22.8	126.8
2001	197.7	10.1	11.9	9.0	14.9	23.1	128.7
2002	198.9	10.1	11.1	8.9	15.0	23.3	130.4
2003	201.1	10.1	11.1	8.8	15.0	23.7	132.4
2004	203.4	10.1	10.6	8.7	15.0	24.0	134.9
2005	206.6	10.1	10.6	8.8	15.1	24.4	137.7
2006	210.4	10.1	10.6	8.8	15.1	24.8	141.0
2007	213.8	10.1	10.0	8.8	15.1	25.2	144.6
2008	218.2	10.1	10.0	8.9	15.1	25.7	148.4
2009	223.4	10.1	10.0	9.1	15.2	26.2	152.8
2010	229.3	10.1	10.0	9.6	15.2	26.8	157.6

[a]Includes fisheries proprietors and unclassified
[b]Includes proprietors after 1985
*Historical data

SOURCE: MAP State Model simulation A86.B1.3, created March 1986; Variables EMPVT,
          EMAFF, EMP9, EMCN, EMM9, EMTCU, EMSUP

TABLE B.4. GOVERNMENT EMPLOYMENT
OIL AND GAS DEVELOPED FROM AREAS LEASED TO JAN. 1987

(thousands of employees)

Year	Total Government Employment	Active-Duty Military	Federal Civilian Government	Alaska State Government	Local Government
1983*	84.1	22.3	17.7	18.9	25.2
1984*	87.1	22.6	18.1	19.3	27.1
1985	88.7	22.6	17.9	20.3	27.9
1986	88.4	25.0	17.7	19.8	25.9
1987	86.3	24.7	17.5	19.9	24.2
1988	85.0	24.5	17.4	18.8	24.3
1989	83.1	24.3	17.2	17.8	23.8
1990	83.3	24.1	17.0	18.1	24.2
1991	83.8	23.9	17.1	18.3	24.5
1992	84.3	23.6	17.2	18.7	24.7
1993	80.4	23.4	17.3	17.0	22.6
1994	79.8	23.2	17.4	16.5	22.7
1995	80.4	23.0	17.5	16.2	23.8
1996	79.7	22.8	17.5	15.6	23.8
1997	78.3	22.6	17.6	14.9	23.2
1998	77.2	22.4	17.7	14.3	22.8
1999	73.6	22.2	17.8	12.3	21.3
2000	72.3	22.0	17.9	11.5	20.9
2001	70.6	21.8	18.0	10.6	20.1
2002	69.0	21.6	18.1	9.8	19.5
2003	68.4	21.4	18.2	9.4	19.4
2004	67.7	21.3	18.3	9.1	19.1
2005	67.3	21.1	18.4	8.8	19.1
2006	67.1	20.9	18.4	8.6	19.2
2007	67.2	20.7	18.5	8.4	19.5
2008	67.4	20.5	18.6	8.3	20.0
2009	67.7	20.3	18.7	8.2	20.4
2010	67.9	20.2	18.8	8.1	20.9

*Historical data

SOURCE: MAP State Model simulation A86.B1.3, created March 1986;
         Variables EMG9, EMGM, EMGC, EMGS, EMGL

TABLE B.5.   TOTAL POPULATION AND ITS COMPONENTS
OIL AND GAS DEVELOPED FROM AREAS LEASED TO JAN. 1987

(thousands)

Year	Total Population	Active-Duty Military and Dependents	Alaska Natives	Civilian Non-Native Population
1983*	495.3	46.3	69.9	379.1
1984*	523.0	46.9	71.8	404.3
1985	537.0	46.9	73.6	416.4
1986	550.9	51.8	75.5	423.5
1987	555.8	51.4	77.4	427.1
1988	555.7	50.9	79.3	425.6
1989	555.5	50.5	81.1	423.9
1990	557.0	50.0	83.0	424.0
1991	557.6	49.6	84.9	423.1
1992	559.9	49.1	86.9	423.9
1993	563.6	48.7	88.8	426.1
1994	564.5	48.3	90.7	425.5
1995	564.6	47.8	92.7	424.1
1996	564.8	47.4	94.7	422.8
1997	565.9	47.0	96.7	422.2
1998	567.2	46.6	98.8	421.9
1999	566.0	46.2	100.8	419.0
2000	566.6	45.7	103.0	417.9
2001	567.1	45.3	105.1	416.7
2002	567.1	44.9	107.3	414.9
2003	569.0	44.5	109.5	414.9
2004	571.2	44.2	111.8	415.3
2005	575.1	43.8	114.1	417.2
2006	580.3	43.4	116.5	420.4
2007	585.9	43.0	118.9	424.1
2008	593.5	42.6	121.3	429.5
2009	602.5	42.3	123.8	436.5
2010	613.1	41.9	126.3	444.8

*Historical data

SOURCE: MAP State Model simulation A86.B1.3, created March 1986;
          Variables POP, MILTOT, NATTOT, CNNTOT

TABLE B.6. COMPONENTS OF POPULATION CHANGE
OIL AND GAS DEVELOPED FROM AREAS LEASED TO JAN. 1987

(thousands)

Year	Total Population	Change in Population	Natural Increase	Net Civilian Migration	Net Military Migration
1983*	495.3	34.5	9.9	24.4	0.2
1984*	523.0	27.7	10.3	17.2	0.3
1985	537.0	13.9	10.2	3.1	0.6
1986	550.9	13.9	10.4	-0.2	3.8
1987	555.8	4.9	10.3	-3.8	-1.6
1988	555.7	-0.1	10.2	-8.7	-1.6
1989	555.5	-0.3	10.0	-8.6	-1.6
1990	557.0	1.5	9.6	-6.7	-1.5
1991	557.6	0.6	9.5	-7.6	-1.4
1992	559.9	2.3	9.3	-5.7	-1.4
1993	563.6	3.7	9.2	-4.2	-1.4
1994	564.5	0.9	9.2	-7.0	-1.4
1995	564.6	0.2	9.1	-7.6	-1.4
1996	564.8	0.2	9.0	-7.4	-1.4
1997	565.9	1.1	8.9	-6.4	-1.4
1998	567.2	1.3	8.8	-6.1	-1.4
1999	566.0	-1.2	8.7	-8.6	-1.4
2000	566.6	0.6	8.6	-6.6	-1.4
2001	567.1	0.5	8.5	-6.8	-1.3
2002	567.1	-0.0	8.4	-7.2	-1.3
2003	569.0	1.9	8.3	-5.3	-1.3
2004	571.2	2.3	8.3	-4.8	-1.3
2005	575.1	3.9	8.3	-3.2	-1.3
2006	580.3	5.2	8.4	-2.0	-1.3
2007	585.9	5.7	8.5	-1.5	-1.3
2008	593.5	7.6	8.6	0.3	-1.3
2009	602.5	9.0	8.7	1.6	-1.3
2010	613.1	10.5	8.9	3.0	-1.3

*Historical data

SOURCE: MAP State Model simulation A86.B1.4, created March 1986;
Variables POP, DELPOP, POPNI9, POPMIG, POPMIGM

TABLE B.7. POPULATION BY AGE COHORTS
OIL AND GAS DEVELOPED FROM AREAS LEASED TO JAN. 1987

(thousands)

Year	Total Population	Pre-school Population (Age 0-4)	School-age Population (Age 5-19)	Working-age Population (Age 20-64)	Elderly Population (Age 65+)
1983*	495.3	51.8	125.4	304.4	13.7
1984*	523.0	55.2	128.7	324.4	14.7
1985	537.0	54.9	128.1	336.9	17.2
1986	550.9	56.5	131.0	345.2	18.3
1987	555.8	56.8	131.9	347.8	19.4
1988	555.7	56.4	131.8	347.1	20.4
1989	555.5	56.0	131.8	346.2	21.4
1990	557.0	55.7	132.1	346.7	22.4
1991	557.6	55.4	132.2	346.5	23.4
1992	559.9	55.2	132.7	347.6	24.4
1993	563.6	55.2	133.4	349.6	25.4
1994	564.5	54.9	133.5	349.7	26.4
1995	564.6	54.6	133.3	349.2	27.4
1996	564.8	54.3	133.2	348.8	28.4
1997	565.9	54.2	133.3	349.0	29.5
1998	567.2	54.1	133.3	349.3	30.5
1999	566.0	53.8	132.8	347.8	31.5
2000	566.6	53.7	132.8	347.6	32.6
2001	567.1	53.7	132.7	347.2	33.6
2002	567.1	53.6	132.4	346.5	34.6
2003	569.0	53.7	132.7	347.0	35.7
2004	571.2	53.9	133.0	347.7	36.7
2005	575.1	54.2	133.7	349.5	37.7
2006	580.3	54.7	134.7	352.2	38.7
2007	585.9	55.3	135.8	355.1	39.7
2008	593.5	56.1	137.4	359.3	40.7
2009	602.5	57.0	139.4	364.5	41.7
2010	613.1	58.1	141.7	370.6	42.6

*Historical data

SOURCE: MAP State Model simulation A86.B1.3, created March 1986;
         Variables POP, POPTINY, POPSKUL, POPADS, POPGER

TABLE B.8.   REAL STATE REVENUES BY SOURCE
OIL AND GAS DEVELOPED FROM AREAS LEASED TO JAN. 1987

(millions of 1985 dollars)

Year	Total Revenues	Petroleum Revenues	Federal Grants-in-Aid	Investment Earnings	Other Revenues
1983*	4927	3674	197	784	272
1984*	4694	3306	276	831	281
1985	4145	3130	200	576	238
1986	4086	3046	204	595	241
1987	3785	2628	209	704	244
1988	3336	2116	212	771	238
1989	3140	1940	215	754	231
1990	2954	1768	218	743	225
1991	3002	1661	221	738	382
1992	3042	1567	224	735	515
1993	3075	1510	229	809	527
1994	3033	1449	234	811	539
1995	2995	1410	238	815	532
1996	2882	1297	243	816	525
1997	2828	1236	248	819	524
1998	2805	1150	254	875	527
1999	2460	809	259	864	529
2000	2341	690	264	856	531
2001	2202	549	270	849	535
2002	2054	402	275	839	538
2003	2017	362	281	832	542
2004	1985	323	287	827	547
2005	1966	296	293	822	555
2006	1961	280	300	818	564
2007	1957	264	306	814	572
2008	1955	250	313	810	582
2009	1956	236	320	806	594
2010	1959	223	327	803	607

*Historical data

SOURCE: MAP State Model simulation A86.B1.3, created March 1986;
         Variables DF.R99S, DF.RP9S, DF.RSFD, DF.RSI99, DF.RSEN

TABLE B.9. REAL STATE GENERAL FUND APPROPRIATIONS,
DIVIDENDS, AND FUNDS BALANCE
OIL AND GAS DEVELOPED FROM AREAS LEASED TO JAN. 1987

(millions of 1985 dollars)

Year	Total[a] General Fund Appropriations	Capital[a] Appropriations	Operating[a] Appropriations	Debt Service	Permanent Fund Dividends	Combined Funds Balance
1983*	3247	1071	1823	153	127	7114
1984*	3231	973	1997	170	156	7812
1985	3220	981	2082	156	175	8056
1986	3036	863	2014	159	203	9304
1987	2831	747	1933	151	213	9440
1988	2567	624	1804	139	215	9252
1989	2307	513	1672	122	215	9136
1990	2367	566	1697	104	0	9102
1991	2360	570	1710	81	0	9089
1992	2395	583	1749	63	0	9084
1993	2350	566	1699	85	0	9124
1994	2286	544	1631	111	0	9174
1995	2225	524	1572	129	0	9238
1996	2108	497	1490	122	0	9291
1997	2042	482	1446	113	0	9360
1998	1990	470	1410	110	0	9401
1999	1679	395	1184	101	0	9355
2000	1568	371	1112	85	0	9331
2001	1438	341	1024	73	0	9291
2002	1304	310	929	66	0	9229
2003	1263	300	900	63	0	9184
2004	1230	293	878	59	0	9138
2005	1205	287	862	56	0	9096
2006	1196	285	856	55	0	9056
2007	1187	284	851	52	0	9018
2008	1183	286	857	40	0	8978
2009	1178	289	867	23	0	8941
2010	1176	287	862	27	0	8901

[a]Represents general fund expenditures in 1983, 1984.
*Historical data

SOURCE: MAP State Model simulation A86.B1.3, created March 1986; Variables DF.APGF,
DF.APGFC, DF.APGFO, DF.EXDSS, DF.EXTRN, DF.BAL99

TABLE B.10. REAL PERSONAL INCOME BY SOURCE
OIL AND GAS DEVELOPED FROM AREAS LEASED TO JAN. 1987

(millions of 1985 dollars)

Year	Wage and Salary Income	Proprietors' Income	Residence Adjustment	Property Income	Transfer Payments	Personal Income	Disposable Personal Income
1983*	6923	395	-615	981	982	8739	7295
1984*	6976	448	-595	1112	817	8680	7567
1985	7158	377	-623	1156	898	9029	7569
1986	7326	385	-657	1233	978	9330	7820
1987	7260	387	-585	1271	1040	9439	7911
1988	7023	381	-530	1273	1086	9298	7794
1989	6903	377	-522	1267	1130	9218	7727
1990	6856	376	-518	1260	958	8995	7530
1991	6792	374	-511	1240	1001	8960	7274
1992	6813	375	-513	1223	1043	9006	7309
1993	7343	378	-614	1224	1093	9495	7695
1994	7244	378	-573	1227	1143	9491	7693
1995	7110	377	-521	1235	1194	9465	7674
1996	7022	376	-511	1250	1246	9452	7663
1997	7100	376	-516	1269	1299	9599	7780
1998	7191	377	-523	1274	1353	9744	7895
1999	7204	374	-525	1282	1408	9817	7953
2000	7298	375	-530	1296	1464	9977	8080
2001	7383	375	-537	1316	1521	10135	8205
2002	7429	374	-542	1337	1579	10255	8301
2003	7563	376	-551	1359	1637	10464	8467
2004	7677	378	-560	1385	1696	10658	8621
2005	7856	382	-575	1413	1756	10915	8826
2006	8052	386	-590	1444	1816	11196	9049
2007	8216	390	-602	1479	1877	11448	9251
2008	8455	396	-623	1517	1938	11774	9510
2009	8713	402	-642	1559	1999	12127	9791
2010	9007	410	-667	1605	2061	12515	10099

*Historical data

SOURCE: MAP State Model simulation A86.B1.3, created March 1986; Variables DF.WS98,
         DF.PIPRO, DF.PIRAD, DF.PIDIR, DF.PITRA, DF.PI, DF.DPI

TABLE B.11. REAL PER-CAPITA PERSONAL INCOME BY SOURCE
OIL AND GAS DEVELOPED FROM AREAS LEASED TO JAN. 1987

(1985 dollars)

Year	Wage and Salary Income	Proprietors' Income	Residence Adjustment	Property Income	Transfer Payments	Personal Income	Disposable Personal Income
1983*	13977	797	-1242	1981	1983	17644	14728
1984*	13338	857	-1138	2126	1562	16597	14468
1985	13331	701	-1160	2154	1672	16815	14097
1986	13298	699	-1193	2239	1775	16937	14195
1987	13063	696	-1052	2287	1871	16982	14233
1988	12638	686	-953	2291	1954	16731	14025
1989	12428	679	-940	2281	2035	16595	13910
1990	12309	675	-930	2261	1721	16149	13518
1991	12182	671	-916	2224	1795	16069	13047
1992	12168	670	-916	2184	1864	16085	13055
1993	13029	671	-1090	2172	1939	16847	13653
1994	12833	670	-1015	2174	2026	16814	13628
1995	12592	668	-923	2188	2115	16764	13592
1996	12432	666	-905	2214	2206	16734	13567
1997	12546	664	-912	2242	2295	16961	13747
1998	12677	664	-922	2245	2386	17178	13919
1999	12728	661	-927	2265	2488	17344	14051
2000	12879	661	-936	2288	2584	17608	14260
2001	13018	661	-947	2321	2682	17870	14468
2002	13100	660	-955	2357	2784	18082	14637
2003	13292	661	-968	2389	2877	18391	14881
2004	13439	662	-980	2424	2969	18657	15092
2005	13661	663	-1000	2457	3053	18979	15347
2006	13877	665	-1016	2489	3130	19294	15595
2007	14021	666	-1028	2524	3203	19538	15788
2008	14245	667	-1050	2556	3265	19838	16023
2009	14460	668	-1066	2588	3318	20127	16249
2010	14691	669	-1088	2618	3362	20413	16473

*Historical data

SOURCE: MAP State Model simulation A86.B1.4, created March 1986; Variables DFP.WS98, DFP.PIPR, DFP.PIRA, DFP.PIDI, DFP.PITR, DFP.PI, DFP.DPI

APPENDIX C

MAP STATE MODEL PROJECTIONS
OIL AND GAS DEVELOPED FROM LEASED AND UNLEASED AREAS

TABLE D.7. POPULATION BY AGE COHORTS
SALE 109 IMPACT CASE

(thousands)

Year	Total Population	Pre-school Population (Age 0-4)	School-age Population (Age 5-19)	Working-age Population (Age 20-64)	Elderly Population (Age 65+)
1983*	495.3	51.8	125.4	304.4	13.7
1984*	523.0	55.2	128.7	324.4	14.7
1985	537.0	54.9	128.1	336.9	17.2
1986	550.8	56.4	131.0	345.1	18.3
1987	555.7	56.7	131.9	347.7	19.4
1988	555.5	56.4	131.8	346.9	20.4
1989	555.4	56.0	131.8	346.2	21.4
1990	557.3	55.8	132.2	346.9	22.4
1991	558.4	55.4	132.4	347.1	23.4
1992	561.6	55.4	133.0	348.7	24.4
1993	563.6	55.2	133.4	349.6	25.4
1994	563.8	54.8	133.3	349.2	26.4
1995	563.9	54.5	133.2	348.8	27.4
1996	565.2	54.4	133.3	349.1	28.4
1997	570.1	54.6	134.2	351.8	29.5
1998	575.5	55.0	135.1	354.9	30.5
1999	573.1	54.6	134.4	352.6	31.5
2000	574.9	54.6	134.6	353.2	32.6
2001	576.4	54.6	134.7	353.4	33.6
2002	577.5	54.6	134.8	353.4	34.7
2003	580.1	54.8	135.2	354.4	35.7
2004	583.2	55.0	135.7	355.7	36.8
2005	587.7	55.4	136.5	357.9	37.8
2006	593.5	56.0	137.7	360.9	38.9
2007	599.7	56.6	138.9	364.2	39.9
2008	607.7	57.4	140.6	368.7	40.9
2009	617.1	58.4	142.7	374.2	41.9
2010	628.1	59.5	145.1	380.7	42.9

*Historical data

SOURCE: MAP State Model simulation A86S1093, created March 1986;
         Variables POP, POPTINY, POPSKUL, POPADS, POPGER

TABLE C.1. MAP STATE MODEL PROJECTION SUMMARY
OIL AND GAS DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands)

Year	Total Population	Total Employment	Real General Fund Revenues (1985 $)	Real General Fund Expenditures (1985 $)	Real Per-capita Income (1985 $)
1983*	495	257	4095	4091	17644
1984*	523	265	3778	3800 a	16939
1985	537	272	3221	3640	16815
1986	551	279	3096	3098	16938
1987	557	281	2790	2892	17010
1988	557	277	2313	2629	16771
1989	557	273	2114	2366	16636
1990	559	273	2213	2315	16196
1991	560	271	2244	2341	16116
1992	562	272	2286	2370	16114
1993	568	276	2273	2350	17017
1994	574	282	2257	2314	17189
1995	575	280	2225	2267	16994
1996	577	279	2110	2156	16943
1997	579	279	2053	2080	17142
1998	581	279	2008	2023	17329
1999	581	277	1702	1756	17478
2000	582	277	1588	1609	17729
2001	583	277	1462	1483	17977
2002	584	277	1331	1351	18181
2003	586	279	1290	1294	18480
2004	589	280	1255	1259	18742
2005	593	283	1232	1232	19059
2006	599	287	1223	1220	19371
2007	605	291	1215	1209	19615
2008	613	296	1208	1202	19916
2009	622	301	1204	1196	20207
2010	633	308	1203	1196	20498

*Historical data
aPreliminary

SOURCE: MAP State Model simulation A86.B3.3, created March 1986;
Variables POP, EM99, DF.RSGFB, DF.EXGFB, DFP.PI

TABLE C.2. EMPLOYMENT BY SECTOR
OIL AND GAS DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands of employees)

Year	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	257	71	102	84
1984*	265	68	109	87
1985	272	69	114	89
1986	279	73	118	88
1987	281	73	121	86
1988	277	70	121	85
1989	273	70	120	83
1990	273	71	118	83
1991	271	71	116	84
1992	272	72	115	84
1993	276	78	117	81
1994	282	81	121	80
1995	280	76	122	82
1996	279	75	123	81
1997	279	75	124	80
1998	279	75	125	79
1999	277	76	126	75
2000	277	76	127	74
2001	277	76	129	72
2002	277	76	131	70
2003	279	76	133	70
2004	280	76	136	69
2005	283	76	138	69
2006	287	77	142	68
2007	291	77	145	68
2008	296	78	149	69
2009	301	79	153	69
2010	308	80	158	69

*Historical data

SOURCE: MAP State Model simulation A86.B3.3, created March 1986;
Variables EM99, EM.B, EM.S, EMG9

TABLE C.3. PRIVATE SECTOR EMPLOYMENT BY INDUSTRY
OIL AND GAS DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands of employees)

