Final Report
October 1994

A Study to Develop Projected Activity for "Non-Road Mobile" Categories in California, 1970-2020

ARB Contract No. 92-732

Prepared for
California Air Resources Board
California Environmental Protection Agency

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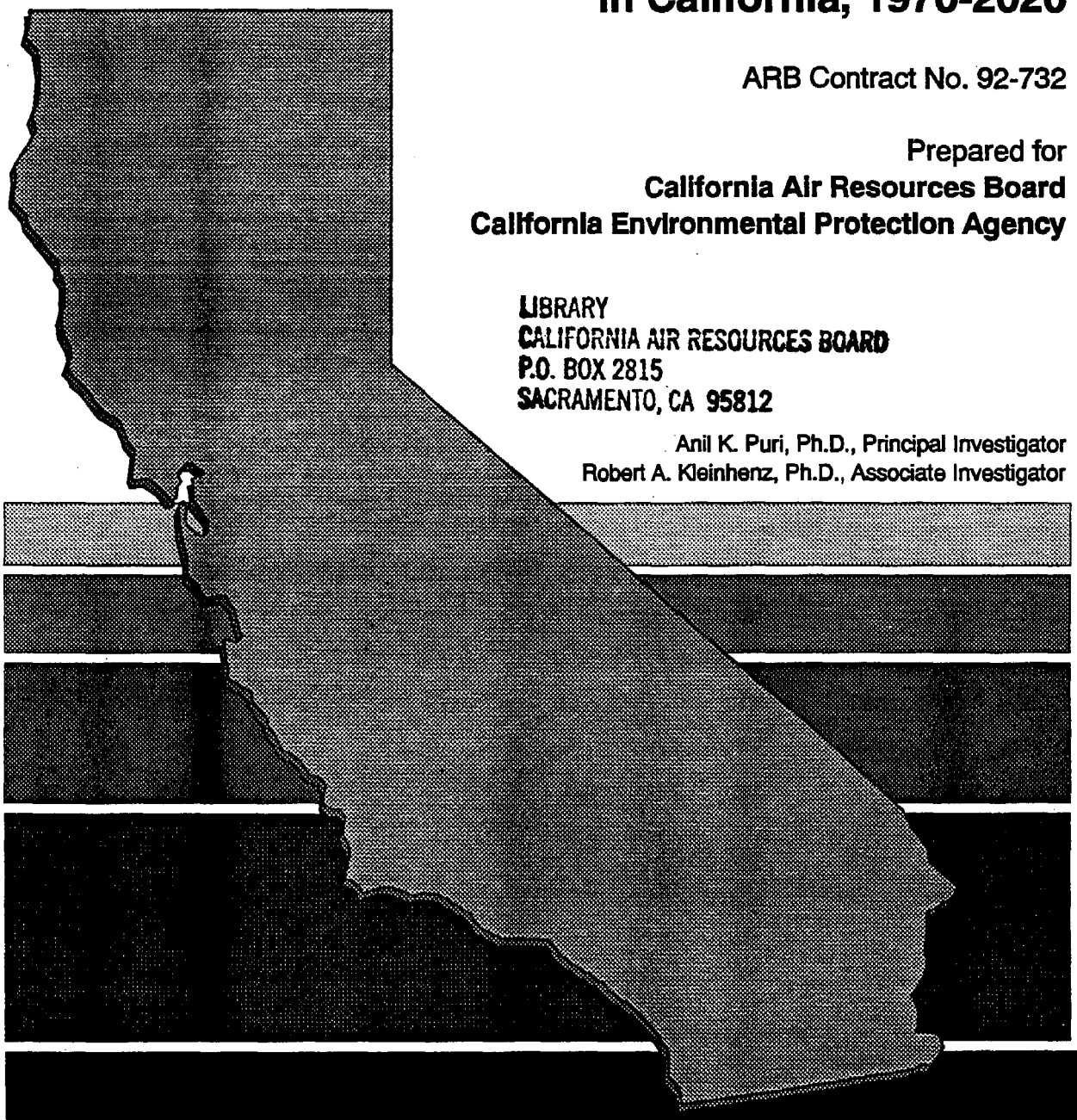

California Environmental Protection Agency
Air Resources Board
Technical Support Division

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Prepared for:
California Environmental Protection Agency
California Air Resources Board
Technical Support Division

Submitted by:
Institute for Economic & Environmental Studies
California State University, Fullerton

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October, 1994

DISCLAIMER

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ACKNOWLEDGEMENT

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ABSTRACT

The California Air Resources Board (ARB) maintains models to track and forecast emission trends for the State. The models are also used by Air Quality Management Districts (AQMDs) and Air Pollution Control Districts (APCDs) to demonstrate that their air quality management plans will achieve required pollution reductions. Emission forecasts, in turn, are based upon measures of past and projected economic activity across the State and at the county levels. The accuracy of emission forecasts and control measure effectiveness thus depends critically on estimates of the underlying economic activity.

This report presents estimates and projections for 21 categories of non-road mobile sources of pollution in California and its 58 counties. The historical estimates are for the period 1970-1992 and projections for 1993-2020. The categories include: farm equipment, aircraft, locomotives, ships, commercial and recreational boats, lawn and garden equipment, off-highway recreational motor vehicles, and non-farm equipment.