Year	Total Private Employment	Agriculture[a] Forestry Fisheries	Mining	Construction	Manufacturing	Transport. Communicat. Public Util.	Trade[b] Finance Services
1983*	173.4	9.9	8.2	20.8	11.9	18.6	89.4
1984*	177.5	NA	8.7	20.3	11.3	18.9	96.4
1985	183.2	9.5	9.3	17.1	11.3	20.7	115.3
1986	190.6	9.5	10.2	17.5	12.3	21.3	119.8
1987	194.4	9.6	11.9	15.5	12.5	21.7	123.2
1988	191.6	9.6	11.3	13.2	12.7	21.7	123.0
1989	189.9	9.6	12.1	12.1	12.9	21.6	121.5
1990	189.1	9.6	12.3	11.8	13.1	21.5	120.8
1991	187.2	9.6	12.1	11.8	13.3	21.2	119.2
1992	187.2	9.7	12.1	12.8	13.5	21.1	118.1
1993	195.7	9.7	15.5	13.9	13.8	22.3	120.5
1994	201.5	9.7	17.3	13.2	14.0	22.9	124.5
1995	198.5	9.8	15.2	10.6	14.1	22.8	125.9
1996	198.0	9.8	14.7	10.0	14.2	23.0	126.3
1997	199.3	9.9	14.3	9.8	14.3	23.2	127.8
1998	200.7	10.0	14.0	9.7	14.5	23.4	129.2
1999	201.9	10.1	13.9	9.5	14.7	23.6	130.1
2000	203.6	10.1	13.9	9.3	15.0	23.8	131.4
2001	205.5	10.1	13.8	9.1	15.0	24.1	133.4
2002	206.7	10.1	13.0	9.0	15.0	24.3	135.2
2003	209.1	10.1	13.0	8.9	15.1	24.7	137.3
2004	211.5	10.1	12.5	8.9	15.1	25.0	139.9
2005	214.9	10.1	12.5	8.9	15.1	25.4	142.8
2006	218.9	10.1	12.5	8.9	15.2	25.8	146.3
2007	222.4	10.1	11.9	9.0	15.2	26.3	150.0
2008	227.0	10.1	11.9	9.1	15.2	26.7	154.0
2009	232.3	10.1	11.9	9.3	15.2	27.3	158.5
2010	238.4	10.1	11.9	9.7	15.3	27.9	163.5

[a]Includes fisheries proprietors and unclassified
[b]Includes proprietors after 1985
*Historical data

SOURCE: MAP State Model simulation A86.B3.3, created March 1986; Variables EMPVT, EMAFF, EMP9, EMCN, EMM9, EMTCU, EMSUP

TABLE C.4. GOVERNMENT EMPLOYMENT
OIL AND GAS DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands of employees)

Year	Total Government Employment	Active- Duty Military	Federal Civilian Government	Alaska State Government	Local Government
1983*	84.1	22.3	17.7	18.9	25.2
1984*	87.1	22.6	18.1	19.3	27.1
1985	88.7	22.6	17.9	20.3	27.9
1986	88.4	25.0	17.7	19.8	25.9
1987	86.3	24.7	17.5	19.9	24.2
1988	85.1	24.5	17.4	18.8	24.3
1989	83.2	24.3	17.2	17.8	23.9
1990	83.4	24.1	17.0	18.1	24.2
1991	83.9	23.9	17.1	18.3	24.6
1992	84.4	23.6	17.2	18.8	24.8
1993	80.6	23.4	17.3	17.0	22.8
1994	80.3	23.2	17.4	16.8	23.0
1995	81.6	23.0	17.5	16.5	24.7
1996	81.4	22.8	17.5	15.9	25.1
1997	79.8	22.6	17.6	15.2	24.4
1998	78.7	22.4	17.7	14.6	24.0
1999	75.0	22.2	17.8	12.5	22.5
2000	73.7	22.0	17.9	11.7	22.0
2001	71.9	21.8	18.0	10.9	21.2
2002	70.3	21.6	18.1	10.0	20.6
2003	69.6	21.4	18.2	9.6	20.5
2004	69.0	21.3	18.3	9.2	20.2
2005	68.5	21.1	18.4	9.0	20.2
2006	68.4	20.9	18.4	8.8	20.3
2007	68.4	20.7	18.5	8.6	20.6
2008	68.7	20.5	18.6	8.5	21.1
2009	68.9	20.3	18.7	8.4	21.5
2010	69.2	20.2	18.8	8.2	22.0

*Historical data

SOURCE: MAP State Model simulation A86.B3.3, created March 1986;
Variables EMG9, EMGM, EMGC, EMGS, EMGL

TABLE C.5.   TOTAL POPULATION AND ITS COMPONENTS
OIL AND GAS DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands)

Year	Total Population	Active-Duty Military and Dependents	Alaska Natives	Civilian Non-Native Population
1983*	495.3	46.3	69.9	379.1
1984*	523.0	46.9	71.8	404.3
1985	537.0	46.9	73.6	416.4
1986	550.9	51.8	75.5	423.5
1987	556.5	51.4	77.4	427.7
1988	556.8	50.9	79.3	426.6
1989	556.9	50.5	81.1	425.3
1990	558.8	50.0	83.0	425.7
1991	559.7	49.6	84.9	425.2
1992	562.0	49.1	86.9	426.0
1993	568.2	48.7	88.8	430.7
1994	574.4	48.3	90.7	435.4
1995	575.0	47.8	92.7	434.4
1996	576.8	47.4	94.7	434.7
1997	578.9	47.0	96.7	435.2
1998	581.2	46.6	98.8	435.8
1999	580.8	46.2	100.8	433.8
2000	582.1	45.7	103.0	433.4
2001	583.3	45.3	105.1	432.8
2002	583.9	44.9	107.3	431.6
2003	586.3	44.5	109.5	432.2
2004	589.0	44.2	111.8	433.1
2005	593.4	43.8	114.1	435.5
2006	598.9	43.4	116.5	439.1
2007	605.0	43.0	118.9	443.1
2008	612.9	42.6	121.3	448.9
2009	622.3	42.3	123.8	456.2
2010	633.2	41.9	126.3	465.0

*Historical data

SOURCE: MAP State Model simulation A86.B3.3, created March 1986;
          Variables POP, MILTOT, NATTOT, CNNTOT

TABLE C.6. COMPONENTS OF POPULATION CHANGE
OIL AND GAS DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands)

Year	Total Population	Change in Population	Natural Increase	Net Civilian Migration	Net Military Migration
1983*	495.3	34.5	9.9	24.4	0.2
1984*	523.0	27.7	10.3	17.2	0.3
1985	537.0	13.9	10.2	3.1	0.6
1986	550.9	13.9	10.4	-0.2	3.8
1987	556.5	5.6	10.3	-3.1	-1.6
1988	556.8	0.3	10.2	-8.3	-1.6
1989	556.9	0.0	10.0	-8.3	-1.6
1990	558.8	1.9	9.7	-6.3	-1.5
1991	559.7	0.9	9.6	-7.3	-1.4
1992	562.0	2.3	9.4	-5.7	-1.4
1993	568.2	6.2	9.3	-1.8	-1.4
1994	574.4	6.2	9.3	-1.7	-1.4
1995	575.0	0.6	9.3	-7.4	-1.4
1996	576.8	1.8	9.2	-6.1	-1.4
1997	578.9	2.2	9.1	-5.6	-1.4
1998	581.2	2.2	9.1	-5.5	-1.4
1999	580.8	-0.4	9.0	-8.1	-1.4
2000	582.1	1.4	8.9	-6.2	-1.4
2001	583.3	1.2	8.8	-6.4	-1.3
2002	583.9	0.6	8.7	-6.9	-1.3
2003	586.3	2.4	8.7	-5.0	-1.3
2004	589.0	2.8	8.7	-4.7	-1.3
2005	593.4	4.3	8.7	-3.1	-1.3
2006	598.9	5.6	8.7	-1.9	-1.3
2007	605.0	6.1	8.8	-1.5	-1.3
2008	612.9	7.9	8.9	0.3	-1.3
2009	622.3	9.4	9.0	1.6	-1.3
2010	633.2	10.9	9.2	3.0	-1.3

*Historical data

SOURCE: MAP State Model simulation A86.B3.4, created March 1986;
         Variables POP, DELPOP, POPNI9, POPMIG, POPMIGM

TABLE C.7. POPULATION BY AGE COHORTS
OIL AND GAS DEVELOPED FROM LEASED AND UNLEASED AREAS

(thousands)

Year	Total Population	Pre-school Population (Age 0-4)	School-age Population (Age 5-19)	Working-age Population (Age 20-64)	Elderly Population (Age 65+)
1983*	495.3	51.8	125.4	304.4	13.7
1984*	523.0	55.2	128.7	324.4	14.7
1985	537.0	54.9	128.1	336.9	17.2
1986	550.9	56.5	131.0	345.2	18.3
1987	556.5	56.8	132.1	348.3	19.4
1988	556.8	56.5	132.1	347.8	20.4
1989	556.9	56.2	132.1	347.2	21.4
1990	558.8	55.9	132.5	347.9	22.5
1991	559.7	55.6	132.7	348.0	23.5
1992	562.0	55.4	133.1	349.0	24.4
1993	568.2	55.6	134.4	352.7	25.5
1994	574.4	55.9	135.6	356.4	26.5
1995	575.0	55.7	135.6	356.2	27.5
1996	576.8	55.6	135.8	356.8	28.5
1997	578.9	55.5	136.2	357.7	29.5
1998	581.2	55.5	136.4	358.6	30.6
1999	580.8	55.3	136.2	357.7	31.6
2000	582.1	55.3	136.3	357.9	32.7
2001	583.3	55.2	136.3	358.0	33.8
2002	583.9	55.2	136.2	357.6	34.8
2003	586.3	55.3	136.6	358.5	35.9
2004	589.0	55.5	137.0	359.6	37.0
2005	593.4	55.9	137.8	361.7	38.0
2006	598.9	56.4	138.9	364.6	39.1
2007	605.0	57.0	140.1	367.8	40.1
2008	612.9	57.8	141.7	372.2	41.1
2009	622.3	58.8	143.8	377.6	42.2
2010	633.2	59.9	146.2	384.0	43.2

*Historical data

SOURCE: MAP State Model simulation A86.B3.3, created March 1986;
         Variables POP, POPTINY, POPSKUL, POPADS, POPGER

TABLE C.8. REAL STATE REVENUES BY SOURCE
OIL AND GAS DEVELOPED FROM LEASED AND UNLEASED AREAS

(millions of 1985 dollars)

Year	Total Revenues	Petroleum Revenues	Federal Grants-in-Aid	Investment Earnings	Other Revenues
1983*	4927	3674	197	784	272
1984*	4694	3306	276	831	281
1985	4145	3130	200	576	238
1986	4087	3047	204	595	241
1987	3786	2629	209	704	244
1988	3338	2116	212	771	239
1989	3142	1941	215	754	232
1990	2955	1769	218	743	226
1991	3005	1662	221	738	384
1992	3045	1567	224	735	518
1993	3084	1513	229	809	533
1994	3069	1468	234	812	555
1995	3045	1437	239	817	553
1996	2929	1324	243	819	543
1997	2874	1261	249	822	543
1998	2849	1173	254	877	545
1999	2502	830	259	866	547
2000	2381	710	264	858	549
2001	2241	567	270	850	553
2002	2092	419	276	841	557
2003	2054	377	281	834	561
2004	2021	337	287	829	567
2005	2001	309	294	824	575
2006	1995	291	300	820	584
2007	1990	275	306	816	593
2008	1987	259	313	812	604
2009	1987	244	320	808	616
2010	1990	229	327	804	630

*Historical data

SOURCE: MAP State Model simulation A86.B3.3, created March 1986;
         Variables DF.R99S, DF.RP9S, DF.RSFD, DF.RSI99, DF.RSEN

TABLE C.9. REAL STATE GENERAL FUND APPROPRIATIONS,
DIVIDENDS, AND FUNDS BALANCE
OIL AND GAS DEVELOPED FROM LEASED AND UNLEASED AREAS

(millions of 1985 dollars)

Year	Total[a] General Fund Appropriations	Capital[a] Appropriations	Operating[a] Appropriations	Debt Service	Permanent Fund Dividends	Combined Funds Balance
1983*	3247	1071	1823	153	127	7114
1984*	3231	973	1997	170	156	7812
1985	3220	981	2082	156	175	8056
1986	3036	863	2014	159	203	9305
1987	2832	747	1933	151	213	9442
1988	2569	625	1805	139	215	9253
1989	2309	514	1673	122	215	9137
1990	2369	566	1698	104	0	9103
1991	2363	571	1712	81	0	9090
1992	2399	584	1752	63	0	9085
1993	2359	568	1705	85	0	9127
1994	2322	553	1658	111	0	9185
1995	2274	536	1609	129	0	9253
1996	2154	508	1523	124	0	9306
1997	2087	493	1479	115	0	9374
1998	2033	480	1441	111	0	9415
1999	1721	405	1214	103	0	9369
2000	1608	380	1141	87	0	9345
2001	1477	351	1052	74	0	9305
2002	1342	319	956	68	0	9243
2003	1299	309	926	64	0	9198
2004	1265	301	903	61	0	9152
2005	1240	295	886	58	0	9109
2006	1229	293	879	57	0	9069
2007	1219	291	874	54	0	9030
2008	1214	293	880	41	0	8991
2009	1209	296	889	24	0	8954
2010	1206	295	884	28	0	8914

[a]Represents general fund expenditures in 1983, 1984
*Historical data

SOURCE: MAP State Model simulation A86.B3.3, created March 1986; Variables DF.APGF,
DF.APGFC, DF.APGFO, DF.EXDSS, DF.EXTRN, DF.BAL99

TABLE C.10.   REAL PERSONAL INCOME BY SOURCE
OIL AND GAS DEVELOPED FROM LEASED AND UNLEASED AREAS

(millions of 1985 dollars)

Year	Wage and Salary Income	Proprietors' Income	Residence Adjustment	Property Income	Transfer Payments	Personal Income	Disposable Personal Income
1983*	6923	395	-615	981	982	8739	7295
1984*	6976	448	-595	1112	817	8680	7567
1985	7158	377	-623	1156	898	9029	7569
1986	7326	385	-657	1233	978	9331	7820
1987	7294	388	-593	1272	1040	9466	7934
1988	7063	383	-533	1276	1086	9339	7828
1989	6947	378	-526	1270	1130	9264	7765
1990	6908	378	-522	1265	959	9050	7575
1991	6847	376	-515	1246	1001	9020	7322
1992	6857	377	-517	1230	1044	9056	7350
1993	7505	383	-621	1235	1094	9668	7832
1994	7636	390	-622	1248	1146	9873	7994
1995	7394	388	-544	1263	1197	9771	7917
1996	7312	387	-535	1285	1250	9772	7918
1997	7389	387	-540	1310	1304	9924	8039
1998	7476	387	-546	1319	1359	10071	8155
1999	7497	385	-549	1326	1415	10151	8218
2000	7598	386	-555	1341	1472	10321	8353
2001	7690	386	-562	1362	1531	10486	8484
2002	7743	385	-567	1383	1590	10615	8587
2003	7885	387	-577	1407	1649	10834	8761
2004	8008	389	-587	1434	1710	11040	8925
2005	8197	393	-603	1463	1772	11309	9139
2006	8401	398	-618	1496	1834	11602	9371
2007	8574	402	-632	1533	1897	11867	9583
2008	8823	408	-653	1572	1960	12207	9853
2009	9093	415	-673	1616	2024	12575	10146
2010	9400	423	-699	1664	2088	12980	10468

*Historical data

SOURCE: MAP State Model simulation A86.B3.3, created March 1986; Variables DF.WS98,
          DF.PIPRO, DF.PIRAD, DF.PIDIR, DF.PITRA, DF.PI, DF.DPI

TABLE C.11. REAL PER-CAPITA PERSONAL INCOME BY SOURCE
OIL AND GAS DEVELOPED FROM LEASED AND UNLEASED AREAS

(1985 dollars)

Year	Wage and Salary Income	Proprietors' Income	Residence Adjustment	Property Income	Transfer Payments	Personal Income	Disposable Personal Income
1983*	13977	797	-1242	1981	1983	17644	14728
1984*	13338	857	-1138	2126	1562	16597	14468
1985	13331	701	-1160	2154	1672	16815	14097
1986	13298	700	-1193	2239	1775	16938	14195
1987	13107	696	-1065	2286	1869	17010	14256
1988	12685	687	-957	2291	1951	16771	14058
1989	12475	680	-944	2281	2030	16636	13944
1990	12362	676	-935	2263	1716	16196	13556
1991	12234	672	-921	2227	1789	16116	13083
1992	12201	671	-919	2189	1858	16114	13078
1993	13209	674	-1094	2174	1926	17017	13786
1994	13295	678	-1084	2173	1994	17189	13918
1995	12860	674	-947	2197	2082	16994	13770
1996	12679	671	-928	2228	2167	16943	13728
1997	12762	668	-932	2263	2252	17142	13885
1998	12864	667	-940	2269	2339	17329	14033
1999	12909	663	-945	2283	2437	17478	14150
2000	13052	662	-953	2304	2529	17729	14349
2001	13184	661	-964	2335	2624	17977	14545
2002	13262	660	-972	2369	2722	18181	14707
2003	13449	661	-985	2400	2813	18480	14944
2004	13595	661	-996	2434	2903	18742	15151
2005	13814	662	-1017	2466	2986	19059	15402
2006	14027	664	-1032	2498	3062	19371	15647
2007	14173	665	-1044	2534	3135	19615	15839
2008	14396	666	-1066	2565	3198	19916	16076
2009	14613	667	-1082	2597	3252	20207	16304
2010	14845	668	-1105	2628	3298	20498	16531

*Historical data

SOURCE: MAP State Model simulation A86.B3.4, created March 1986; Variables DFP.WS98, DFP.PIPR, DFP.PIRA, DFP.PIDI, DFP.PITR, DFP.PI, DFP.DPI

APPENDIX D

MAP STATE MODEL PROJECTIONS, SALE 109 IMPACT CASE

TABLE D.1. MAP STATE MODEL PROJECTION SUMMARY
SALE 109 IMPACT CASE

(thousands)

Year	Total Population	Total Employment	Real General Fund Revenues (1985 $)	Real General Fund Expenditures (1985 $)	Real Per-capita Income (1985 $)
1983*	495	257	4095	4091	17644
1984*	523	265	3778	3800 a	16939
1985	537	272	3221	3640	16815
1986	551	279	3095	3098	16932
1987	556	280	2789	2891	16976
1988	556	275	2312	2628	16720
1989	555	272	2114	2365	16598
1990	557	271	2212	2314	16168
1991	558	270	2243	2340	16106
1992	562	272	2289	2372	16146
1993	564	272	2271	2349	16846
1994	564	271	2201	2267	16793
1995	564	270	2144	2191	16752
1996	565	271	2037	2082	16743
1997	570	275	2007	2029	17200
1998	575	279	1989	2000	17542
1999	573	274	1687	1741	17497
2000	575	275	1571	1593	17778
2001	576	275	1445	1466	18025
2002	577	275	1315	1335	18234
2003	580	276	1275	1278	18523
2004	583	278	1239	1243	18779
2005	588	281	1216	1217	19089
2006	593	285	1207	1204	19393
2007	600	289	1199	1194	19627
2008	608	293	1192	1186	19921
2009	617	299	1189	1181	20206
2010	628	305	1188	1182	20492

*Historical data
aPreliminary

SOURCE: MAP State Model simulation A86S1093, created March 1986;
Variables POP, EM99, DF.RSGFB, DF.EXGFB, DFP.PI

TABLE D.2. EMPLOYMENT BY SECTOR
SALE 109 IMPACT CASE

(thousands of employees)

Year	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	257	71	102	84
1984*	265	68	109	87
1985	272	69	114	89
1986	279	72	118	88
1987	280	72	121	86
1988	275	70	121	85
1989	272	70	119	83
1990	271	70	118	83
1991	270	71	116	84
1992	272	73	115	84
1993	272	75	116	81
1994	271	74	118	80
1995	270	72	118	80
1996	271	73	119	79
1997	275	76	121	78
1998	279	78	124	77
1999	274	74	125	74
2000	275	75	126	73
2001	275	75	128	71
2002	275	75	130	70
2003	276	75	132	69
2004	278	75	135	69
2005	281	76	137	68
2006	285	77	141	68
2007	289	77	144	68
2008	293	77	148	68
2009	299	78	152	68
2010	305	80	157	69

*Historical data

SOURCE: MAP State Model simulation A86S1093, created March 1986;
Variables EM99, EM.B, EM.S, EMG9

TABLE D.3. PRIVATE SECTOR EMPLOYMENT BY INDUSTRY
SALE 109 IMPACT CASE

(thousands of employees)

Year	Total Private Employment	Agriculture[a] Forestry Fisheries	Mining	Construction	Manufacturing	Transport. Communicat. Public Util.	Trade[b] Finance Services
1983*	173.4	9.9	8.2	20.8	11.9	18.6	89.4
1984*	177.5	NA	8.7	20.3	11.3	18.9	96.4
1985	183.2	9.5	9.3	17.1	11.3	20.7	115.3
1986	190.5	9.5	10.2	17.5	12.3	21.2	119.7
1987	193.5	9.6	11.5	15.4	12.5	21.5	123.0
1988	190.4	9.6	10.7	13.4	12.7	21.4	122.5
1989	188.7	9.6	11.7	12.1	12.9	21.4	121.0
1990	188.0	9.6	12.0	11.8	13.1	21.3	120.2
1991	186.5	9.6	12.0	11.8	13.3	21.1	118.7
1992	187.5	9.7	12.4	12.9	13.5	21.2	117.9
1993	191.5	9.7	13.9	12.8	13.8	21.9	119.4
1994	191.7	9.7	13.5	11.7	13.9	21.9	121.0
1995	190.6	9.8	12.6	10.7	14.0	22.0	121.5
1996	191.8	9.8	12.5	10.8	14.2	22.1	122.3
1997	196.8	9.9	14.8	10.4	14.3	22.8	124.6
1998	201.4	10.0	15.7	10.4	14.5	23.3	127.6
1999	199.6	10.1	13.3	9.5	14.7	23.1	129.0
2000	201.4	10.1	13.5	9.3	15.0	23.6	129.9
2001	203.6	10.1	13.3	9.1	15.0	23.9	132.2
2002	205.0	10.1	12.7	9.0	15.0	24.1	134.1
2003	207.3	10.1	12.7	8.9	15.1	24.4	136.1
2004	209.8	10.1	12.2	8.8	15.1	24.8	138.7
2005	213.2	10.1	12.2	8.9	15.1	25.2	141.7
2006	217.1	10.1	12.2	8.9	15.2	25.6	145.2
2007	220.6	10.1	11.6	8.9	15.2	26.0	148.8
2008	225.1	10.1	11.6	9.0	15.2	26.5	152.7
2009	230.4	10.1	11.6	9.2	15.2	27.1	157.2
2010	236.5	10.1	11.5	9.7	15.3	27.6	162.2

[a]Includes fisheries proprietors and unclassified
[b]Includes proprietors after 1985
*Historical data

SOURCE: MAP State Model simulation A86S1093, created March 1986; Variables EMPVT, EMAFF, EMP9, EMCN, EMM9, EMTCU, EMSUP

TABLE D.4. GOVERNMENT EMPLOYMENT
SALE 109 IMPACT CASE

(thousands of employees)

Year	Total Government Employment	Active- Duty Military	Federal Civilian Government	Alaska State Government	Local Government
1983*	84.1	22.3	17.7	18.9	25.2
1984*	87.1	22.6	18.1	19.3	27.1
1985	88.7	22.6	17.9	20.3	27.9
1986	88.4	25.0	17.7	19.8	25.9
1987	86.3	24.7	17.5	19.9	24.1
1988	85.0	24.5	17.4	18.8	24.3
1989	83.1	24.3	17.2	17.8	23.8
1990	83.3	24.1	17.0	18.1	24.2
1991	83.8	23.9	17.1	18.3	24.5
1992	84.4	23.6	17.2	18.8	24.8
1993	80.5	23.4	17.3	17.0	22.8
1994	79.8	23.2	17.4	16.4	22.8
1995	79.8	23.0	17.5	16.0	23.4
1996	79.0	22.8	17.5	15.4	23.2
1997	77.9	22.6	17.6	14.9	22.7
1998	77.4	22.4	17.7	14.5	22.8
1999	74.4	22.2	17.8	12.5	21.9
2000	73.3	22.0	17.9	11.7	21.7
2001	71.4	21.8	18.0	10.8	20.8
2002	69.8	21.6	18.1	9.9	20.2
2003	69.2	21.4	18.2	9.5	20.0
2004	68.5	21.3	18.3	9.2	19.8
2005	68.1	21.1	18.4	8.9	19.8
2006	67.9	20.9	18.4	8.7	19.9
2007	68.0	20.7	18.5	8.5	20.2
2008	68.2	20.5	18.6	8.4	20.7
2009	68.5	20.3	18.7	8.3	21.1
2010	68.7	20.2	18.8	8.1	21.6

*Historical data

SOURCE: MAP State Model simulation A86S1093, created March 1986;
         Variables EMG9, EMGM, EMGC, EMGS, EMGL

TABLE D.5. TOTAL POPULATION AND ITS COMPONENTS
SALE 109 IMPACT CASE

(thousands)

Year	Total Population	Active-Duty Military and Dependents	Alaska Natives	Civilian Non-Native Population
1983*	495.3	46.3	69.9	379.1
1984*	523.0	46.9	71.8	404.3
1985	537.0	46.9	73.6	416.4
1986	550.8	51.8	75.5	423.4
1987	555.7	51.4	77.4	426.9
1988	555.5	50.9	79.3	425.4
1989	555.4	50.5	81.1	423.8
1990	557.3	50.0	83.0	424.2
1991	558.4	49.6	84.9	423.8
1992	561.6	49.1	86.9	425.6
1993	563.6	48.7	88.8	426.1
1994	563.8	48.3	90.7	424.8
1995	563.9	47.8	92.7	423.4
1996	565.2	47.4	94.7	423.2
1997	570.1	47.0	96.7	426.4
1998	575.5	46.6	98.8	430.1
1999	573.1	46.2	100.8	426.1
2000	574.9	45.7	103.0	426.2
2001	576.4	45.3	105.1	426.0
2002	577.5	44.9	107.3	425.2
2003	580.1	44.5	109.5	426.0
2004	583.2	44.2	111.8	427.2
2005	587.7	43.8	114.1	429.8
2006	593.5	43.4	116.5	433.6
2007	599.7	43.0	118.9	437.8
2008	607.7	42.6	121.3	443.7
2009	617.1	42.3	123.8	451.1
2010	628.1	41.9	126.3	459.9

*Historical data

SOURCE: MAP State Model simulation A86S1093, created March 1986;
Variables POP, MILTOT, NATTOT, CNNTOT

TABLE D.6.   COMPONENTS OF POPULATION CHANGE
SALE 109 IMPACT CASE

(thousands)

Year	Total Population	Change in Population	Natural Increase	Net Civilian Migration	Net Military Migration
1983*	495.3	34.5	9.9	24.4	0.2
1984*	523.0	27.7	10.3	17.2	0.3
1985	537.0	13.9	10.2	3.1	0.6
1986	550.8	13.8	10.4	−0.3	3.8
1987	555.7	4.9	10.3	−3.8	−1.6
1988	555.5	−0.1	10.2	−8.7	−1.6
1989	555.4	−0.1	9.9	−8.5	−1.6
1990	557.3	1.9	9.7	−6.4	−1.5
1991	558.4	1.1	9.5	−7.1	−1.4
1992	561.6	3.2	9.4	−4.8	−1.4
1993	563.6	2.0	9.3	−5.9	−1.4
1994	563.8	0.2	9.2	−7.7	−1.4
1995	563.9	0.1	9.1	−7.6	−1.4
1996	565.2	1.3	9.0	−6.3	−1.4
1997	570.1	4.8	8.9	−2.7	−1.4
1998	575.5	5.4	8.9	−2.1	−1.4
1999	573.1	−2.4	9.0	−10.0	−1.4
2000	574.9	1.9	8.8	−5.5	−1.4
2001	576.4	1.5	8.7	−6.0	−1.3
2002	577.5	1.1	8.6	−6.3	−1.3
2003	580.1	2.6	8.6	−4.7	−1.3
2004	583.2	3.1	8.6	−4.3	−1.3
2005	587.7	4.5	8.6	−2.8	−1.3
2006	593.5	5.7	8.6	−1.6	−1.3
2007	599.7	6.2	8.7	−1.3	−1.3
2008	607.7	8.0	8.8	0.5	−1.3
2009	617.1	9.5	9.0	1.8	−1.3
2010	628.1	11.0	9.1	3.1	−1.3

*Historical data

SOURCE: MAP State Model simulation A86S1094, created March 1986;
Variables POP, DELPOP, POPNI9, POPMIG, POPMIGM

TABLE D.8.   REAL STATE REVENUES BY SOURCE
SALE 109 IMPACT CASE

(millions of 1985 dollars)

Year	Total Revenues	Petroleum Revenues	Federal Grants- in-Aid	Investment Earnings	Other Revenues
1983*	4927	3674	197	784	272
1984*	4694	3306	276	831	281
1985	4145	3130	200	576	238
1986	4086	3046	204	595	241
1987	3785	2628	209	704	244
1988	3336	2116	212	771	238
1989	3141	1941	215	754	231
1990	2954	1769	218	743	225
1991	3004	1662	221	738	383
1992	3048	1570	224	735	518
1993	3082	1516	229	809	528
1994	3013	1434	234	810	535
1995	2963	1383	238	813	529
1996	2855	1271	243	815	527
1997	2827	1225	248	819	534
1998	2830	1156	254	875	545
1999	2488	817	259	865	546
2000	2364	699	264	857	544
2001	2224	557	270	850	548
2002	2076	408	276	840	552
2003	2038	367	281	833	557
2004	2005	327	287	828	563
2005	1985	298	294	823	570
2006	1979	281	300	819	580
2007	1974	264	306	815	589
2008	1971	249	313	811	599
2009	1972	234	320	807	611
2010	1975	221	327	803	625

*Historical data

SOURCE: MAP State Model simulation A86S1093, created March 1986;
Variables DF.R99S, DF.RP9S, DF.RSFD, DF.RSI99, DF.RSEN

TABLE D.9. REAL STATE GENERAL FUND APPROPRIATIONS,
DIVIDENDS, AND FUNDS BALANCE
SALE 109 IMPACT CASE

(millions of 1985 dollars)

Year	Total[a] General Fund Appropriations	Capital[a] Appropriations	Operating[a] Appropriations	Debt Service	Permanent Fund Dividends	Combined Funds Balance
1983*	3247	1071	1823	153	127	7114
1984*	3231	973	1997	170	156	7812
1985	3220	981	2082	156	175	8056
1986	3036	863	2014	159	203	9304
1987	2831	747	1933	151	213	9440
1988	2567	624	1804	139	215	9252
1989	2308	513	1672	122	215	9136
1990	2368	566	1698	104	0	9102
1991	2362	570	1711	81	0	9089
1992	2401	585	1754	63	0	9085
1993	2357	568	1704	85	0	9125
1994	2266	539	1616	111	0	9169
1995	2193	516	1548	129	0	9231
1996	2081	490	1469	122	0	9286
1997	2040	482	1445	114	0	9361
1998	2015	476	1429	110	0	9410
1999	1706	401	1204	101	0	9364
2000	1590	376	1129	85	0	9340
2001	1460	347	1040	73	0	9300
2002	1326	315	945	66	0	9238
2003	1283	305	915	63	0	9194
2004	1249	297	892	59	0	9148
2005	1224	292	875	57	0	9105
2006	1213	289	868	56	0	9065
2007	1203	287	862	54	0	9026
2008	1199	289	868	41	0	8987
2009	1194	293	879	22	0	8950
2010	1192	291	874	26	0	8910

[a]Represents general fund expenditures in 1983, 1984
*Historical data

SOURCE: MAP State Model simulation A86S1093, created March 1986; Variables DF.APGF,
DF.APGFC, DF.APGFO, DF.EXDSS, DF.EXTRN, DF.BAL99

TABLE D.10. REAL PERSONAL INCOME BY SOURCE
SALE 109 IMPACT CASE

(millions of 1985 dollars)

Year	Wage and Salary Income	Proprietors' Income	Residence Adjustment	Property Income	Transfer Payments	Personal Income	Disposable Personal Income
1983*	6923	395	−615	981	982	8739	7295
1984*	6976	448	−595	1112	817	8680	7567
1985	7158	377	−623	1156	898	9029	7569
1986	7321	385	−657	1233	978	9326	7816
1987	7255	386	−584	1271	1040	9433	7906
1988	7020	381	−535	1273	1086	9289	7787
1989	6905	377	−522	1266	1130	9219	7728
1990	6872	377	−519	1260	958	9010	7542
1991	6825	375	−514	1241	1001	8993	7301
1992	6880	377	−524	1226	1044	9067	7358
1993	7285	378	−559	1227	1093	9494	7698
1994	7175	377	−527	1229	1143	9468	7677
1995	7103	376	−532	1236	1194	9447	7659
1996	7080	376	−559	1251	1246	9464	7670
1997	7344	381	−568	1274	1300	9805	7941
1998	7574	387	−588	1290	1355	10095	8170
1999	7396	381	−540	1304	1410	10027	8119
2000	7519	382	−549	1325	1467	10221	8274
2001	7608	383	−555	1351	1525	10390	8408
2002	7673	383	−562	1373	1583	10530	8519
2003	7814	385	−571	1394	1642	10745	8690
2004	7938	387	−581	1421	1702	10951	8854
2005	8125	390	−597	1451	1763	11219	9067
2006	8328	395	−612	1484	1824	11509	9297
2007	8497	399	−626	1520	1886	11770	9505
2008	8744	405	−647	1560	1948	12106	9773
2009	9011	412	−667	1603	2011	12470	10063
2010	9316	420	−693	1650	2075	12872	10382

*Historical data

SOURCE: MAP State Model simulation A86S1093, created March 1986; Variables DF.WS98, DF.PIPRO, DF.PIRAD, DF.PIDIR, DF.PITRA, DF.PI, DF.DPI

TABLE D.11. REAL PER-CAPITA PERSONAL INCOME BY SOURCE
SALE 109 IMPACT CASE

(1985 dollars)

Year	Wage and Salary Income	Proprietors' Income	Residence Adjustment	Property Income	Transfer Payments	Personal Income	Disposable Personal Income
1983*	13977	797	-1242	1981	1983	17644	14728
1984*	13338	857	-1138	2126	1562	16597	14468
1985	13331	701	-1160	2154	1672	16815	14097
1986	13291	699	-1193	2239	1776	16932	14190
1987	13056	695	-1051	2287	1871	16976	14229
1988	12637	686	-963	2291	1955	16720	14016
1989	12432	679	-940	2280	2035	16598	13913
1990	12331	676	-932	2260	1720	16168	13533
1991	12224	672	-920	2222	1793	16106	13075
1992	12251	672	-933	2183	1858	16146	13103
1993	12926	670	-992	2177	1939	16846	13658
1994	12726	669	-934	2181	2028	16793	13617
1995	12595	667	-944	2193	2117	16752	13582
1996	12525	666	-989	2214	2204	16743	13569
1997	12882	669	-996	2236	2280	17200	13930
1998	13161	672	-1021	2241	2354	17542	14198
1999	12907	666	-943	2275	2461	17497	14168
2000	13077	665	-954	2304	2551	17778	14390
2001	13199	664	-964	2343	2645	18025	14586
2002	13287	663	-973	2377	2741	18234	14752
2003	13469	663	-985	2403	2831	18523	14980
2004	13612	663	-996	2437	2919	18779	15183
2005	13825	664	-1016	2469	3000	19089	15428
2006	14032	666	-1031	2501	3074	19393	15666
2007	14170	666	-1043	2535	3145	19627	15851
2008	14389	667	-1064	2566	3206	19921	16082
2009	14602	668	-1080	2598	3259	20206	16305
2010	14832	669	-1103	2627	3303	20492	16528

*Historical data

SOURCE: MAP State Model simulation A86S1094, created March 1986; Variables DFP.WS98,
DFP.PIPR, DFP.PIRA, DFP.PIDI, DFP.PITR, DFP.PI, DFP.DPI

APPENDIX E

MAP MODEL REGIONAL PROJECTIONS
OIL AND GAS FROM AREAS LEASED TO JANUARY 1987
SOUTHCENTRAL ALASKA

TABLE E.1. MAP MODEL REGIONAL PROJECTIONS
OIL AND GAS FROM AREAS LEASED TO JAN. 1987
SOUTHCENTRAL ALASKA

(thousands)

Year	Total Population	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	287.1	140.3	NA	NA	39.0
1984*	311.9	148.9	NA	NA	40.2
1985	311.5	149.9	31.5	77.2	41.1
1986	317.3	151.7	31.8	79.4	40.5
1987	319.4	152.1	31.0	81.5	39.6
1988	319.6	150.7	30.4	81.3	39.0
1989	319.6	148.7	30.4	80.2	38.2
1990	319.7	147.8	30.3	79.3	38.2
1991	318.8	146.5	30.4	77.7	38.4
1992	318.9	146.2	31.0	76.6	38.6
1993	320.6	146.6	31.2	78.4	37.0
1994	321.8	147.5	31.0	79.7	36.8
1995	322.0	147.3	30.6	79.7	37.0
1996	322.3	146.9	30.2	79.9	36.7
1997	323.7	147.2	30.2	80.8	36.2
1998	325.1	147.7	30.3	81.7	35.7
1999	326.2	147.2	30.2	82.8	34.2
2000	327.4	147.7	30.2	83.8	33.7
2001	329.0	148.5	30.3	85.2	33.0
2002	330.2	149.2	30.3	86.6	32.3
2003	332.2	150.5	30.4	88.0	32.0
2004	334.8	152.3	30.6	89.9	31.8
2005	338.1	154.3	30.9	91.9	31.6
2006	342.2	157.0	31.2	94.2	31.5
2007	346.6	159.8	31.6	96.7	31.6
2008	352.1	163.0	32.0	99.3	31.7
2009	358.6	166.7	32.5	102.4	31.8
2010	366.3	170.9	33.3	105.7	31.9

*Historical data

SOURCE: MAP Regional Model simulation C86.B1, region AG, created March 1986.

TABLE E.2. MAP MODEL REGIONAL PROJECTIONS
OIL ONLY FROM AREAS LEASED TO JAN. 1987
SOUTHCENTRAL ALASKA

(thousands)

Year	Total Population	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	287.1	140.3	NA	NA	39.0
1984*	311.9	148.9	NA	NA	40.2
1985	311.5	149.9	31.5	77.2	41.1
1986	317.3	151.7	31.7	79.4	40.5
1987	319.3	152.1	31.0	81.5	39.6
1988	319.5	150.6	30.4	81.2	39.0
1989	319.4	148.6	30.3	80.1	38.2
1990	319.5	147.7	30.3	79.2	38.2
1991	318.6	146.4	30.4	77.6	38.4
1992	318.8	146.2	31.0	76.6	38.6
1993	319.9	146.0	31.1	78.0	37.0
1994	320.4	146.3	30.9	78.8	36.7
1995	320.3	145.9	30.4	78.8	36.7
1996	320.4	145.4	30.0	79.1	36.3
1997	321.5	145.7	30.1	79.9	35.8
1998	322.7	146.2	30.1	80.8	35.3
1999	323.6	145.8	30.0	81.9	33.8
2000	324.6	146.2	30.1	82.9	33.3
2001	326.2	147.1	30.1	84.3	32.6
2002	327.3	147.8	30.1	85.7	32.0
2003	329.2	149.1	30.3	87.1	31.7
2004	331.7	150.9	30.5	88.9	31.5
2005	334.9	153.0	30.7	90.9	31.3
2006	339.0	155.6	31.1	93.2	31.3
2007	343.4	158.4	31.4	95.7	31.3
2008	348.9	161.6	31.8	98.4	31.4
2009	355.5	165.4	32.4	101.4	31.6
2010	363.2	169.6	33.1	104.8	31.7

*Historical data

SOURCE: MAP Regional Model simulation C86.B2, region AG, created
         March 1986.

TABLE E.3. MAP MODEL REGIONAL PROJECTIONS
OIL AND GAS FROM LEASED AND UNLEASED AREAS
SOUTHCENTRAL ALASKA

(thousands)

Year	Total Population	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	287.1	140.3	NA	NA	39.0
1984*	311.9	148.9	NA	NA	40.2
1985	311.5	149.9	31.5	77.2	41.1
1986	317.3	151.7	31.8	79.4	40.5
1987	319.8	152.3	31.1	81.6	39.6
1988	320.4	151.3	30.5	81.7	39.1
1989	320.8	149.6	30.5	80.8	38.3
1990	321.3	148.8	30.5	80.0	38.4
1991	320.7	147.6	30.6	78.5	38.6
1992	320.8	147.4	31.2	77.4	38.8
1993	323.3	148.4	31.5	79.7	37.2
1994	328.2	150.9	31.7	82.2	37.1
1995	329.0	151.7	31.2	82.9	37.6
1996	329.9	151.5	30.9	83.1	37.5
1997	332.2	152.0	30.9	84.2	36.8
1998	334.3	152.6	31.0	85.2	36.4
1999	336.0	152.1	30.9	86.3	34.9
2000	337.6	152.6	30.9	87.4	34.3
2001	339.8	153.4	30.9	88.9	33.6
2002	341.4	154.2	30.9	90.4	32.9
2003	343.7	155.6	31.1	91.9	32.6
2004	346.7	157.5	31.3	93.8	32.3
2005	350.4	159.7	31.6	95.9	32.2
2006	354.8	162.4	31.9	98.4	32.1
2007	359.5	165.4	32.3	101.0	32.1
2008	365.3	168.7	32.7	103.8	32.2
2009	372.2	172.6	33.3	107.0	32.3
2010	380.3	177.0	34.0	110.5	32.5

*Historical data

SOURCE: MAP Regional Model simulation C86.B3, region AG, created
         March 1986.

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TABLE E.4. MAP MODEL REGIONAL PROJECTIONS
OIL ONLY FROM LEASED AND UNLEASED AREAS
SOUTHCENTRAL ALASKA

(thousands)

Year	Total Population	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	287.1	140.3	NA	NA	39.0
1984*	311.9	148.9	NA	NA	40.2
1985	311.5	149.9	31.5	77.2	41.1
1986	317.3	151.7	31.8	79.4	40.5
1987	319.7	152.2	31.1	81.6	39.6
1988	320.2	151.2	30.5	81.6	39.1
1989	320.4	149.3	30.4	80.6	38.3
1990	320.9	148.6	30.4	79.8	38.3
1991	320.3	147.4	30.5	78.3	38.5
1992	320.4	147.1	31.1	77.2	38.8
1993	322.2	147.6	31.4	79.1	37.2
1994	326.7	149.7	31.5	81.3	37.0
1995	327.1	150.1	30.9	82.0	37.1
1996	327.2	149.4	30.5	82.0	36.9
1997	329.0	149.7	30.6	82.9	36.2
1998	330.7	150.2	30.6	83.9	35.8
1999	332.0	149.7	30.5	84.9	34.3
2000	333.3	150.2	30.6	85.9	33.7
2001	335.2	151.1	30.6	87.4	33.0
2002	336.6	151.9	30.6	88.9	32.4
2003	338.8	153.3	30.8	90.4	32.1
2004	341.7	155.2	31.0	92.3	31.9
2005	345.2	157.4	31.3	94.4	31.7
2006	349.6	160.1	31.6	96.8	31.7
2007	354.3	163.1	32.0	99.4	31.7
2008	360.1	166.5	32.4	102.2	31.9
2009	367.0	170.4	33.0	105.4	32.0
2010	375.0	174.8	33.7	108.9	32.1

*Historical data

SOURCE: MAP Regional Model simulation C86.B4, region AG, created
March 1986.

TABLE E.5. MAP MODEL REGIONAL PROJECTIONS
SALE 109 IMPACT CASE
SOUTHCENTRAL ALASKA

(thousands)

Year	Total Population	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	287.1	140.3	NA	NA	39.0
1984*	311.9	148.9	NA	NA	40.2
1985	311.5	149.9	31.5	77.2	41.1
1986	317.3	151.7	31.7	79.4	40.5
1987	319.3	152.1	31.0	81.5	39.6
1988	319.6	150.7	30.4	81.3	39.0
1989	319.6	148.7	30.4	80.2	38.2
1990	319.9	147.9	30.3	79.3	38.2
1991	319.5	146.7	30.5	77.8	38.4
1992	320.0	146.7	31.1	76.9	38.7
1993	321.4	146.7	31.2	78.4	37.1
1994	322.1	147.1	31.0	79.3	36.8
1995	322.3	146.9	30.6	79.5	36.8
1996	323.5	146.9	30.3	80.1	36.4
1997	327.6	148.3	30.7	81.7	36.0
1998	331.8	150.5	31.0	83.7	35.8
1999	331.7	150.4	30.8	85.1	34.5
2000	333.4	150.8	30.8	85.8	34.1
2001	335.9	151.8	30.9	87.6	33.3
2002	337.8	152.7	30.9	89.1	32.6
2003	340.2	154.0	31.1	90.6	32.4
2004	343.3	155.9	31.3	92.5	32.1
2005	347.1	158.1	31.5	94.6	31.9
2006	351.6	160.8	31.9	97.0	31.9
2007	356.3	163.7	32.2	99.6	31.9
2008	362.1	166.9	32.6	102.3	32.0
2009	369.0	170.8	33.2	105.5	32.1
2010	377.0	175.1	34.0	108.9	32.2

*Historical data

SOURCE: MAP Regional Model simulation C86.S109, region AG, created
March 1986.

TABLE E.6. MAP MODEL REGIONAL PROJECTIONS
OIL ONLY FROM AREAS LEASED TO JAN. 1987
FAIRBANKS

(thousands)

Year	Total Population	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	63.2	33.7	NA	NA	14.5
1984*	64.2	35.7	NA	NA	15.1
1985	70.3	36.5	6.3	14.9	15.3
1986	76.0	39.3	6.3	16.2	16.8
1987	75.8	39.1	6.1	16.5	16.5
1988	75.7	38.8	6.0	16.5	16.3
1989	75.1	38.1	5.8	16.2	16.0
1990	75.0	37.8	5.8	16.0	16.0
1991	74.9	37.5	5.8	15.7	16.0
1992	74.9	37.5	6.0	15.4	16.1
1993	74.6	37.1	6.2	15.5	15.5
1994	74.9	37.3	6.2	15.7	15.4
1995	74.8	37.2	6.0	15.8	15.4
1996	74.5	37.0	5.9	15.8	15.2
1997	74.5	36.9	6.0	15.9	15.0
1998	74.4	36.9	6.0	16.0	14.9
1999	74.0	36.4	6.0	16.1	14.4
2000	73.8	36.4	6.0	16.2	14.2
2001	73.7	36.4	6.0	16.4	13.9
2002	73.6	36.4	6.1	16.7	13.7
2003	73.6	36.6	6.1	16.9	13.6
2004	73.8	36.9	6.2	17.3	13.5
2005	74.2	37.2	6.2	17.6	13.4
2006	74.7	37.7	6.3	18.0	13.4
2007	75.3	38.2	6.4	18.5	13.3
2008	76.0	38.8	6.5	18.9	13.4
2009	77.0	39.5	6.7	19.4	13.4
2010	78.2	40.2	6.9	20.0	13.4

*Historical data

SOURCE: MAP Regional Model simulation C86.B2, region 09, created
March 1986.

TABLE E.7. MAP MODEL REGIONAL PROJECTIONS
SALE 109 IMPACT CASE
FAIRBANKS

(thousands)

Year	Total Population	Total Employment	Basic Employment	Support Employment	Government Employment
1983*	63.2	33.7	NA	NA	14.5
1984*	64.2	35.7	NA	NA	15.1
1985	70.3	36.5	6.3	14.9	15.3
1986	76.0	39.3	6.3	16.2	16.8
1987	75.8	39.1	6.1	16.5	16.5
1988	75.7	38.8	6.0	16.5	16.3
1989	75.2	38.1	5.9	16.2	16.0
1990	75.0	37.8	5.8	16.0	16.0
1991	75.0	37.5	5.8	15.6	16.0
1992	75.0	37.5	6.0	15.4	16.1
1993	74.8	37.2	6.2	15.5	15.5
1994	75.2	37.4	6.2	15.8	15.4
1995	75.0	37.3	6.0	15.8	15.4
1996	74.9	37.1	6.0	15.8	15.3
1997	75.2	36.9	6.1	15.8	15.1
1998	75.6	37.1	6.1	16.0	15.0
1999	75.2	37.2	6.1	16.5	14.6
2000	75.1	37.0	6.1	16.5	14.4
2001	75.2	37.0	6.2	16.8	14.1
2002	75.2	37.1	6.2	17.0	13.9
2003	75.4	37.3	6.2	17.3	13.8
2004	75.7	37.6	6.3	17.6	13.7
2005	76.1	37.9	6.4	17.9	13.6
2006	76.7	38.4	6.5	18.3	13.5
2007	77.3	38.9	6.6	18.8	13.5
2008	78.1	39.5	6.7	19.3	13.5
2009	79.2	40.2	6.8	19.8	13.6
2010	80.4	41.0	7.0	20.4	13.6

*Historical data

SOURCE: MAP Regional Model simulation C86.S109, region 09, created
March 1986.

APPENDIX F

STATEWIDE AND REGIONAL EXOGENOUS
INDUSTRY EMPLOYMENT ASSUMPTIONS

TABLE F.1. TRANS-ALASKA PIPELINE

(thousands of employees)

	Anchorage	Barrow/ North Slope	Fairbanks	Southeast Fairbanks
1984	0.545	0.099	0.025	0.025
1985	0.450	0.101	0.035	0.026
1986	0.390	0.101	0.040	0.026
1987	0.390	0.101	0.040	0.026
1988	0.390	0.101	0.040	0.026
1989	0.390	0.101	0.040	0.026
1990	0.390	0.101	0.040	0.026
1991	0.390	0.101	0.040	0.026
1992	0.390	0.101	0.040	0.026
1993	0.390	0.101	0.040	0.026
1994	0.390	0.101	0.040	0.026
1995	0.390	0.101	0.040	0.026
1996	0.390	0.101	0.040	0.026
1997	0.390	0.101	0.040	0.026
1998	0.390	0.101	0.040	0.026
1999	0.390	0.101	0.040	0.026
2000	0.390	0.101	0.040	0.026
2001	0.390	0.101	0.040	0.026
2002	0.390	0.101	0.040	0.026
2003	0.390	0.101	0.040	0.026
2004	0.390	0.101	0.040	0.026
2005	0.390	0.101	0.040	0.026
2006	0.390	0.101	0.040	0.026
2007	0.390	0.101	0.040	0.026
2008	0.390	0.101	0.040	0.026
2009	0.390	0.101	0.040	0.026
2010	0.390	0.101	0.040	0.026

SOURCE: MAP MODEL CASE TAP.S86
VARIABLES: B02 B04 B09 B24

TABLE F.1 (continued)

	Valdez/Chitina/ Whittier	Yukon/ Koyukuk	High Wage Exogenous Construction Employment	Exogenous Transportation Employment
1984	0.231	0.075	0.000	1.000
1985	0.252	0.076	0.000	0.940
1986	0.252	0.076	0.000	0.885
1987	0.252	0.076	0.000	0.885
1988	0.252	0.076	0.000	0.885
1989	0.252	0.076	0.000	0.885
1990	0.252	0.076	0.000	0.885
1991	0.252	0.076	0.000	0.885
1992	0.252	0.076	0.000	0.885
1993	0.252	0.076	0.000	0.885
1994	0.252	0.076	0.000	0.885
1995	0.252	0.076	0.000	0.885
1996	0.252	0.076	0.000	0.885
1997	0.252	0.076	0.000	0.885
1998	0.252	0.076	0.000	0.885
1999	0.252	0.076	0.000	0.885
2000	0.252	0.076	0.000	0.885
2001	0.252	0.076	0.000	0.885
2002	0.252	0.076	0.000	0.885
2003	0.252	0.076	0.000	0.885
2004	0.252	0.076	0.000	0.885
2005	0.252	0.076	0.000	0.885
2006	0.252	0.076	0.000	0.885
2007	0.252	0.076	0.000	0.885
2008	0.252	0.076	0.000	0.885
2009	0.252	0.076	0.000	0.885
2010	0.252	0.076	0.000	0.885

SOURCE: MAP MODEL CASE TAP.S86
VARIABLES: B26 B29 EMCNX1 EMT9X

TABLE F.2. NORTH SLOPE PETROLEUM

(thousands of employees)

	Barrow/ North Slope	High Wage Exogenous Construction Employment	Mining Employment
1984	5.329	1.724	3.605
1985	6.014	2.246	3.768
1986	7.191	2.880	4.311
1987	6.696	1.286	5.410
1988	4.919	0.429	4.489
1989	5.090	0.489	4.600
1990	5.144	0.489	4.655
1991	4.973	0.430	4.543
1992	5.086	0.430	4.656
1993	4.289	0.079	4.210
1994	4.203	0.079	4.124
1995	4.080	0.079	4.001
1996	3.844	0.000	3.844
1997	3.749	0.000	3.749
1998	3.526	0.000	3.526
1999	3.344	0.000	3.344
2000	3.344	0.000	3.344
2001	3.203	0.000	3.203
2002	2.438	0.000	2.438
2003	2.438	0.000	2.438
2004	2.077	0.000	2.077
2005	2.077	0.000	2.077
2006	2.077	0.000	2.077
2007	1.461	0.000	1.461
2008	1.461	0.000	1.461
2009	1.461	0.000	1.461
2010	1.461	0.000	1.461

SOURCE: MAP MODEL CASE NSO.86B
VARIABLES: B04 EMCNX1 EMP9

TABLE F.3. COOK INLET PETROLEUM

(thousands of employees)

	Kenai/ Cook Inlet	Mining Employment
1984	0.755	0.755
1985	0.733	0.733
1986	0.715	0.715
1987	0.697	0.697
1988	0.680	0.680
1989	0.663	0.663
1990	0.646	0.646
1991	0.630	0.630
1992	0.614	0.614
1993	0.599	0.599
1994	0.584	0.584
1995	0.569	0.569
1996	0.555	0.555
1997	0.541	0.541
1998	0.528	0.528
1999	0.514	0.514
2000	0.501	0.501
2001	0.489	0.489
2002	0.477	0.477
2003	0.465	0.465
2004	0.453	0.453
2005	0.442	0.442
2006	0.431	0.431
2007	0.420	0.420
2008	0.410	0.410
2009	0.399	0.399
2010	0.389	0.389

SOURCE: MAP MODEL CASE UPC.S86
VARIABLES: B12 EMP9

TABLE F.4.   ANCHORAGE OIL HEADQUARTERS

(thousands of employees)

	Anchorage	Mining Employment
1984	3.423	3.423
1985	3.900	3.900
1986	3.900	3.900
1987	3.900	3.900
1988	3.900	3.900
1989	3.900	3.900
1990	3.900	3.900
1991	3.900	3.900
1992	3.900	3.900
1993	3.900	3.900
1994	3.900	3.900
1995	3.900	3.900
1996	3.900	3.900
1997	3.900	3.900
1998	3.900	3.900
1999	3.900	3.900
2000	3.900	3.900
2001	3.900	3.900
2002	3.900	3.900
2003	3.900	3.900
2004	3.900	3.900
2005	3.900	3.900
2006	3.900	3.900
2007	3.900	3.900
2008	3.900	3.900
2009	3.900	3.900
2010	3.900	3.900

SOURCE: MAP MODEL CASE OHQ.S86
VARIABLES: B02 EMP9

TABLE F.5. BELUGA COAL MINING

(thousands of employees)

	Kenai/ Cook Inlet	Low Wage Exogenous Construction Employment	Mining Employment	Exogenous Transportation Employment
1984	0.000	0.000	0.000	0.000
1985	0.000	0.000	0.000	0.000
1986	0.000	0.000	0.000	0.000
1987	0.000	0.000	0.000	0.000
1988	0.000	0.000	0.000	0.000
1989	0.150	0.150	0.000	0.000
1990	0.300	0.300	0.000	0.000
1991	0.400	0.400	0.000	0.000
1992	0.350	0.350	0.000	0.000
1993	0.200	0.200	0.000	0.000
1994	0.363	0.100	0.210	0.053
1995	0.524	0.000	0.419	0.105
1996	0.524	0.000	0.419	0.105
1997	0.524	0.000	0.419	0.105
1998	0.524	0.000	0.419	0.105
1999	0.524	0.000	0.419	0.105
2000	0.524	0.000	0.419	0.105
2001	0.524	0.000	0.419	0.105
2002	0.524	0.000	0.419	0.105
2003	0.524	0.000	0.419	0.105
2004	0.524	0.000	0.419	0.105
2005	0.524	0.000	0.419	0.105
2006	0.524	0.000	0.419	0.105
2007	0.524	0.000	0.419	0.105
2008	0.524	0.000	0.419	0.105
2009	0.524	0.000	0.419	0.105
2010	0.524	0.000	0.419	0.105

SOURCE: MAP MODEL CASE BCL.04T
VARIABLES: B12 EMCNX2 EMP9 EMT9X

TABLE F.6. HEALY COAL EXPORT

(thousands of employees)

	Seward	Yukon/ Koyukuk	Mining Employment	Exogenous Transportation Employment
1984	0.000	0.110	0.110	0.000
1985	0.008	0.120	0.120	0.008
1986	0.008	0.130	0.130	0.008
1987	0.008	0.130	0.130	0.008
1988	0.008	0.130	0.130	0.008
1989	0.008	0.130	0.130	0.008
1990	0.008	0.130	0.130	0.008
1991	0.008	0.130	0.130	0.008
1992	0.008	0.130	0.130	0.008
1993	0.008	0.130	0.130	0.008
1994	0.008	0.130	0.130	0.008
1995	0.008	0.130	0.130	0.008
1996	0.008	0.130	0.130	0.008
1997	0.008	0.130	0.130	0.008
1998	0.008	0.130	0.130	0.008
1999	0.008	0.130	0.130	0.008
2000	0.008	0.130	0.130	0.008
2001	0.008	0.130	0.130	0.008
2002	0.008	0.130	0.130	0.008
2003	0.008	0.130	0.130	0.008
2004	0.008	0.130	0.130	0.008
2005	0.008	0.130	0.130	0.008
2006	0.008	0.130	0.130	0.008
2007	0.008	0.130	0.130	0.008
2008	0.008	0.130	0.130	0.008
2009	0.008	0.130	0.130	0.008
2010	0.008	0.130	0.130	0.008

SOURCE: MAP MODEL CASE HCL.84X
VARIABLES: B21 B29 EMP9 EMT9X

TABLE F.7. QUARTZ HILL MOLYBDENUM MINE

(thousands of employees)

	Southeast Alaska	Low Wage Exogenous Construction Employment	Mining Employment
1984	0.000	0.000	0.000
1985	0.020	0.020	0.000
1986	0.220	0.210	0.010
1987	1.125	1.050	0.075
1988	0.960	0.750	0.210
1989	0.700	0.015	0.685
1990	0.790	0.000	0.790
1991	0.795	0.005	0.790
1992	1.055	0.215	0.840
1993	0.961	0.008	0.953
1994	0.980	0.000	0.980
1995	0.990	0.000	0.990
1996	0.980	0.000	0.980
1997	0.980	0.000	0.980
1998	0.990	0.000	0.990
1999	0.990	0.000	0.990
2000	0.990	0.000	0.990
2001	0.990	0.000	0.990
2002	1.000	0.000	1.000
2003	1.000	0.000	1.000
2004	1.000	0.000	1.000
2005	1.010	0.000	1.010
2006	1.010	0.000	1.010
2007	1.010	0.000	1.010
2008	1.020	0.000	1.020
2009	1.020	0.000	1.020
2010	1.020	0.000	1.020

SOURCE: MAP MODEL CASE BXM.F84
VARIABLES: B11 EMCNX2 EMP9

TABLE F.8.   GREENS CREEK MINE

(thousands of employees)

	Southeast Alaska	Low Wage Exogenous Construction Employment	Mining Employment
1984	0.005	0.000	0.005
1985	0.033	0.026	0.007
1986	0.045	0.035	0.010
1987	0.085	0.035	0.050
1988	0.230	0.080	0.150
1989	0.150	0.000	0.150
1990	0.150	0.000	0.150
1991	0.150	0.000	0.150
1992	0.150	0.000	0.150
1993	0.150	0.000	0.150
1994	0.150	0.000	0.150
1995	0.150	0.000	0.150
1996	0.150	0.000	0.150
1997	0.150	0.000	0.150
1998	0.150	0.000	0.150
1999	0.150	0.000	0.150
2000	0.150	0.000	0.150
2001	0.150	0.000	0.150
2002	0.150	0.000	0.150
2003	0.150	0.000	0.150
2004	0.000	0.000	0.000
2005	0.000	0.000	0.000
2006	0.000	0.000	0.000
2007	0.000	0.000	0.000
2008	0.000	0.000	0.000
2009	0.000	0.000	0.000
2010	0.000	0.000	0.000

SOURCE: MAP MODEL CASE GCM.F84
VARIABLES: B11 EMCNX2 EMP9

TABLE F.9. RED DOG MINE

(thousands of employees)

	Anchorage	Kobuk	Low Wage Exogenous Construction Employment	Mining Employment
1984	0.005	0.000	0.000	0.005
1985	0.005	0.005	0.005	0.005
1986	0.005	0.111	0.103	0.013
1987	0.008	0.213	0.205	0.016
1988	0.008	0.086	0.078	0.016
1989	0.008	0.385	0.000	0.393
1990	0.008	0.385	0.000	0.393
1991	0.008	0.385	0.000	0.393
1992	0.008	0.385	0.000	0.393
1993	0.008	0.420	0.000	0.428
1994	0.008	0.420	0.000	0.428
1995	0.008	0.420	0.000	0.428
1996	0.008	0.420	0.000	0.428
1997	0.008	0.420	0.000	0.428
1998	0.008	0.420	0.000	0.428
1999	0.008	0.420	0.000	0.428
2000	0.008	0.420	0.000	0.428
2001	0.008	0.420	0.000	0.428
2002	0.008	0.420	0.000	0.428
2003	0.008	0.420	0.000	0.428
2004	0.008	0.420	0.000	0.428
2005	0.008	0.420	0.000	0.428
2006	0.008	0.420	0.000	0.428
2007	0.008	0.420	0.000	0.428
2008	0.008	0.420	0.000	0.428
2009	0.008	0.420	0.000	0.428
2010	0.008	0.420	0.000	0.428

SOURCE: MAP MODEL CASE RED.F84
VARIABLES: B02 B14 EMCNX2 EMP9

TABLE F.10. OTHER MINING

(thousands of employees)

	Aleutian Islands	Anchorage	Barrow/ North Slope	Bethel	Cordova/ McCarthy
1984	0.005	0.195	0.000	0.030	0.022
1985	0.005	0.197	0.000	0.030	0.022
1986	0.005	0.199	0.000	0.031	0.022
1987	0.005	0.201	0.000	0.031	0.023
1988	0.005	0.203	0.000	0.031	0.023
1989	0.005	0.205	0.000	0.032	0.023
1990	0.005	0.207	0.000	0.032	0.023
1991	0.005	0.209	0.000	0.032	0.024
1992	0.005	0.211	0.000	0.032	0.024
1993	0.005	0.213	0.000	0.033	0.024
1994	0.006	0.215	0.000	0.033	0.024
1995	0.006	0.218	0.000	0.033	0.025
1996	0.006	0.220	0.000	0.034	0.025
1997	0.006	0.222	0.000	0.034	0.025
1998	0.006	0.224	0.000	0.034	0.025
1999	0.006	0.226	0.000	0.035	0.026
2000	0.006	0.229	0.000	0.035	0.026
2001	0.006	0.231	0.000	0.036	0.026
2002	0.006	0.233	0.000	0.036	0.026
2003	0.006	0.236	0.000	0.036	0.027
2004	0.006	0.238	0.000	0.037	0.027
2005	0.006	0.240	0.000	0.037	0.027
2006	0.006	0.243	0.000	0.037	0.027
2007	0.006	0.245	0.000	0.038	0.028
2008	0.006	0.248	0.000	0.038	0.028
2009	0.006	0.250	0.000	0.038	0.028
2010	0.006	0.253	0.000	0.039	0.028

SOURCE: MAP MODEL CASE OMN.S86
VARIABLES: B01 B02 B04 B05 B08

TABLE F.10 (continued)

	Fairbanks	Southeast Alaska	Kenai/ Cook Inlet	Kobuk	Kuskokwim
1984	0.167	0.055	0.003	0.040	0.013
1985	0.169	0.056	0.003	0.040	0.013
1986	0.170	0.056	0.003	0.041	0.013
1987	0.172	0.057	0.003	0.041	0.013
1988	0.174	0.057	0.003	0.042	0.014
1989	0.176	0.058	0.003	0.042	0.014
1990	0.177	0.058	0.003	0.042	0.014
1991	0.179	0.059	0.003	0.043	0.014
1992	0.181	0.060	0.003	0.043	0.014
1993	0.183	0.060	0.003	0.044	0.014
1994	0.184	0.061	0.003	0.044	0.014
1995	0.186	0.061	0.003	0.045	0.015
1996	0.188	0.062	0.003	0.045	0.015
1997	0.190	0.063	0.003	0.046	0.015
1998	0.192	0.063	0.003	0.046	0.015
1999	0.194	0.064	0.003	0.046	0.015
2000	0.196	0.064	0.004	0.047	0.015
2001	0.198	0.065	0.004	0.047	0.015
2002	0.200	0.066	0.004	0.048	0.016
2003	0.202	0.066	0.004	0.048	0.016
2004	0.204	0.067	0.004	0.049	0.016
2005	0.206	0.068	0.004	0.049	0.016
2006	0.208	0.068	0.004	0.050	0.016
2007	0.210	0.069	0.004	0.050	0.016
2008	0.212	0.070	0.004	0.051	0.017
2009	0.214	0.071	0.004	0.051	0.017
2010	0.216	0.071	0.004	0.052	0.017

SOURCE: MAP MODEL CASE OMN.S86
VARIABLES: B09 B11 B12 B14 B16

	Matanuska/ Susitna	Nome	Seward	Southeast Fairbanks	Upper Yukon
1984	0.009	0.110	0.003	0.005	0.039
1985	0.009	0.111	0.003	0.005	0.039
1986	0.009	0.112	0.003	0.005	0.040
1987	0.009	0.113	0.003	0.005	0.040
1988	0.009	0.114	0.003	0.005	0.041
1989	0.009	0.116	0.003	0.005	0.041
1990	0.010	0.117	0.003	0.005	0.041
1991	0.010	0.118	0.003	0.005	0.042
1992	0.010	0.119	0.003	0.005	0.042
1993	0.010	0.120	0.003	0.005	0.043
1994	0.010	0.122	0.003	0.006	0.043
1995	0.010	0.123	0.003	0.006	0.044
1996	0.010	0.124	0.003	0.006	0.044
1997	0.010	0.125	0.003	0.006	0.044
1998	0.010	0.126	0.003	0.006	0.045
1999	0.010	0.128	0.003	0.006	0.045
2000	0.011	0.129	0.004	0.006	0.046
2001	0.011	0.130	0.004	0.006	0.046
2002	0.011	0.132	0.004	0.006	0.047
2003	0.011	0.133	0.004	0.006	0.047
2004	0.011	0.134	0.004	0.006	0.048
2005	0.011	0.136	0.004	0.006	0.048
2006	0.011	0.137	0.004	0.006	0.049
2007	0.011	0.138	0.004	0.006	0.049
2008	0.011	0.140	0.004	0.006	0.050
2009	0.012	0.141	0.004	0.006	0.050
2010	0.012	0.142	0.004	0.006	0.051

SOURCE: MAP MODEL CASE OMN.S86
VARIABLES: B17 B18 B21 B24 B25

TABLE F.10 (continued)

	Valdez/Chitina/ Whittier	Yukon/ Koyukuk	Mining Employment
1984	0.030	0.073	0.799
1985	0.030	0.074	0.807
1986	0.031	0.074	0.815
1987	0.031	0.075	0.823
1988	0.031	0.076	0.831
1989	0.032	0.077	0.840
1990	0.032	0.077	0.848
1991	0.032	0.078	0.857
1992	0.032	0.079	0.865
1993	0.033	0.080	0.874
1994	0.033	0.081	0.883
1995	0.033	0.081	0.891
1996	0.034	0.082	0.900
1997	0.034	0.083	0.909
1998	0.034	0.084	0.918
1999	0.035	0.085	0.928
2000	0.035	0.086	0.937
2001	0.036	0.086	0.946
2002	0.036	0.087	0.956
2003	0.036	0.088	0.965
2004	0.037	0.089	0.975
2005	0.037	0.090	0.985
2006	0.037	0.091	0.995
2007	0.038	0.092	1.004
2008	0.038	0.093	1.015
2009	0.038	0.094	1.025
2010	0.039	0.095	1.035

SOURCE: MAP MODEL CASE OMN.S86
VARIABLES: B26 B29 EMP9

TABLE F.11. AGRICULTURE

(thousands of employees)

	Aleutian Islands	Anchorage	Fairbanks	Southeast Alaska	Kenai/ Cook Inlet
1984	0.002	0.320	0.051	0.003	0.020
1985	0.002	0.320	0.051	0.003	0.020
1986	0.002	0.320	0.051	0.003	0.020
1987	0.002	0.320	0.051	0.003	0.020
1988	0.002	0.320	0.051	0.003	0.020
1989	0.002	0.320	0.051	0.003	0.020
1990	0.002	0.320	0.051	0.003	0.020
1991	0.002	0.320	0.051	0.003	0.020
1992	0.002	0.320	0.051	0.003	0.020
1993	0.002	0.320	0.051	0.003	0.020
1994	0.002	0.320	0.051	0.003	0.020
1995	0.002	0.320	0.051	0.003	0.020
1996	0.002	0.320	0.051	0.003	0.020
1997	0.002	0.320	0.051	0.003	0.020
1998	0.002	0.320	0.051	0.003	0.020
1999	0.002	0.320	0.051	0.003	0.020
2000	0.002	0.320	0.051	0.003	0.020
2001	0.002	0.320	0.051	0.003	0.020
2002	0.002	0.320	0.051	0.003	0.020
2003	0.002	0.320	0.051	0.003	0.020
2004	0.002	0.320	0.051	0.003	0.020
2005	0.002	0.320	0.051	0.003	0.020
2006	0.002	0.320	0.051	0.003	0.020
2007	0.002	0.320	0.051	0.003	0.020
2008	0.002	0.320	0.051	0.003	0.020
2009	0.002	0.320	0.051	0.003	0.020
2010	0.002	0.320	0.051	0.003	0.020

SOURCE: MAP MODEL CASE AGR.S86
VARIABLES: B01 B02 B09 B11 B12

TABLE F.11 (continued)

	Kodiak	Matanuska/ Susitna	Southeast Fairbanks	Agriculture Employment
1984	0.002	0.037	0.023	0.458
1985	0.002	0.037	0.023	0.458
1986	0.002	0.037	0.023	0.458
1987	0.002	0.037	0.023	0.458
1988	0.002	0.037	0.023	0.458
1989	0.002	0.037	0.023	0.458
1990	0.002	0.037	0.023	0.458
1991	0.002	0.037	0.023	0.458
1992	0.002	0.037	0.023	0.458
1993	0.002	0.037	0.023	0.458
1994	0.002	0.037	0.023	0.458
1995	0.002	0.037	0.023	0.458
1996	0.002	0.037	0.023	0.458
1997	0.002	0.037	0.023	0.458
1998	0.002	0.037	0.023	0.458
1999	0.002	0.037	0.023	0.458
2000	0.002	0.037	0.023	0.458
2001	0.002	0.037	0.023	0.458
2002	0.002	0.037	0.023	0.458
2003	0.002	0.037	0.023	0.458
2004	0.002	0.037	0.023	0.458
2005	0.002	0.037	0.023	0.458
2006	0.002	0.037	0.023	0.458
2007	0.002	0.037	0.023	0.458
2008	0.002	0.037	0.023	0.458
2009	0.002	0.037	0.023	0.458
2010	0.002	0.037	0.023	0.458

SOURCE: MAP MODEL CASE AGR.S86
VARIABLES: B15 B17 B24 EMAGRI

TABLE F.12. LOGGING AND LUMBER

(thousands of employees)

	Anchorage	Cordova/ McCarthy	Fairbanks	Southeast Alaska	Kenai/ Cook Inlet
1984	0.244	0.013	0.030	1.301	0.016
1985	0.244	0.013	0.030	1.300	0.016
1986	0.244	0.013	0.030	1.500	0.016
1987	0.244	0.013	0.030	1.700	0.016
1988	0.244	0.013	0.030	1.900	0.016
1989	0.244	0.013	0.030	2.100	0.016
1990	0.254	0.025	0.054	2.126	0.040
1991	0.254	0.071	0.054	2.264	0.040
1992	0.254	0.140	0.054	2.379	0.040
1993	0.254	0.232	0.054	2.471	0.040
1994	0.254	0.255	0.054	2.540	0.040
1995	0.254	0.255	0.054	2.586	0.040
1996	0.254	0.255	0.054	2.632	0.040
1997	0.254	0.255	0.054	2.632	0.040
1998	0.254	0.255	0.054	2.632	0.040
1999	0.254	0.255	0.054	2.632	0.040
2000	0.254	0.255	0.054	2.632	0.040
2001	0.254	0.255	0.054	2.632	0.040
2002	0.254	0.255	0.054	2.632	0.040
2003	0.254	0.255	0.054	2.632	0.040
2004	0.254	0.255	0.054	2.632	0.040
2005	0.254	0.255	0.054	2.632	0.040
2006	0.254	0.232	0.054	2.632	0.040
2007	0.254	0.186	0.054	2.632	0.040
2008	0.254	0.163	0.054	2.632	0.040
2009	0.254	0.140	0.054	2.632	0.040
2010	0.254	0.117	0.054	2.632	0.040

SOURCE: MAP MODEL CASE FLL.S86
VARIABLES: B02 B08 B09 B11 B12

TABLE F.12 (continued)

	Kodiak	Matanuska/Susitna	Seward	Southeast Fairbanks	Yukon/Koyukuk	Low Wage Exogenous Manufacturing Employment
1984	0.055	0.008	0.006	0.011	0.017	1.701
1985	0.055	0.008	0.006	0.011	0.017	1.700
1986	0.055	0.008	0.006	0.011	0.017	1.900
1987	0.055	0.008	0.006	0.011	0.017	2.100
1988	0.055	0.008	0.006	0.011	0.017	2.300
1989	0.055	0.008	0.006	0.011	0.017	2.500
1990	0.140	0.014	0.010	0.020	0.032	2.715
1991	0.180	0.014	0.010	0.020	0.032	2.939
1992	0.194	0.014	0.010	0.020	0.032	3.137
1993	0.212	0.014	0.010	0.020	0.032	3.339
1994	0.230	0.014	0.010	0.020	0.032	3.449
1995	0.249	0.014	0.012	0.020	0.032	3.516
1996	0.249	0.014	0.012	0.020	0.032	3.562
1997	0.249	0.014	0.012	0.020	0.032	3.562
1998	0.249	0.014	0.012	0.020	0.032	3.562
1999	0.249	0.014	0.012	0.020	0.032	3.562
2000	0.249	0.014	0.012	0.020	0.032	3.562
2001	0.249	0.014	0.012	0.020	0.032	3.562
2002	0.249	0.014	0.012	0.020	0.032	3.562
2003	0.249	0.014	0.012	0.020	0.032	3.562
2004	0.249	0.014	0.012	0.020	0.032	3.562
2005	0.249	0.014	0.013	0.020	0.032	3.563
2006	0.249	0.014	0.013	0.020	0.032	3.540
2007	0.249	0.014	0.013	0.020	0.032	3.494
2008	0.249	0.014	0.013	0.020	0.032	3.471
2009	0.249	0.014	0.013	0.020	0.032	3.448
2010	0.249	0.014	0.013	0.020	0.032	3.425

SOURCE: MAP MODEL CASE FLL.S86
VARIABLES: B15 B17 B21 B24 B29 EMMX2

TABLE F.13. PULP AND PAPER

(thousands of employees)

	Southeast Alaska	Low Wage Exogenous Manufacturing Employment
1984	0.598	0.598
1985	0.550	0.550
1986	0.600	0.600
1987	0.600	0.600
1988	0.600	0.600
1989	0.600	0.600
1990	0.600	0.600
1991	0.600	0.600
1992	0.594	0.594
1993	0.588	0.588
1994	0.582	0.582
1995	0.576	0.576
1996	0.571	0.571
1997	0.565	0.565
1998	0.559	0.559
1999	0.554	0.554
2000	0.548	0.548
2001	0.543	0.543
2002	0.537	0.537
2003	0.532	0.532
2004	0.527	0.527
2005	0.521	0.521
2006	0.516	0.516
2007	0.511	0.511
2008	0.506	0.506
2009	0.501	0.501
2010	0.496	0.496

SOURCE: MAP MODEL CASE FPU.S86
VARIABLES: B11 EMMX2

TABLE F.14. TRADITIONAL COMMERCIAL FISHING

(thousands of employees)

	Aleutian Islands	Bethel	Bristol Bay	Cordova/ McCarthy	Southeast Alaska
1984	1.188	0.296	1.012	0.240	2.100
1985	1.188	0.296	1.012	0.240	2.100
1986	1.188	0.296	1.012	0.240	2.100
1987	1.188	0.296	1.012	0.240	2.100
1988	1.188	0.296	1.012	0.240	2.100
1989	1.188	0.296	1.012	0.240	2.100
1990	1.188	0.296	1.012	0.240	2.100
1991	1.188	0.296	1.012	0.240	2.100
1992	1.188	0.296	1.012	0.240	2.100
1993	1.188	0.296	1.012	0.240	2.100
1994	1.188	0.296	1.012	0.240	2.100
1995	1.188	0.296	1.012	0.240	2.100
1996	1.188	0.296	1.012	0.240	2.100
1997	1.188	0.296	1.012	0.240	2.100
1998	1.188	0.296	1.012	0.240	2.100
1999	1.188	0.296	1.012	0.240	2.100
2000	1.188	0.296	1.012	0.240	2.100
2001	1.188	0.296	1.012	0.240	2.100
2002	1.188	0.296	1.012	0.240	2.100
2003	1.188	0.296	1.012	0.240	2.100
2004	1.188	0.296	1.012	0.240	2.100
2005	1.188	0.296	1.012	0.240	2.100
2006	1.188	0.296	1.012	0.240	2.100
2007	1.188	0.296	1.012	0.240	2.100
2008	1.188	0.296	1.012	0.240	2.100
2009	1.188	0.296	1.012	0.240	2.100
2010	1.188	0.296	1.012	0.240	2.100

SOURCE: MAP MODEL CASE TCF.S86
VARIABLES: B01 B05 B06 B08 B11

TABLE F.14 (continued)

	Kenai/Cook Inlet	Kobuk	Kodiak	Kuskokwim	Nome
1984	0.792	0.176	1.104	0.032	0.008
1985	0.792	0.176	1.104	0.032	0.008
1986	0.792	0.176	1.104	0.032	0.008
1987	0.792	0.176	1.104	0.032	0.008
1988	0.792	0.176	1.104	0.032	0.008
1989	0.792	0.176	1.104	0.032	0.008
1990	0.792	0.176	1.104	0.032	0.008
1991	0.792	0.176	1.104	0.032	0.008
1992	0.792	0.176	1.104	0.032	0.008
1993	0.792	0.176	1.104	0.032	0.008
1994	0.792	0.176	1.104	0.032	0.008
1995	0.792	0.176	1.104	0.032	0.008
1996	0.792	0.176	1.104	0.032	0.008
1997	0.792	0.176	1.104	0.032	0.008
1998	0.792	0.176	1.104	0.032	0.008
1999	0.792	0.176	1.104	0.032	0.008
2000	0.792	0.176	1.104	0.032	0.008
2001	0.792	0.176	1.104	0.032	0.008
2002	0.792	0.176	1.104	0.032	0.008
2003	0.792	0.176	1.104	0.032	0.008
2004	0.792	0.176	1.104	0.032	0.008
2005	0.792	0.176	1.104	0.032	0.008
2006	0.792	0.176	1.104	0.032	0.008
2007	0.792	0.176	1.104	0.032	0.008
2008	0.792	0.176	1.104	0.032	0.008
2009	0.792	0.176	1.104	0.032	0.008
2010	0.792	0.176	1.104	0.032	0.008

SOURCE: MAP MODEL CASE TCF.S86
VARIABLES: B12 B14 B15 B16 B18

TABLE F.14 (continued)

	Seward	Valdez/Chitina/ Whittier	Wade Hampton	Fish Harvesting Employment
1984	0.240	0.024	0.288	7.500
1985	0.240	0.024	0.288	7.500
1986	0.240	0.024	0.288	7.500
1987	0.240	0.024	0.288	7.500
1988	0.240	0.024	0.288	7.500
1989	0.240	0.024	0.288	7.500
1990	0.240	0.024	0.288	7.500
1991	0.240	0.024	0.288	7.500
1992	0.240	0.024	0.288	7.500
1993	0.240	0.024	0.288	7.500
1994	0.240	0.024	0.288	7.500
1995	0.240	0.024	0.288	7.500
1996	0.240	0.024	0.288	7.500
1997	0.240	0.024	0.288	7.500
1998	0.240	0.024	0.288	7.500
1999	0.240	0.024	0.288	7.500
2000	0.240	0.024	0.288	7.500
2001	0.240	0.024	0.288	7.500
2002	0.240	0.024	0.288	7.500
2003	0.240	0.024	0.288	7.500
2004	0.240	0.024	0.288	7.500
2005	0.240	0.024	0.288	7.500
2006	0.240	0.024	0.288	7.500
2007	0.240	0.024	0.288	7.500
2008	0.240	0.024	0.288	7.500
2009	0.240	0.024	0.288	7.500
2010	0.240	0.024	0.288	7.500

SOURCE: MAP MODEL CASE TCF.S86
VARIABLES: B21 B26 B27 EMFISH

TABLE F.15. TRADITIONAL FISH PROCESSING

(thousands of employees)

	Aleutian Islands	Anchorage	Bethel	Bristol Bay	Cordova/ McCarthy
1984	0.864	0.347	0.032	0.786	0.305
1985	0.864	0.347	0.032	0.786	0.305
1986	1.220	0.410	0.058	0.880	0.300
1987	1.220	0.410	0.058	0.880	0.300
1988	1.220	0.410	0.058	0.880	0.300
1989	1.220	0.410	0.058	0.880	0.300
1990	1.220	0.410	0.058	0.880	0.300
1991	1.220	0.410	0.058	0.880	0.300
1992	1.220	0.410	0.058	0.880	0.300
1993	1.220	0.410	0.058	0.880	0.300
1994	1.220	0.410	0.058	0.880	0.300
1995	1.220	0.410	0.058	0.880	0.300
1996	1.220	0.410	0.058	0.880	0.300
1997	1.220	0.410	0.058	0.880	0.300
1998	1.220	0.410	0.058	0.880	0.300
1999	1.220	0.410	0.058	0.880	0.300
2000	1.220	0.410	0.058	0.880	0.300
2001	1.220	0.410	0.058	0.880	0.300
2002	1.220	0.410	0.058	0.880	0.300
2003	1.220	0.410	0.058	0.880	0.300
2004	1.220	0.410	0.058	0.880	0.300
2005	1.220	0.410	0.058	0.880	0.300
2006	1.220	0.410	0.058	0.880	0.300
2007	1.220	0.410	0.058	0.880	0.300
2008	1.220	0.410	0.058	0.880	0.300
2009	1.220	0.410	0.058	0.880	0.300
2010	1.220	0.410	0.058	0.880	0.300

SOURCE: MAP MODEL CASE TFP.S86
VARIABLES: B01 B02 B05 B06 B08

	Southeast Alaska	Kenai/ Cook Inlet	Kobuk	Kodiak	Kuskokwim
1984	0.900	0.778	0.000	1.423	0.000
1985	0.900	0.778	0.000	1.423	0.000
1986	0.950	0.800	0.034	1.470	0.004
1987	0.950	0.800	0.034	1.470	0.004
1988	0.950	0.800	0.034	1.470	0.004
1989	0.950	0.800	0.034	1.470	0.004
1990	0.950	0.800	0.034	1.470	0.004
1991	0.950	0.800	0.034	1.470	0.004
1992	0.950	0.800	0.034	1.470	0.004
1993	0.950	0.800	0.034	1.470	0.004
1994	0.950	0.800	0.034	1.470	0.004
1995	0.950	0.800	0.034	1.470	0.004
1996	0.950	0.800	0.034	1.470	0.004
1997	0.950	0.800	0.034	1.470	0.004
1998	0.950	0.800	0.034	1.470	0.004
1999	0.950	0.800	0.034	1.470	0.004
2000	0.950	0.800	0.034	1.470	0.004
2001	0.950	0.800	0.034	1.470	0.004
2002	0.950	0.800	0.034	1.470	0.004
2003	0.950	0.800	0.034	1.470	0.004
2004	0.950	0.800	0.034	1.470	0.004
2005	0.950	0.800	0.034	1.470	0.004
2006	0.950	0.800	0.034	1.470	0.004
2007	0.950	0.800	0.034	1.470	0.004
2008	0.950	0.800	0.034	1.470	0.004
2009	0.950	0.800	0.034	1.470	0.004
2010	0.950	0.800	0.034	1.470	0.004

SOURCE: MAP MODEL CASE TFP.S86
VARIABLES: B11 B12 B14 B15 B16

TABLE F.15 (continued)

	Nome	Seward	Valdez/Chitina/ Whittier	Wade Hampton	Low Wage Exogenous Manufacturing Employment
1984	0.018	0.187	0.048	0.066	5.754
1985	0.018	0.187	0.048	0.066	5.754
1986	0.018	0.221	0.057	0.078	6.500
1987	0.018	0.221	0.057	0.078	6.500
1988	0.018	0.221	0.057	0.078	6.500
1989	0.018	0.221	0.057	0.078	6.500
1990	0.018	0.221	0.057	0.078	6.500
1991	0.018	0.221	0.057	0.078	6.500
1992	0.018	0.221	0.057	0.078	6.500
1993	0.018	0.221	0.057	0.078	6.500
1994	0.018	0.221	0.057	0.078	6.500
1995	0.018	0.221	0.057	0.078	6.500
1996	0.018	0.221	0.057	0.078	6.500
1997	0.018	0.221	0.057	0.078	6.500
1998	0.018	0.221	0.057	0.078	6.500
1999	0.018	0.221	0.057	0.078	6.500
2000	0.018	0.221	0.057	0.078	6.500
2001	0.018	0.221	0.057	0.078	6.500
2002	0.018	0.221	0.057	0.078	6.500
2003	0.018	0.221	0.057	0.078	6.500
2004	0.018	0.221	0.057	0.078	6.500
2005	0.018	0.221	0.057	0.078	6.500
2006	0.018	0.221	0.057	0.078	6.500
2007	0.018	0.221	0.057	0.078	6.500
2008	0.018	0.221	0.057	0.078	6.500
2009	0.018	0.221	0.057	0.078	6.500
2010	0.018	0.221	0.057	0.078	6.500

SOURCE: MAP MODEL CASE TFP.S86
VARIABLES: B18 B21 B26 B27 EMMX2

TABLE F.16. COMMERCIAL GROUNDFISHING AND PROCESSING

(thousands of employees)

	Aleutian Islands	Kodiak	Fish Harvesting Employment	Low Wage Exogenous Manufacturing Employment
1984	0.071	0.016	0.081	0.006
1985	0.095	0.022	0.108	0.009
1986	0.120	0.028	0.136	0.012
1987	0.146	0.034	0.164	0.016
1988	0.165	0.038	0.181	0.022
1989	0.200	0.043	0.216	0.027
1990	0.220	0.051	0.229	0.042
1991	0.246	0.057	0.245	0.058
1992	0.280	0.065	0.266	0.079
1993	0.325	0.075	0.292	0.108
1994	0.385	0.089	0.326	0.148
1995	0.463	0.107	0.368	0.202
1996	0.566	0.131	0.421	0.276
1997	0.703	0.163	0.488	0.378
1998	0.884	0.205	0.572	0.517
1999	1.125	0.261	0.678	0.708
2000	1.383	0.321	0.733	0.971
2001	1.383	0.321	0.733	0.971
2002	1.383	0.321	0.733	0.971
2003	1.383	0.321	0.733	0.971
2004	1.383	0.321	0.733	0.971
2005	1.383	0.321	0.733	0.971
2006	1.383	0.321	0.733	0.971
2007	1.383	0.321	0.733	0.971
2008	1.383	0.321	0.733	0.971
2009	1.383	0.321	0.733	0.971
2010	1.383	0.321	0.733	0.971

SOURCE: MAP MODEL CASE BCF.F83
VARIABLES: B01 B15 EMFISH EMMX2

TABLE F.17.   STATE HYDROELECTRIC PROJECTS

(thousands of employees)

	Cordova/ McCarthy	Southeast Alaska	Kenai/ Cook Inlet	Kodiak
1984	0.000	0.000	0.000	0.122
1985	0.038	0.000	0.129	0.000
1986	0.075	0.000	0.221	0.000
1987	0.075	0.000	0.265	0.000
1988	0.038	0.000	0.445	0.000
1989	0.000	0.000	0.725	0.000
1990	0.000	0.000	0.725	0.000
1991	0.000	0.000	0.725	0.000
1992	0.000	0.000	0.725	0.000
1993	0.000	0.000	0.363	0.000
1994	0.000	0.000	0.000	0.000
1995	0.000	0.000	0.000	0.000
1996	0.000	0.000	0.000	0.000
1997	0.000	0.000	0.000	0.000
1998	0.000	0.000	0.000	0.000
1999	0.000	0.000	0.000	0.000
2000	0.000	0.000	0.000	0.000
2001	0.000	0.000	0.000	0.000
2002	0.000	0.000	0.000	0.000
2003	0.000	0.000	0.000	0.000
2004	0.000	0.000	0.000	0.000
2005	0.000	0.000	0.000	0.000
2006	0.000	0.000	0.000	0.000
2007	0.000	0.000	0.000	0.000
2008	0.000	0.000	0.000	0.000
2009	0.000	0.000	0.000	0.000
2010	0.000	0.000	0.000	0.000

SOURCE: MAP MODEL CASE SHP.F83
VARIABLES: B08 B11 B12 B15

	Matanuska/ Susitna	Yukon/ Koyukuk	Low Wage Exogenous Construction Employment
1984	0.075	0.045	0.242
1985	0.000	0.000	0.167
1986	0.000	0.000	0.296
1987	0.000	0.000	0.340
1988	0.000	0.000	0.483
1989	0.000	0.000	0.725
1990	0.000	0.000	0.725
1991	0.000	0.000	0.725
1992	0.000	0.000	0.725
1993	0.000	0.000	0.363
1994	0.000	0.000	0.000
1995	0.000	0.000	0.000
1996	0.000	0.000	0.000
1997	0.000	0.000	0.000
1998	0.000	0.000	0.000
1999	0.000	0.000	0.000
2000	0.000	0.000	0.000
2001	0.000	0.000	0.000
2002	0.000	0.000	0.000
2003	0.000	0.000	0.000
2004	0.000	0.000	0.000
2005	0.000	0.000	0.000
2006	0.000	0.000	0.000
2007	0.000	0.000	0.000
2008	0.000	0.000	0.000
2009	0.000	0.000	0.000
2010	0.000	0.000	0.000

SOURCE: MAP MODEL CASE SHP.F83
VARIABLES: B17 B29 EMCNX2

TABLE F.18. LIGHT ARMY DIVISION DEPLOYMENT

(thousands of employees)

	Anchorage	Fairbanks	Active Duty Military Employment
1984	0.000	0.000	0.000
1985	0.000	0.000	0.000
1986	0.650	1.950	2.600
1987	0.650	1.950	2.600
1988	0.650	1.950	2.600
1989	0.650	1.950	2.600
1990	0.650	1.950	2.600
1991	0.650	1.950	2.600
1992	0.650	1.950	2.600
1993	0.650	1.950	2.600
1994	0.650	1.950	2.600
1995	0.650	1.950	2.600
1996	0.650	1.950	2.600
1997	0.650	1.950	2.600
1998	0.650	1.950	2.600
1999	0.650	1.950	2.600
2000	0.650	1.950	2.600
2001	0.650	1.950	2.600
2002	0.650	1.950	2.600
2003	0.650	1.950	2.600
2004	0.650	1.950	2.600
2005	0.650	1.950	2.600
2006	0.650	1.950	2.600
2007	0.650	1.950	2.600
2008	0.650	1.950	2.600
2009	0.650	1.950	2.600
2010	0.650	1.950	2.600

SOURCE: MAP MODEL CASE GFM.JPR
VARIABLES: G02 G09 EMGM

TABLE F.19. FEDERAL GOVERNMENT MILITARY

(thousands of employees)

	Aleutian Islands	Anchorage	Barrow/ North Slope	Bethel	Bristol Bay
1984	2.307	10.904	0.000	0.000	0.273
1985	2.307	10.904	0.000	0.000	0.273
1986	2.284	10.795	0.000	0.000	0.270
1987	2.261	10.687	0.000	0.000	0.268
1988	2.238	10.580	0.000	0.000	0.265
1989	2.216	10.474	0.000	0.000	0.262
1990	2.194	10.370	0.000	0.000	0.260
1991	2.172	10.266	0.000	0.000	0.257
1992	2.150	10.163	0.000	0.000	0.254
1993	2.129	10.062	0.000	0.000	0.252
1994	2.107	9.961	0.000	0.000	0.249
1995	2.086	9.861	0.000	0.000	0.247
1996	2.066	9.763	0.000	0.000	0.244
1997	2.045	9.665	0.000	0.000	0.242
1998	2.024	9.568	0.000	0.000	0.240
1999	2.004	9.473	0.000	0.000	0.237
2000	1.984	9.378	0.000	0.000	0.235
2001	1.964	9.284	0.000	0.000	0.232
2002	1.945	9.191	0.000	0.000	0.230
2003	1.925	9.100	0.000	0.000	0.228
2004	1.906	9.009	0.000	0.000	0.226
2005	1.887	8.918	0.000	0.000	0.223
2006	1.868	8.829	0.000	0.000	0.221
2007	1.849	8.741	0.000	0.000	0.219
2008	1.831	8.654	0.000	0.000	0.217
2009	1.813	8.567	0.000	0.000	0.214
2010	1.794	8.481	0.000	0.000	0.212

SOURCE: MAP MODEL CASE GFM.S86
VARIABLES: G01 G02 G04 G05 G06

TABLE F.19. (continued)

	Cordova/ McCarthy	Fairbanks	Southeast Alaska	Kenai/ Cook Inlet	Kobuk
1984	0.041	6.027	0.734	0.055	0.000
1985	0.041	6.027	0.734	0.055	0.000
1986	0.041	5.967	0.727	0.054	0.000
1987	0.040	5.907	0.719	0.054	0.000
1988	0.040	5.848	0.712	0.053	0.000
1989	0.039	5.790	0.705	0.053	0.000
1990	0.039	5.732	0.698	0.052	0.000
1991	0.039	5.674	0.691	0.052	0.000
1992	0.038	5.618	0.684	0.051	0.000
1993	0.038	5.561	0.677	0.051	0.000
1994	0.037	5.506	0.671	0.050	0.000
1995	0.037	5.451	0.664	0.050	0.000
1996	0.037	5.396	0.657	0.049	0.000
1997	0.036	5.342	0.651	0.049	0.000
1998	0.036	5.289	0.644	0.048	0.000
1999	0.036	5.236	0.638	0.048	0.000
2000	0.035	5.184	0.631	0.047	0.000
2001	0.035	5.132	0.625	0.047	0.000
2002	0.035	5.080	0.619	0.046	0.000
2003	0.034	5.030	0.613	0.046	0.000
2004	0.034	4.979	0.606	0.045	0.000
2005	0.034	4.930	0.600	0.045	0.000
2006	0.033	4.880	0.594	0.045	0.000
2007	0.033	4.831	0.588	0.044	0.000
2008	0.033	4.783	0.583	0.044	0.000
2009	0.032	4.735	0.577	0.043	0.000
2010	0.032	4.688	0.571	0.043	0.000

SOURCE: MAP MODEL CASE GFM.S86
VARIABLES: G08 G09 G11 G12 G14

	Kodiak	Kuskokwim	Matanuska/ Susitna	Nome	Seward
1984	0.921	0.026	0.000	0.029	0.015
1985	0.921	0.026	0.000	0.029	0.015
1986	0.912	0.026	0.000	0.029	0.015
1987	0.903	0.025	0.000	0.028	0.015
1988	0.894	0.025	0.000	0.028	0.015
1989	0.885	0.025	0.000	0.028	0.014
1990	0.876	0.025	0.000	0.028	0.014
1991	0.867	0.024	0.000	0.027	0.014
1992	0.858	0.024	0.000	0.027	0.014
1993	0.850	0.024	0.000	0.027	0.014
1994	0.841	0.024	0.000	0.026	0.014
1995	0.833	0.024	0.000	0.026	0.014
1996	0.825	0.023	0.000	0.026	0.013
1997	0.816	0.023	0.000	0.026	0.013
1998	0.808	0.023	0.000	0.025	0.013
1999	0.800	0.023	0.000	0.025	0.013
2000	0.792	0.022	0.000	0.025	0.013
2001	0.784	0.022	0.000	0.025	0.013
2002	0.776	0.022	0.000	0.024	0.013
2003	0.769	0.022	0.000	0.024	0.013
2004	0.761	0.021	0.000	0.024	0.012
2005	0.753	0.021	0.000	0.024	0.012
2006	0.746	0.021	0.000	0.023	0.012
2007	0.738	0.021	0.000	0.023	0.012
2008	0.731	0.021	0.000	0.023	0.012
2009	0.724	0.020	0.000	0.023	0.012
2010	0.716	0.020	0.000	0.023	0.012

SOURCE: MAP MODEL CASE GFM.S86
VARIABLES: G15 G16 G17 G18 G21

TABLE F.19. (continued)

	Southeast Fairbanks	Upper Yukon	Valdez/ Chitina/ Whittier	Wade Hampton	Yukon/ Koyokuk	Active Duty Military Employment
1984	0.784	0.026	0.053	0.000	0.384	22.579
1985	0.784	0.026	0.053	0.000	0.384	22.579
1986	0.776	0.026	0.052	0.000	0.380	22.353
1987	0.768	0.025	0.052	0.000	0.376	22.130
1988	0.761	0.025	0.051	0.000	0.373	21.908
1989	0.753	0.025	0.051	0.000	0.369	21.689
1990	0.746	0.025	0.050	0.000	0.365	21.472
1991	0.738	0.024	0.050	0.000	0.362	21.258
1992	0.731	0.024	0.049	0.000	0.358	21.045
1993	0.723	0.024	0.049	0.000	0.354	20.835
1994	0.716	0.024	0.048	0.000	0.351	20.626
1995	0.709	0.024	0.048	0.000	0.347	20.420
1996	0.702	0.023	0.047	0.000	0.344	20.216
1997	0.695	0.023	0.047	0.000	0.340	20.014
1998	0.688	0.023	0.047	0.000	0.337	19.813
1999	0.681	0.023	0.046	0.000	0.334	19.615
2000	0.674	0.022	0.046	0.000	0.330	19.419
2001	0.668	0.022	0.045	0.000	0.327	19.225
2002	0.661	0.022	0.045	0.000	0.324	19.033
2003	0.654	0.022	0.044	0.000	0.320	18.842
2004	0.648	0.021	0.044	0.000	0.317	18.654
2005	0.641	0.021	0.043	0.000	0.314	18.467
2006	0.635	0.021	0.043	0.000	0.311	18.283
2007	0.628	0.021	0.042	0.000	0.308	18.100
2008	0.622	0.021	0.042	0.000	0.305	17.919
2009	0.616	0.020	0.042	0.000	0.302	17.740
2010	0.610	0.020	0.041	0.000	0.299	17.562

SOURCE: MAP MODEL CASE GFM.S86
VARIABLES: G24 G25 G26 G27 G29 EMGM

TABLE F.20. FEDERAL CIVILIAN GOVERNMENT

(thousands of employees)

	Aleutian Islands	Anchorage	Barrow/ North Slope	Bethel	Bristol Bay
1984	0.720	10.171	0.143	0.423	0.165
1985	0.720	9.890	0.143	0.423	0.165
1986	0.713	9.791	0.142	0.419	0.163
1987	0.706	9.693	0.140	0.415	0.162
1988	0.699	9.596	0.139	0.410	0.160
1989	0.692	9.500	0.137	0.406	0.158
1990	0.685	9.405	0.136	0.402	0.157
1991	0.688	9.452	0.137	0.404	0.158
1992	0.692	9.500	0.137	0.406	0.158
1993	0.695	9.547	0.138	0.408	0.159
1994	0.699	9.595	0.139	0.410	0.160
1995	0.702	9.643	0.139	0.412	0.161
1996	0.706	9.691	0.140	0.414	0.162
1997	0.709	9.739	0.141	0.417	0.162
1998	0.713	9.788	0.142	0.419	0.163
1999	0.716	9.837	0.142	0.421	0.164
2000	0.720	9.886	0.143	0.423	0.165
2001	0.723	9.936	0.144	0.425	0.166
2002	0.727	9.985	0.144	0.427	0.167
2003	0.731	10.035	0.145	0.429	0.167
2004	0.734	10.085	0.146	0.431	0.168
2005	0.738	10.136	0.147	0.434	0.169
2006	0.742	10.187	0.147	0.436	0.170
2007	0.745	10.238	0.148	0.438	0.171
2008	0.749	10.289	0.149	0.440	0.172
2009	0.753	10.340	0.150	0.442	0.173
2010	0.757	10.392	0.150	0.444	0.173

SOURCE: MAP MODEL CASE GFC.S86
VARIABLES: G01 G02 G04 G05 G06

TABLE F.20. (continued)

	Cordova/ McCarthy	Fairbanks	Southeast Alaska	Kenai/ Cook Inlet	Kobuk
1984	0.043	2.688	2.087	0.151	0.122
1985	0.043	2.800	2.087	0.151	0.122
1986	0.043	2.772	2.066	0.149	0.121
1987	0.042	2.744	2.045	0.148	0.120
1988	0.042	2.717	2.025	0.147	0.118
1989	0.041	2.690	2.005	0.145	0.117
1990	0.041	2.663	1.985	0.144	0.116
1991	0.041	2.676	1.995	0.144	0.117
1992	0.041	2.689	2.005	0.145	0.117
1993	0.042	2.703	2.015	0.146	0.118
1994	0.042	2.716	2.025	0.146	0.118
1995	0.042	2.730	2.035	0.147	0.119
1996	0.042	2.744	2.045	0.148	0.120
1997	0.042	2.757	2.055	0.149	0.120
1998	0.043	2.771	2.066	0.149	0.121
1999	0.043	2.785	2.076	0.150	0.121
2000	0.043	2.799	2.086	0.151	0.122
2001	0.043	2.813	2.097	0.152	0.123
2002	0.043	2.827	2.107	0.152	0.123
2003	0.044	2.841	2.118	0.153	0.124
2004	0.044	2.855	2.128	0.154	0.124
2005	0.044	2.870	2.139	0.155	0.125
2006	0.044	2.884	2.150	0.156	0.126
2007	0.045	2.898	2.160	0.156	0.126
2008	0.045	2.913	2.171	0.157	0.127
2009	0.045	2.927	2.182	0.158	0.128
2010	0.045	2.942	2.193	0.159	0.128

SOURCE: MAP MODEL CASE GFC.S86
VARIABLES: G08 G09 G11 G12 G14

TABLE F.20. (continued)

	Kodiak	Kuskokwim	Matanuska/ Susitna	Nome	Seward
1984	0.241	0.060	0.111	0.134	0.059
1985	0.241	0.060	0.111	0.134	0.059
1986	0.239	0.059	0.110	0.133	0.058
1987	0.236	0.059	0.109	0.131	0.058
1988	0.234	0.058	0.108	0.130	0.057
1989	0.232	0.058	0.107	0.129	0.057
1990	0.229	0.057	0.106	0.127	0.056
1991	0.230	0.057	0.106	0.128	0.056
1992	0.231	0.058	0.107	0.129	0.057
1993	0.233	0.058	0.107	0.129	0.057
1994	0.234	0.058	0.108	0.130	0.057
1995	0.235	0.059	0.108	0.131	0.058
1996	0.236	0.059	0.109	0.131	0.058
1997	0.237	0.059	0.109	0.132	0.058
1998	0.239	0.059	0.110	0.133	0.058
1999	0.240	0.060	0.110	0.133	0.059
2000	0.241	0.060	0.111	0.134	0.059
2001	0.242	0.060	0.112	0.135	0.059
2002	0.243	0.061	0.112	0.135	0.060
2003	0.245	0.061	0.113	0.136	0.060
2004	0.246	0.061	0.113	0.137	0.060
2005	0.247	0.061	0.114	0.137	0.060
2006	0.248	0.062	0.114	0.138	0.061
2007	0.249	0.062	0.115	0.139	0.061
2008	0.251	0.062	0.115	0.139	0.061
2009	0.252	0.063	0.116	0.140	0.062
2010	0.253	0.063	0.117	0.141	0.062

SOURCE: MAP MODEL CASE GFC.S86
VARIABLES: G15 G16 G17 G18 G21

	Southeast Fairbanks	Upper Yukon	Valdez/ Chitina/ Whittier	Wade Hampton	Yukon/ Koyokuk	Federal Civilian Employment
1984	0.431	0.035	0.044	0.057	0.190	18.075
1985	0.431	0.035	0.044	0.057	0.190	17.906
1986	0.427	0.035	0.044	0.056	0.188	17.727
1987	0.422	0.034	0.043	0.056	0.186	17.550
1988	0.418	0.034	0.043	0.055	0.184	17.374
1989	0.414	0.034	0.042	0.055	0.183	17.200
1990	0.410	0.033	0.042	0.054	0.181	17.028
1991	0.412	0.033	0.042	0.054	0.182	17.114
1992	0.414	0.034	0.042	0.055	0.182	17.199
1993	0.416	0.034	0.042	0.055	0.183	17.285
1994	0.418	0.034	0.043	0.055	0.184	17.371
1995	0.420	0.034	0.043	0.056	0.185	17.458
1996	0.422	0.034	0.043	0.056	0.186	17.546
1997	0.424	0.034	0.043	0.056	0.187	17.633
1998	0.427	0.035	0.044	0.056	0.188	17.722
1999	0.429	0.035	0.044	0.057	0.189	17.810
2000	0.431	0.035	0.044	0.057	0.190	17.899
2001	0.433	0.035	0.044	0.057	0.191	17.989
2002	0.435	0.035	0.044	0.058	0.192	18.079
2003	0.437	0.036	0.045	0.058	0.193	18.169
2004	0.440	0.036	0.045	0.058	0.194	18.260
2005	0.442	0.036	0.045	0.058	0.195	18.351
2006	0.444	0.036	0.045	0.059	0.196	18.443
2007	0.446	0.036	0.046	0.059	0.197	18.535
2008	0.448	0.036	0.046	0.059	0.198	18.628
2009	0.451	0.037	0.046	0.060	0.199	18.721
2010	0.453	0.037	0.046	0.060	0.200	18.814

SOURCE: MAP MODEL CASE GFC.S86
VARIABLES: G24 G25 G26 G27 G29 EMGC

APPENDIX G

OCS OIL AND GAS EMPLOYMENT
AND REVENUE ASSUMPTIONS

Appendix G documents OCS oil and gas exploration and development assumptions. These are the only industry assumptions that are not included in Appendix F. Tables G.1 through G.6 relate to OCS petroleum development scenarios associated with areas leased to January 1987. Tables G.7 through G.12 relate to petroleum development in these areas plus those proposed for lease between 1987 and 1991 under the Five-Year Program. Tables G.13 through G.15 relate to an OCS petroleum development scenario for Sale 109 (Chukchi Sea).

All the employment and revenue assumptions follow from a schedule of facilities construction and oil and gas production for the various development scenarios, as shown in Tables G.1 and G.2 (leased areas), G.7 and G.8 (leased and unleased areas), and G.13 (Sale 109). These petroleum development scenarios are provided by the Minerals Management Service.

Tables G.3, G.4, G.9, and G.10 show the derivation of property taxes projected for OCS-related petroleum facilities as well as the direct exogenous employment projections, assuming that only oil (no gas) is developed in the leased and total cases, respectively. Tables G.5, G.6, G.11, and G.12 show the analogous information for the leased and total cases, respectively, assuming in addition that natural gas is developed in the Bering Sea. Tables G.14 and G.15 show employment and derivation of revenue projections for Sale 109.

We project that onshore facilities related to OCS development will yield tax revenues based on two percent (20 mills) of the real, depreciated construction cost. The construction cost figures assume instantaneous build, 1985 prices. We depreciate the original cost of most facilities over the assumed production schedule of oil. Facilities specifically serving natural gas development, such as LNG plants and gas pipelines, are depreciated over the schedule of gas production.

TABLE G.1. BERING SEA OIL AND GAS PRODUCTION AND ONSHORE FACILITY SCENARIO LEASED AREAS TO JANUARY 1987

| | Oil Production | | Gas Production | | Depreciated Property ($MM) | | | | | |
| | MMBBLS | | BCF | | Terminals | | Pipelines | | Shorebases | |
	Annual	Cum.	Annual	Cum.	LNG	Oil	Oil	Gas	Explor.	Prod.
1985										
1986										
1987										
1988									30	
1989									27	
1990									24	
1991									21	
1992									18	9
1993						141			15	18
1994	46	46			730	423	120		12	30
1995	160	206			1217	459	205	30	9	29
1996	160	366	262	262	1217	419	187	30	6	27
1997	160	526	331	593	1171	379	170	29	3	24
1998	160	686	331	924	1112	340	152	27		22
1999	160	846	331	1255	1054	300	134	26		19
2000	160	1006	331	1586	996	261	116	25		17
2001	141	1147	331	1917	937	221	99	23		14
2002	123	1270	331	2248	879	186	83	22		12
2003	108	1378	331	2579	821	156	70	20		10
2004	91	1469	331	2910	762	129	58	19		8
2005	78	1547	331	3241	704	107	48	17		7
2006	68	1615	331	3572	645	87	39	16		6
2007	61	1676	331	3903	587	71	32	14		5
2008	55	1731	331	4234	529	55	25	13		4
2009	49	1780	331	4565	470	42	19	12		3
2010	44	1824	331	4896	412	30	13	10		2
2011	40	1864	331	5227	353	19	8	9		1
2012	36	1900	331	5558	295	9	4	7		1
2013			331	5889	237			6		
2014			331	6220	178			4		
2015			269	6489	120			3		
2016			200	6689	72			2		
2017			131	6820	37			1		
2018			80	6900	14			0		
2019										
2020										
Cum.	1900		6900							

SOURCE: U.S. Department of the Interior, Minerals Management Service. Property values depreciated over schedule of production.

TABLE G.2. BEAUFORT SEA OIL PRODUCTION
AND ONSHORE FACILITY SCENARIO
LEASED AREAS TO JANUARY 1987

| | Oil Production | | Depreciated Property ($MM) | |
| | MMBBLS | | | |
	Annual	Cum.	Oil Pipeline	Shorebase
1985				
1986				0
1987				0
1988				0
1989				0
1990				0
1991				0
1992				0
1993				0
1994	36	36	88	0
1995	120	156	85	0
1996	120	276	78	0
1997	120	396	71	0
1998	120	516	63	0
1999	120	636	56	0
2000	120	756	49	0
2001	106	862	41	0
2002	93	955	35	0
2003	82	1037	29	0
2004	69	1106	24	0
2005	59	1165	20	0
2006	51	1216	16	0
2007	46	1262	13	0
2008	41	1303	10	0
2009	37	1340	8	0
2010	33	1373	6	0
2011	30	1403	3	0
2012	27	1430	2	0
2013				
2014				
2015				
2016				
2017				
2018				
2019				
2020				
Cum.	1430			

SOURCE: U.S. Department of the Interior, Minerals Management Service.
Property values depreciated over schedule of production.

TABLE G.3. ONSHORE PROPERTY VALUE AND TAXES FROM OCS DEVELOPMENT
LEASED AREAS TO JANUARY 1987
OIL ONLY CASE

	Bering Property (1985$)	Bering Tax 0.02*C1	Beaufort Property (1985$)	Beaufort Tax 0.02*C3	Bering Tax (Nominal$)	Beaufort Tax (Nominal$)	Total Tax (Nominal$)
1985	0	0.000	0	0.000	0.000	0.000	0.000
1986	0	0.000	0	0.000	0.000	0.000	0.000
1987	0	0.000	0	0.000	0.000	0.000	0.000
1988	30	0.600	0	0.000	0.681	0.000	0.681
1989	27	0.540	0	0.000	0.643	0.000	0.643
1990	24	0.480	0	0.000	0.600	0.000	0.600
1991	21	0.420	0	0.000	0.552	0.000	0.552
1992	164	3.270	0	0.000	4.510	0.000	4.510
1993	447	8.940	0	0.000	13.044	0.000	13.044
1994	606	12.112	88	1.750	18.698	2.701	21.399
1995	648	12.952	85	1.706	21.154	2.786	23.940
1996	586	11.721	78	1.559	20.254	2.694	22.948
1997	525	10.491	71	1.412	19.179	2.582	21.761
1998	463	9.260	63	1.265	18.013	2.461	20.475
1999	404	8.090	56	1.119	16.743	2.315	19.058
2000	346	6.919	49	0.972	15.237	2.140	17.377
2001	292	5.843	41	0.825	13.690	1.933	15.623
2002	245	4.900	35	0.695	12.217	1.733	13.949
2003	204	4.075	29	0.581	10.808	1.542	12.350
2004	168	3.369	24	0.481	9.507	1.357	10.865
2005	138	2.767	20	0.397	8.310	1.191	9.501
2006	112	2.246	16	0.324	7.177	1.036	8.213
2007	89	1.783	13	0.262	6.062	0.890	6.953
2008	68	1.367	10	0.206	4.943	0.744	5.687
2009	50	0.994	8	0.155	3.825	0.598	4.424
2010	33	0.660	6	0.110	2.704	0.451	3.155
2011	18	0.358	3	0.070	1.560	0.304	1.864
2012	4	0.085	2	0.033	0.395	0.153	0.548
2013							
2014							
2015							
2016							
2017							
2018							
2019							
2020							

SOURCE: Property values from Tables G.1 and G.2.

TABLE G.4. OCS DEVELOPMENT ASSUMPTIONS,
LEASED AREAS TO JANUARY 1987
OIL ONLY CASE

(thousands of employees)
(millions of current $)

	High Wage Exogenous Construction Employment	Mining Employment	Exogenous Transportation Employment	State Property Tax Revenue
1984	0.000	0.000	0.000	0.000
1985	0.000	0.000	0.000	0.000
1986	0.017	0.256	0.089	0.000
1987	0.000	0.425	0.153	0.000
1988	0.000	0.326	0.113	0.681
1989	0.000	0.234	0.064	0.643
1990	0.000	0.349	0.104	0.600
1991	0.015	0.148	0.020	0.552
1992	0.171	0.331	0.050	4.510
1993	0.540	2.112	0.345	13.044
1994	0.000	1.541	0.240	21.399
1995	0.000	0.844	0.220	23.940
1996	0.028	0.844	0.220	22.948
1997	0.000	0.889	0.220	21.761
1998	0.000	0.899	0.220	20.475
1999	0.028	0.929	0.220	19.058
2000	0.000	0.929	0.220	17.377
2001	0.000	0.927	0.220	15.623
2002	0.028	0.925	0.220	13.949
2003	0.000	0.923	0.220	12.350
2004	0.000	0.921	0.220	10.865
2005	0.028	0.909	0.220	9.501
2006	0.000	0.905	0.220	8.213
2007	0.000	0.901	0.220	6.953
2008	0.028	0.897	0.220	5.687
2009	0.000	0.893	0.220	4.424
2010	0.028	0.889	0.220	3.155

SOURCE: MAP MODEL CASE OCS.6NGL
VARIABLES: EMCNX1 EMP9 EMT9X RPPS

TABLE G.4 (continued)

	Aleutian Islands	Anchorage	North Slope
1984	0.000	0.000	0.000
1985	0.000	0.000	0.000
1986	0.180	0.020	0.161
1987	0.320	0.020	0.238
1988	0.173	0.028	0.238
1989	0.173	0.040	0.084
1990	0.320	0.048	0.084
1991	0.115	0.060	0.008
1992	0.463	0.080	0.008
1993	2.436	0.100	0.460
1994	1.249	0.120	0.412
1995	0.718	0.120	0.226
1996	0.718	0.120	0.254
1997	0.763	0.120	0.226
1998	0.763	0.120	0.236
1999	0.793	0.120	0.264
2000	0.793	0.120	0.236
2001	0.793	0.118	0.236
2002	0.793	0.116	0.264
2003	0.793	0.114	0.236
2004	0.793	0.112	0.236
2005	0.793	0.100	0.264
2006	0.793	0.096	0.236
2007	0.793	0.092	0.236
2008	0.793	0.088	0.264
2009	0.793	0.084	0.236
2010	0.793	0.080	0.264

SOURCE: MAP MODEL CASE OCS.6NGL
VARIABLES: B01 B02 B04

TABLE G.5. ONSHORE PROPERTY VALUE AND TAXES FROM OCS DEVELOPMENT
LEASED AREAS TO JANUARY 1987, OIL AND GAS CASE

	Bering Property (1985$)	Bering Tax 0.02*C1	Beaufort Property (1985$)	Beaufort Tax 0.02*C3	CPI Growth Rate	CPI Index	Bering Tax (Nominal$)	Beaufort Tax (Nominal$)	Total Tax (Nominal$)
1985	0	0.000	0	0.000	3.0%	1.000	0.000	0.000	0.000
1986	0	0.000	0	0.000	3.7%	1.037	0.000	0.000	0.000
1987	0	0.000	0	0.000	4.2%	1.081	0.000	0.000	0.000
1988	30	0.600	0	0.000	5.0%	1.135	0.681	0.000	0.681
1989	27	0.540	0	0.000	5.0%	1.191	0.643	0.000	0.643
1990	24	0.480	0	0.000	5.0%	1.251	0.600	0.000	0.600
1991	21	0.420	0	0.000	5.0%	1.313	0.552	0.000	0.552
1992	27	0.540	0	0.000	5.0%	1.379	0.745	0.000	0.745
1993	174	3.480	0	0.000	5.8%	1.459	5.078	0.000	5.078
1994	1315	26.304	88	1.750	5.8%	1.544	40.606	2.701	43.307
1995	1949	38.976	85	1.706	5.8%	1.633	63.658	2.786	66.444
1996	1886	37.720	78	1.559	5.8%	1.728	65.180	2.694	67.874
1997	1776	35.518	71	1.412	5.8%	1.828	64.933	2.582	67.515
1998	1653	33.065	63	1.265	6.4%	1.945	64.319	2.461	66.780
1999	1534	30.673	56	1.119	6.4%	2.070	63.484	2.315	65.799
2000	1414	28.281	49	0.972	6.4%	2.202	62.279	2.140	64.419
2001	1294	25.889	41	0.825	6.4%	2.343	60.660	1.933	62.592
2002	1182	23.639	35	0.695	6.4%	2.493	58.932	1.733	60.665
2003	1076	21.523	29	0.581	6.4%	2.653	57.092	1.542	58.634
2004	976	19.519	24	0.481	6.4%	2.822	55.091	1.357	56.448
2005	882	17.643	20	0.397	6.4%	3.003	52.982	1.191	54.172
2006	793	15.864	16	0.324	6.4%	3.195	50.687	1.036	51.723
2007	708	14.159	13	0.262	6.4%	3.400	48.136	0.890	49.026
2008	625	12.507	10	0.206	6.4%	3.617	45.240	0.744	45.984
2009	545	10.899	8	0.155	6.4%	3.849	41.949	0.598	42.547
2010	467	9.337	6	0.110	6.4%	4.095	38.234	0.451	38.686
2011	391	7.811	3	0.070	6.4%	4.357	34.036	0.304	34.340
2012	316	6.316	2	0.033	6.4%	4.636	29.282	0.153	29.435
2013	243	4.851	0	0.000	6.4%	4.933	23.927	0.000	23.927
2014	183	3.654			6.4%	5.248	19.179	0.000	19.179
2015	123	2.458			6.4%	5.584	13.725	0.000	13.725
2016	74	1.486			6.4%	5.942	8.827	0.000	8.827
2017	38	0.763			6.4%	6.322	4.822	0.000	4.822
2018	14	0.289			6.4%	6.727	1.945	0.000	1.945
2019					6.4%	7.157	0.000	0.000	0.000
2020					6.4%	7.615	0.000	0.000	0.000

SOURCE: Property values from Table G.1 and G.2. U.S. Consumer Price Index from Alaska Department of Revenue, _Petroleum Production Revenue Forecast_, December 1985.

TABLE G.6. OCS DEVELOPMENT ASSUMPTIONS,
LEASED AREAS TO JANUARY 1987
OIL AND GAS CASE

(thousands of employees)
(millions of current $)

	High Wage Exogenous Construction Employment	Mining Employment	Exogenous Transportation Employment	State Property Tax Revenue
1984	0.000	0.000	0.000	0.000
1985	0.000	0.000	0.000	0.000
1986	0.017	0.318	0.109	0.000
1987	0.000	0.487	0.172	0.000
1988	0.000	0.495	0.172	0.681
1989	0.000	0.350	0.104	0.643
1990	0.000	0.304	0.084	0.600
1991	0.015	0.264	0.059	0.552
1992	0.030	0.234	0.039	0.745
1993	1.725	2.335	0.375	5.078
1994	0.956	1.919	0.300	43.307
1995	0.000	1.532	0.315	66.444
1996	0.028	1.302	0.275	67.874
1997	0.000	1.188	0.311	67.515
1998	0.000	1.198	0.311	66.780
1999	0.028	1.243	0.311	65.799
2000	0.000	1.243	0.311	64.419
2001	0.000	1.243	0.311	62.592
2002	0.028	1.243	0.311	60.665
2003	0.000	1.243	0.311	58.634
2004	0.000	1.243	0.311	56.448
2005	0.028	1.233	0.311	54.172
2006	0.000	1.229	0.311	51.723
2007	0.000	1.225	0.311	49.026
2008	0.028	1.221	0.311	45.984
2009	0.000	1.217	0.311	42.547
2010	0.028	1.213	0.311	38.686

SOURCE: MAP MODEL CASE OCS.86L
VARIABLES: EMCNX1 EMP9 EMT9X RPPS

	Aleutian Islands	Anchorage	North Slope
1984	0.000	0.000	0.000
1985	0.000	0.000	0.000
1986	0.262	0.020	0.161
1987	0.402	0.020	0.238
1988	0.402	0.028	0.238
1989	0.328	0.040	0.084
1990	0.255	0.048	0.084
1991	0.270	0.060	0.008
1992	0.216	0.080	0.008
1993	3.875	0.100	0.460
1994	2.643	0.120	0.412
1995	1.501	0.120	0.226
1996	1.231	0.120	0.254
1997	1.153	0.120	0.226
1998	1.153	0.120	0.236
1999	1.198	0.120	0.264
2000	1.198	0.120	0.236
2001	1.200	0.118	0.236
2002	1.202	0.116	0.264
2003	1.204	0.114	0.236
2004	1.206	0.112	0.236
2005	1.208	0.100	0.264
2006	1.208	0.096	0.236
2007	1.208	0.092	0.236
2008	1.208	0.088	0.264
2009	1.208	0.084	0.236
2010	1.208	0.080	0.264

SOURCE: MAP MODEL CASE OCS.86L
VARIABLES: B01 B02 B04

TABLE G.7. BERING SEA OIL AND GAS PRODUCTION
AND ONSHORE FACILITY SCENARIO
TOTAL LEASED AND UNLEASED AREAS IN FIVE-YEAR PLAN

| | Oil Production | | Gas Production | | Depreciated Property ($MM) | | | | | |
| | MMBBLS | | BCF | | Terminals | | Pipelines | | Shorebases | |
	Annual	Cum.	Annual	Cum.	LNG	Oil	Oil	Gas	Explor.	Prod.
1985										
1986										
1987										
1988									30	
1989									27	
1990									24	
1991									21	
1992									18	9
1993						225			15	27
1994	46	46			1198	675	120		12	48
1995	160	206			1997	732	205	30	9	59
1996	160	366	262	262	1997	669	187	30	6	53
1997	160	526	331	593	1921	606	170	29	3	48
1998	160	686	331	924	1825	542	152	27		43
1999	160	846	331	1255	1730	479	134	26		38
2000	160	1006	331	1586	1634	416	116	25		33
2001	141	1147	331	1917	1538	353	99	23		28
2002	123	1270	331	2248	1442	297	83	22		24
2003	108	1378	331	2579	1346	249	70	20		20
2004	91	1469	331	2910	1251	206	58	19		16
2005	78	1547	331	3241	1155	170	48	17		14
2006	68	1615	331	3572	1059	139	39	16		11
2007	61	1676	331	3903	963	113	32	14		9
2008	55	1731	331	4234	867	88	25	13		7
2009	49	1780	331	4565	772	67	19	12		5
2010	44	1824	331	4896	676	47	13	10		4
2011	40	1864	331	5227	580	30	8	9		2
2012	36	1900	331	5558	484	14	4	7		1
2013			331	5889	388			6		
2014			331	6220	293			4		
2015			269	6489	197			3		
2016			200	6689	119			2		
2017			131	6820	61			1		
2018			80	6900	23			0		
2019										
2020										
Cum.	1900		6900							

SOURCE: U.S. Department of the Interior, Minerals Management Service. Property values
depreciated over schedule of production.

TABLE G.8. BEAUFORT SEA OIL PRODUCTION
AND ONSHORE FACILITY SCENARIO
TOTAL LEASED AND UNLEASED AREAS IN FIVE-YEAR PLAN

| | Oil Production | | Depreciated Property ($MM) | |
| | MMBBLS | | | |
	Annual	Cum.	Oil Pipeline	Shorebase
1985				
1986				40
1987				36
1988				32
1989				28
1990				24
1991				20
1992				16
1993				12
1994	36	36	263	8
1995	120	156	256	4
1996	120	276	234	0
1997	120	396	212	0
1998	120	516	190	0
1999	120	636	168	0
2000	120	756	146	0
2001	106	862	124	0
2002	93	955	104	0
2003	82	1037	87	0
2004	69	1106	72	0
2005	59	1165	59	0
2006	51	1216	49	0
2007	46	1262	39	0
2008	41	1303	31	0
2009	37	1340	23	0
2010	33	1373	17	0
2011	30	1403	10	0
2012	27	1430	5	0
2013				
2014				
2015				
2016				
2017				
2018				
2019				
2020				
Cum.	1430			

SOURCE: U.S. Department of the Interior, Minerals Management Service.
Property values depreciated over schedule of oil production.

TABLE G.9. ONSHORE PROPERTY VALUE AND TAXES FROM OCS DEVELOPMENT
TOTAL LEASED AND UNLEASED AREAS IN FIVE-YEAR PLAN
OIL ONLY CASE

	Bering Property (1985$)	Bering Tax 0.02*C1	Beaufort Property (1985$)	Beaufort Tax 0.02*C3	Bering Tax (Nominal$)	Beaufort Tax (Nominal$)	Total Tax (Nominal$)
1985	0	0.000	0	0.000	0.000	0.000	0.000
1986	0	0.000	40	0.800	0.000	0.830	0.830
1987	0	0.000	36	0.720	0.000	0.778	0.778
1988	30	0.600	32	0.640	0.681	0.726	1.407
1989	27	0.540	28	0.560	0.643	0.667	1.310
1990	24	0.480	24	0.480	0.600	0.600	1.201
1991	21	0.420	20	0.400	0.552	0.525	1.077
1992	248	4.950	16	0.320	6.827	0.441	7.268
1993	704	14.070	12	0.240	20.529	0.350	20.879
1994	888	17.757	271	5.410	27.411	8.351	35.763
1995	912	18.237	260	5.198	29.786	8.489	38.275
1996	826	16.510	234	4.677	28.529	8.082	36.611
1997	739	14.783	212	4.237	27.026	7.746	34.771
1998	653	13.055	190	3.796	25.395	7.384	32.779
1999	569	11.388	168	3.356	23.570	6.945	30.515
2000	486	9.721	146	2.915	21.406	6.419	27.826
2001	410	8.203	124	2.474	19.221	5.798	25.019
2002	344	6.876	104	2.085	17.142	5.199	22.341
2003	286	5.713	87	1.744	15.153	4.626	19.779
2004	236	4.721	72	1.443	13.325	4.072	17.398
2005	194	3.876	59	1.190	11.639	3.572	15.211
2006	157	3.142	49	0.973	10.039	3.109	13.147
2007	124	2.488	39	0.786	8.460	2.671	11.131
2008	95	1.900	31	0.617	6.873	2.231	9.104
2009	69	1.374	23	0.466	5.289	1.795	7.084
2010	45	0.903	17	0.330	3.699	1.353	5.052
2011	24	0.476	10	0.209	2.075	0.912	2.987
2012	5	0.091	5	0.099	0.422	0.460	0.881
2013							
2014							
2015							
2016							
2017							
2018							
2019							
2020							

SOURCE: Property values from Table G.7 and G.8. Nominal dollars determined by using
Growth rate of U.S. Consumer Price Index from Table G.5.

TABLE G.10. OCS DEVELOPMENT ASSUMPTIONS,
TOTAL LEASED AND UNLEASED AREAS
OIL ONLY CASE

(thousands of employees)
(millions of current $)

	High Wage Exogenous Construction Employment	Mining Employment	Exogenous Transportation Employment	State Property Tax Revenue
1984	0.000	0.000	0.000	0.000
1985	0.000	0.000	0.000	0.000
1986	0.017	0.280	0.089	0.830
1987	0.133	0.680	0.242	0.778
1988	0.000	0.738	0.267	1.407
1989	0.000	0.484	0.158	1.310
1990	0.000	0.707	0.247	1.201
1991	0.015	0.560	0.178	1.077
1992	0.015	0.477	0.129	7.268
1993	0.401	4.043	0.703	20.879
1994	0.593	5.695	0.960	35.763
1995	0.000	3.076	0.699	38.275
1996	0.028	2.307	0.660	36.611
1997	0.000	2.424	0.660	34.771
1998	0.000	2.454	0.660	32.779
1999	0.028	2.554	0.660	30.515
2000	0.000	2.574	0.660	27.826
2001	0.000	2.572	0.660	25.019
2002	0.028	2.570	0.660	22.341
2003	0.000	2.568	0.660	19.779
2004	0.000	2.566	0.660	17.398
2005	0.028	2.552	0.660	15.211
2006	0.000	2.547	0.660	13.147
2007	0.000	2.542	0.660	11.131
2008	0.028	2.537	0.660	9.104
2009	0.000	2.532	0.660	7.084
2010	0.028	2.527	0.660	5.052

SOURCE: MAP MODEL CASE OCS.6NGT
VARIABLES: EMCNX1 EMP9 EMT9X RPPS

TABLE G.10 (continued)

	Aleutian Islands	Anchorage	North Slope
1984	0.000	0.000	0.000
1985	0.000	0.000	0.000
1986	0.197	0.020	0.169
1987	0.483	0.020	0.552
1988	0.483	0.026	0.496
1989	0.263	0.037	0.342
1990	0.410	0.048	0.496
1991	0.352	0.059	0.342
1992	0.356	0.076	0.189
1993	4.564	0.098	0.486
1994	4.164	0.123	2.941
1995	2.273	0.135	1.368
1996	1.865	0.135	0.995
1997	1.955	0.135	0.994
1998	1.985	0.135	0.994
1999	2.045	0.135	1.062
2000	2.065	0.135	1.034
2001	2.065	0.133	1.034
2002	2.065	0.131	1.062
2003	2.065	0.129	1.034
2004	2.065	0.127	1.034
2005	2.065	0.113	1.062
2006	2.065	0.108	1.034
2007	2.065	0.103	1.034
2008	2.065	0.098	1.062
2009	2.065	0.093	1.034
2010	2.065	0.088	1.062

SOURCE: MAP MODEL CASE OCS.6NGT
VARIABLES: B01 B02 B04

TABLE G.11. ONSHORE PROPERTY VALUE AND TAXES FROM OCS DEVELOPMENT
TOTAL LEASED AND UNLEASED AREAS IN FIVE-YEAR PLAN
OIL AND GAS CASE

	Bering Property (1985$)	Bering Tax 0.02*C1	Beaufort Property (1985$)	Beaufort Tax 0.02*C3	CPI Growth Rate	CPI Index	Bering Tax (Nominal$)	Beaufort Tax (Nominal$)	Total Tax (Nominal$)
1985	0	0.000	0	0.000	3.0%	1.000	0.000	0.000	0.000
1986	0	0.000	40	0.800	3.7%	1.037	0.000	0.830	0.830
1987	0	0.000	36	0.720	4.2%	1.081	0.000	0.778	0.778
1988	30	0.600	32	0.640	5.0%	1.135	0.681	0.726	1.407
1989	27	0.540	28	0.560	5.0%	1.191	0.643	0.667	1.310
1990	24	0.480	24	0.480	5.0%	1.251	0.600	0.600	1.201
1991	21	0.420	20	0.400	5.0%	1.313	0.552	0.525	1.077
1992	27	0.540	16	0.320	5.0%	1.379	0.745	0.441	1.186
1993	267	5.340	12	0.240	5.8%	1.459	7.791	0.350	8.142
1994	2053	41.064	271	5.410	5.8%	1.544	63.391	8.351	71.742
1995	3031	60.626	260	5.198	5.8%	1.633	99.017	8.489	107.506
1996	2942	58.848	234	4.677	5.8%	1.728	101.688	8.082	109.770
1997	2777	55.531	212	4.237	5.8%	1.828	101.521	7.746	109.267
1998	2590	51.808	190	3.796	6.4%	1.945	100.777	7.384	108.162
1999	2407	48.146	168	3.356	6.4%	2.070	99.646	6.945	106.592
2000	2224	44.483	146	2.915	6.4%	2.202	97.958	6.419	104.378
2001	2041	40.820	124	2.474	6.4%	2.343	95.646	5.798	101.444
2002	1868	37.362	104	2.085	6.4%	2.493	93.144	5.199	98.343
2003	1705	34.096	87	1.744	6.4%	2.653	90.444	4.626	95.070
2004	1550	30.992	72	1.443	6.4%	2.822	87.471	4.072	91.543
2005	1404	28.070	59	1.190	6.4%	3.003	84.295	3.572	87.867
2006	1264	25.288	49	0.973	6.4%	3.195	80.800	3.109	83.909
2007	1131	22.613	39	0.786	6.4%	3.400	76.878	2.671	79.549
2008	1001	20.014	31	0.617	6.4%	3.617	72.394	2.231	74.625
2009	874	17.478	23	0.466	6.4%	3.849	67.270	1.795	69.064
2010	750	15.007	17	0.330	6.4%	4.095	61.456	1.353	62.810
2011	630	12.590	10	0.209	6.4%	4.357	54.858	0.912	55.770
2012	511	10.216	5	0.099	6.4%	4.636	47.362	0.460	47.821
2013	394	7.885	0	0.000	6.4%	4.933	38.893	0.000	38.893
2014	297	5.940			6.4%	5.248	31.176	0.000	31.176
2015	200	3.995			6.4%	5.584	22.311	0.000	22.311
2016	121	2.415			6.4%	5.942	14.348	0.000	14.348
2017	62	1.240			6.4%	6.322	7.837	0.000	7.837
2018	24	0.470			6.4%	6.727	3.162	0.000	3.162
2019					6.4%	7.157	0.000	0.000	0.000
2020					6.4%	7.615	0.000	0.000	0.000

SOURCE: Property values from Table G.7 and G.8. U.S. Consumer Price Index from Alaska Department of Revenue, Petroleum Production Revenue Forecast, December 1985.

TABLE G.12. OCS DEVELOPMENT ASSUMPTIONS,
TOTAL LEASED AND UNLEASED AREAS
OIL AND GAS CASE

(thousands of employees)
(millions of current $)

	High Wage Exogenous Construction Employment	Mining Employment	Exogenous Transportation Employment	State Property Tax Revenue
1984	0.000	0.000	0.000	0.000
1985	0.000	0.000	0.000	0.000
1986	0.017	0.325	0.109	0.830
1987	0.133	0.756	0.262	0.778
1988	0.000	0.923	0.326	1.407
1989	0.000	0.779	0.256	1.310
1990	0.000	0.789	0.267	1.201
1991	0.015	0.753	0.237	1.077
1992	0.030	0.567	0.148	1.186
1993	1.586	4.299	0.734	8.142
1994	1.373	5.899	0.970	71.742
1995	0.000	3.749	0.775	107.506
1996	0.028	3.362	0.810	109.770
1997	0.000	3.119	0.806	109.267
1998	0.000	2.962	0.806	108.162
1999	0.028	3.077	0.806	106.592
2000	0.000	3.112	0.806	104.378
2001	0.000	3.113	0.806	101.444
2002	0.028	3.114	0.806	98.343
2003	0.000	3.115	0.806	95.070
2004	0.000	3.116	0.806	91.543
2005	0.028	3.105	0.806	87.867
2006	0.000	3.099	0.806	83.909
2007	0.000	3.093	0.806	79.549
2008	0.028	3.087	0.806	74.625
2009	0.000	3.081	0.806	69.064
2010	0.028	3.075	0.806	62.810

SOURCE: MAP MODEL CASE OCS.86T
VARIABLES: EMCNX1 EMP9 EMT9X RPPS

TABLE G.12 (continued)

	Aleutian Islands	Anchorage	North Slope
1984	0.000	0.000	0.000
1985	0.000	0.000	0.000
1986	0.262	0.020	0.169
1987	0.573	0.025	0.552
1988	0.720	0.033	0.496
1989	0.647	0.047	0.342
1990	0.500	0.060	0.496
1991	0.588	0.074	0.342
1992	0.461	0.096	0.189
1993	6.011	0.123	0.486
1994	5.148	0.153	2.941
1995	2.991	0.165	1.368
1996	3.041	0.165	0.995
1997	2.766	0.165	0.994
1998	2.609	0.165	0.994
1999	2.684	0.165	1.062
2000	2.719	0.165	1.034
2001	2.723	0.162	1.034
2002	2.727	0.159	1.062
2003	2.731	0.156	1.034
2004	2.735	0.153	1.034
2005	2.739	0.138	1.062
2006	2.739	0.132	1.034
2007	2.739	0.126	1.034
2008	2.739	0.120	1.062
2009	2.739	0.114	1.034
2010	2.739	0.108	1.062

SOURCE: MAP MODEL CASE OCS.86T
VARIABLES: B01 B02 B04

TABLE G.13.   CHUKCHI SEA OIL PRODUCTION
AND ONSHORE FACILITY SCENARIO
SALE 109, MEAN IMPACT CASE

| | Oil Production | | Depreciated Property ($MM) | |
| | MMBBLS | | | |
	Annual	Cum.	Oil Pipeline	Shorebase
1985				
1986				
1987				
1988				
1989				40
1990				36
1991				32
1992				28
1993				24
1994				20
1995				16
1996				12
1997			700	38
1998			1400	64
1999	67	67	1400	100
2000	225	292	1365	98
2001	225	517	1247	89
2002	225	742	1130	81
2003	225	967	1012	72
2004	225	1192	895	64
2005	225	1417	777	56
2006	198	1615	660	47
2007	174	1789	556	40
2008	153	1942	465	33
2009	129	2071	386	28
2010	110	2181	318	23
2011	96	2277	261	19
2012	86	2363	211	15
2013	78	2441	166	12
2014	70	2511	125	9
2015	62	2573	88	6
2016	56	2629	56	4
2017	51	2680	27	2
2018				
2019				
2020				
Cum.	2680			

SOURCE: U.S. Department of the Interior, Minerals Management Service.
Property values depreciated over schedule of production.

TABLE G.14. ONSHORE PROPERTY VALUE AND TAXES
FROM OCS OIL DEVELOPMENT
SALE 109, MEAN IMPACT CASE

	Chukchi Property (1985$)	Chukchi Tax 0.02*TI	CPI Growth Rate	CPI Index	Chukchi Tax (Nomonal $)
1985	0	0.000	3.0%	1.000	0.000
1986	0	0.000	3.7%	1.037	0.000
1987	0	0.000	4.2%	1.081	0.000
1988	0	0.000	5.0%	1.135	0.000
1989	40	0.800	5.0%	1.191	0.953
1990	36	0.720	5.0%	1.251	0.901
1991	32	0.640	5.0%	1.313	0.841
1992	28	0.560	5.0%	1.379	0.772
1993	24	0.480	5.8%	1.459	0.700
1994	20	0.400	5.8%	1.544	0.617
1995	16	0.320	5.8%	1.633	0.523
1996	12	0.240	5.8%	1.728	0.415
1997	738	14.760	5.8%	1.828	26.984
1998	1464	29.280	6.4%	1.945	56.955
1999	1500	30.000	6.4%	2.070	62.091
2000	1463	29.250	6.4%	2.202	64.413
2001	1337	26.731	6.4%	2.343	62.634
2002	1211	24.213	6.4%	2.493	60.363
2003	1085	21.694	6.4%	2.653	57.545
2004	959	19.175	6.4%	2.822	54.120
2005	833	16.657	6.4%	3.003	50.020
2006	707	14.138	6.4%	3.195	45.174
2007	596	11.922	6.4%	3.400	40.530
2008	499	9.974	6.4%	3.617	36.078
2009	413	8.261	6.4%	3.849	31.795
2010	341	6.817	6.4%	4.095	27.917
2011	279	5.586	6.4%	4.357	24.338
2012	226	4.511	6.4%	4.636	20.914
2013	177	3.549	6.4%	4.933	17.504
2014	134	2.675	6.4%	5.248	14.041
2015	95	1.892	6.4%	5.584	10.564
2016	60	1.198	6.4%	5.942	7.117
2017	29	0.571	6.4%	6.322	3.609
2018			6.4%	6.727	0.000
2019			6.4%	7.157	0.000
2020			6.4%	7.615	0.000

SOURCE: Property values from Table G.13. Growth rate of U.S.
Consumer Price Index from Table G.5.

TABLE G.15.   OCS DEVELOPMENT ASSUMPTIONS,
SALE 109, MEAN IMPACT CASE

(thousands of employees)
(millions of current $)

	High Wage Exogenous Construction Employment	Mining Employment	Exogenous Transportation Employment	State Property Tax Revenue
1984	0.000	0.000	0.000	0.000
1985	0.000	0.000	0.000	0.000
1986	0.000	0.000	0.000	0.000
1987	0.000	0.000	0.000	0.000
1988	0.133	0.000	0.010	0.000
1989	0.000	0.050	0.154	0.953
1990	0.000	0.050	0.159	0.901
1991	0.000	0.198	0.491	0.841
1992	0.000	0.198	0.501	0.772
1993	0.000	0.198	0.511	0.700
1994	0.000	0.198	0.521	0.617
1995	0.278	0.099	0.323	0.523
1996	1.038	0.091	0.398	0.415
1997	0.749	0.417	2.684	26.984
1998	0.769	0.512	3.806	56.955
1999	0.000	0.220	1.585	62.091
2000	0.000	0.495	1.747	64.413
2001	0.000	0.495	1.747	62.634
2002	0.000	0.495	1.864	60.363
2003	0.000	0.495	1.897	57.545
2004	0.000	0.495	1.897	54.120
2005	0.000	0.495	1.897	50.020
2006	0.000	0.495	1.893	45.174
2007	0.000	0.495	1.889	40.530
2008	0.000	0.495	1.885	36.078
2009	0.000	0.495	1.881	31.795
2010	0.000	0.495	1.877	27.917

SOURCE: MAP MODEL CASE OCS.109
VARIABLES: EMCNX1 EMT9X EMP9 RPPS

TABLE G.15 (continued)

	Anchorage	North Slope
1984	0.000	0.000
1985	0.000	0.000
1986	0.000	0.000
1987	0.000	0.000
1988	0.010	0.133
1989	0.015	0.189
1990	0.020	0.189
1991	0.040	0.649
1992	0.050	0.649
1993	0.060	0.649
1994	0.070	0.649
1995	0.080	0.620
1996	0.100	1.427
1997	0.200	3.650
1998	0.200	4.887
1999	0.200	1.605
2000	0.200	2.042
2001	0.200	2.042
2002	0.200	2.159
2003	0.200	2.192
2004	0.200	2.192
2005	0.200	2.192
2006	0.196	2.192
2007	0.192	2.192
2008	0.188	2.192
2009	0.184	2.192
2010	0.180	2.192

SOURCE: MAP MODEL CASE OCS.109
VARIABLES: B02 B04

APPENDIX H

REVIEW OF MAP MODEL ASSUMPTIONS AND PARAMETERS

Economic and demographic projections using any econometric modeling system such as the MAP model are contingent on a large number of assumptions containing a high degree of uncertainty. One can describe essentially three main categories of such assumptions. These are (1) structure of the MAP model, (2) assumptions about the levels of exogenous variables, and (3) parameters used in various relationships in the MAP model. We discuss the three categories and summarize the manner in which we have reviewed and revised the MAP model for the projections described in this report.

The reliability of the assumptions predicting relationships among the economic variables in the model structure is perhaps the most obvious set of assumptions leading to projection uncertainty. The MAP system of economic and demographic models also bases its projections on a set of assumptions about the values of a large number of uncertain and unknown variables and parameters considered exogenous to the model. Assumptions about future levels of important exogenous variables are contained in the base case assumptions summarized for this report in Table 1 and Appendix F. There are also values assumed for each of the hundreds of parameters in various relationships specified in the MAP model, chiefly in the economic and the population components.

Analysis of the basic structural validity of the MAP model is beyond the scope of the present study. We concentrate instead on the values chosen for numerous parameters and exogenous variables. A

previous study reported the results of a large number of sensitivity tests run on the MAP statewide model (O.S. Goldsmith et al., 1985, Appendix J). The sensitivity tests disclosed that certain assumptions were far more important than others in contributing to projection uncertainty.

In particular, the values chosen for several parameters in the model appear to be more critical to the simulation results than the assumptions about individual base case economic variables. Plausible variations around the values chosen for certain of the parameters of the MAP model caused greater fluctuations in the level of a target projection variable, in this case the number of households, than did plausible variations in base case variable assumptions. Most significant of the parameters considered, as applied to the present study, are the labor force participation rate, the elasticity of support sector activity to wealth, and the parameters of the migration equation.

Procedure for Updating Model Parameters

We systematically updated, reviewed, and adjusted the economic model parameters and key population model values for the 1986 projections. Most of the main economic parameters in the MAP model, including those in the migration equation, are derived from econometric analysis of historical data. Others, including those in most demographic relationships, are made by assumption, usually based on one or more historical reference data points.

The procedure for revising the economic model parameters based on econometric techniques involved four steps. First, we systematically revised our historical data base to reflect the most recent information. In most cases, we were able to obtain data for 1984. Then we reestimated all of the stochastic equations of the model for which we had new data (nearly all such equations in the model). As in the past, we tried two alternate specifications for each equation—ordinary least squares regression (OLS) and generalized least squares, assuming first-order autocorrelation (GLS).

After reviewing the new coefficients for each model equation and examining trial projections with the differing parameter values, we chose the new OLS coefficients to use for the updated model. The final step involved comparing the simulated values for variables in the model for 1984 and 1985 to benchmark figures from the Alaska Department of Labor (Alaska Economic Trends). While the model with the new parameters produced simulated values that now matched closely with the benchmarks, there were also some minor discrepancies. We did not, however, adjust any of the equations in order to make the projections for the initial year more closely match the Alaska Department of Labor benchmarks.

To adjust the demographic parameters, we added the starting values for population by age, sex, race, and military service to match, so far as was possible, data provided by the Alaska Department of Labor (Alaska Population Overview, 1985). Then we reviewed the simulated

values for births and deaths, migration, and labor force participation for consistency with published data. The simulated values, using demographic parameters based upon the 1980 U.S. Census, correspond closely to the Alaska Department of Labor benchmark data.

The MAP population model, on the other hand, uses survival rates constructed from five-year cohort-specific death rates, rather than survival rates constructed from life tables. Both methods begin with the 1980 census age-sex-specific deaths, then adjust them in different ways. Although the life-table method is more accurate when data are available to compute the parameters for the table, an attribute of the MAP model that is of vital importance to our demographic projections is the division of the population into three categories, each with separate demographic characteristics and model parameters. These are the civilian non-Native population, the Native population, and the military population (O.S. Goldsmith et al., 1985, Appendix C). Because of the relatively small number of Native men and women born in each year, life-table survival rates are not necessarily accurate. Because of this, we have not changed our methodology based upon this criticism. We may decide to do so in the future, however, as additional data become available.

Procedure for Updating Base Case Assumptions

As mentioned in the report, the four categories of base case assumptions needed to make projections with the MAP statewide model

are (1) national variables assumptions, (2) exogenous employment assumptions, (3) exogenous tourism assumptions, and (4) state revenue and spending assumptions. Regional model projections also require regional exogenous employment assumptions. The first step in reviewing the base case assumptions was to compare our assumed levels of employment, revenue, national variables, etc. with recent benchmarks, adjusting them as needed to conform to the actual values. Because of the relatively low sensitivity of model results to plausible changes in the four national variables assumptions, we did not review them further (see O.S. Goldsmith et al., 1985, Appendix J).

The remaining exogenous variables assumptions can be divided into two categories: (1) those whose values are principally determined by matters of policy and (2) those whose values are principally determined by market forces. We decided to review only the market-based projections, as there is really no way one can determine who is and who is not an expert in the field of forecasting long-range state and national policy. Readers may judge for themselves whether the outcomes of political debates implicit in the assumptions we have chosen are consistent with their own expectations. The policy variables in this category include employment in federal civilian and military government, agriculture, federal revenue sharing, and state spending policy. Table 1 of the report summarizes our assumptions for these variables.

For the market-determined variables, we reviewed our assumptions for special projects with a large number of individuals especially knowledgeable about these and similar projects. The names of these individuals providing information about special projects are documented in our scenario case files available at ISER. As a result of this process, we derived a completely new set of assumptions for the base case used in this study. While the general direction of each project and industry assumption is consistent with information supplied by the reviewer, the specific assumptions were developed by staff of the Institute of Social and Economic Research.

In the past two years, a significant number of independent projections have been published for the overall level of activity in market-determined basic industries in the Alaska economy. Although the economists preparing these published projections make use of the same information as we have used in this report, many also have access to proprietary information that is not available to us. Of course, each of them may interpret the same information in different ways as well.

In Table H.1 we have prepared a summary analysis comparing nine recent, well-prepared forecasts of Alaska basic industry activity to the exogenous industry assumptions used in this report. There is still a substantial level of uncertainty (and thus disagreement among experts) about the degree to which Alaska will weather the effects of lower oil prices. However, one can see from the table

that the various published forecasts are in reasonable agreement with each other as well as with the basic industry assumptions we propose in Table 1.

TABLE H.1. ALASKA BASIC INDUSTRY FORECASTS COMPARED TO ISER ASSUMPTIONS, TABLE 1

Basic Industry	Source	Forecast Horizon		
		1-2 Years	3-7 Years	Over 7 Years
Petroleum	1	Higher		
	6		Lower	Higher
	12	Similar	Similar	Similar
Coal	1	Similar	Similar	Similar
	2	Similar	Similar	
	6		Lower	Lower
	8	Similar	Similar	Higher
Hardrock Mining	1	Similar	Similar	Similar
	6		Similar	Similar
	8	Similar	Similar	Higher
	10	Similar	Similar	Higher
Commercial Fishing	1	Similar	Similar	
	6		Similar	Similar
	15	Similar	Similar	Similar
Seafood Processing	1	Higher	Similar	Similar
	2	Similar	Higher	
	6		Similar	Similar
	14	Similar	Similar	Similar
	15	Higher	Higher	Higher
Logging and Lumber	1	Similar	Similar	Similar
	2	Lower		
	6		Lower	Similar
	9	Similar	Similar	Similar
Pulp and Paper	1	Lower	Lower	Lower
	2	Similar		
	6		Lower	Higher
	9	Similar	Similar	Lower

TABLE H.1 (continued)

Basic Industry	Source	Forecast Horizon		
		1-2 Years	3-7 Years	Over 7 Years
Agriculture	6		Similar	Similar
Tourism	1	Similar		
	6		Similar	Similar
Federal Government	1	Similar		
	2		Higher	
	6		Similar	Similar
General Economic Activity	3			Similar
	4	Lower		
	5	Higher		
	7	Similar		
	11	Higher		
	13		Higher	
	16		Lower	

1. Alaska Business Trends: 1986 Economic Forecast, Alaska Pacific Bank, December 1985.

2. Alaska Economic Trends, Alaska Department of Labor, December 1985, pp. 1-24.

3. Alaska's Energy Plan, 1986, Alaska Department of Commerce and Economic Development.

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