The estimates and projections are summarized in 21 graphs and 21 tables for the State and 58 counties.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF DATA TABLES

A STUDY TO DEVELOP PROJECTED ACTIVITY FOR "NON-ROAD MOBILE" CATEGORIES IN CALIFORNIA, 1970-2020

1.0 INTRODUCTION

The California Air Resources Board (ARB) maintains models to track and forecast emission trends for the State. The models are also used by Air Quality Management Districts (AQMDs) and Air Pollution Control Districts (APCDs) to demonstrate that their air quality management plans will achieve required pollution reductions. Emission forecasts, in turn, are based upon measures of past and projected economic activity across the State and at the county levels. The accuracy of emission forecasts and control measure effectiveness thus depends critically on estimates of the underlying economic activity.

This report presents estimates and projections of activity for non-road mobile sources of pollution in California and its 58 counties. The historical estimates are for the period 1970-1992 and projections for 1993-2020. The list of non-road mobile sources for which activity measures are developed was provided by the ARB. This project involved collecting, and when necessary, estimating the historical trends and producing projections for the specified non-road mobile sources.

1.1 PREVIOUS STUDIES

Several studies supplied by ARB staff were reviewed to determine the availability of data for the present study:

Booz, Allen, and Hamilton (1991). "Inventory of Air Pollutant Emissions from Marine Vessels".

Booz, Allen, and Hamilton (1992). "Locomotive Emissions Inventory: Locomotive Emissions by County". Draft Report

Booz, Allen, and Hamilton (1992). "Off-road Mobile Equipment Emission Inventory Estimate". Draft Report

California Air Resources Board (1990). "Regulations Regarding the California Exhaust Emission Standards and Test Procedures for 1994 and Subsequent Model Utility and Lawn and Garden Equipment Engines".

DRI/McGraw-Hill, Inc. (1994). "A Study to Develop Statewide and County-level Economic Projections". Selected data from draft only.

Energy and Environmental Analysis (1992). "Briefing on Development of a Non-Road Equipment Emissions Model".

Energy and Environmental Analysis (1993). "Briefing on Development of a Non-Road Equipment Emissions Model".

KVB, Inc., Research and Analyses Division (1980). Inventory of Emissions from Non-Automotive Vehicular Sources: Final Report.

Sierra Research (1993). "SJVAQS/AUSPEX Agricultural Emissions Inventory". Draft Report.

In general, the studies provided data for a single year, thus could not be used directly for the development of a time-series. Nevertheless, they provided useful background information, and occasionally reported data sources that could be used. The DRI/McGraw-Hill study was relied upon for relevant data for shipping, locomotive, and non-farm equipment categories.

1.2 METHODOLOGY

Given the detailed nature of the activity categories and the necessity to develop long-term historical series, gathering of data and validation of information required a major effort. In all cases every attempt was made to collect official and reliable data.

In general, government economic data are organized according to the system of Standard Industrial Classification (SIC) codes. When one or more SIC codes corresponded to an ARB category, official SIC data were used to develop historical estimates and projections. This was the case for ships, locomotives, and non-farm equipment. Other categories, such as recreational boating, commercial boating, lawn and garden activity, and off-highway vehicle activity do not correspond directly to an SIC or group of SICs.

Complete documentation is provided in the report for all sources used. Wherever any estimation was necessary to fill gaps in the historical data, generally reliable and commonly used statistical procedures were employed. Projections of economic activity for all categories were carried out using statistical and economic techniques. These included techniques of multiple regression analysis, moving averages (MA), autoregression (AR), and autoregressive integrative moving averages (ARIMA). An individually appropriate approach was developed and used for each activity. Projections made by official and other dependable sources, when available, were also acquired to verify and substantiate the projections reported here. It must be emphasized that these projections represent long-term trends and may not accurately capture year-to-year fluctuations (changes) in activity.

Two typical assignment methods for developing state and county estimates are the top-down and bottom-up approaches. Because of the desired long time frame, consistency across a large number of geographic areas (58 counties), and unavailability of detailed long-term data, the top-down approach was most commonly used. In this case, an annual activity measure for a given category was estimated at the state level based upon existing data, then distributed across counties on the basis of related data for which a county breakdown was available. The bottom-up approach is usually carried out for cross-section studies for one period or short-term analysis when detailed data are available by county. This approach was used successfully with aviation (civil and military), for which extensive data and forecasts were available by airport, which could then be assigned to the individual counties.

To provide an assessment of the trends in activities and their variability, each activity is graphed for the State. The figures also shows a one standard deviation confidence interval as a measure of the statistical validity of the projections. Appropriate account was taken of the special features of different counties. For example, there is obviously no shipping activity in inland counties and boating activities are limited in counties with limited surface water sources. Variability in the data for each county is analyzed in the report sections for each activity.

1.3 MACROECONOMIC ASSUMPTIONS

The projections are based upon assumptions regarding the long-run state of the economy, demographic features, and significant socioeconomic features of the State. No effort is made to account for possible cyclical short-term changes since this project deals with projections of long-run activities and produces annual data. Major economic variables used as drivers are U.S. and California population, total real personal income, real income per capita, real gross domestic product (GDP), employment, construction activity, and price indices, notably the producer price index for refined petroleum products.

Macroeconomic data for the U.S. and California were obtained from Federal and State government agencies and national consulting firms such as the WEFA Group. The Center for Continuing Study of California Economy provided consistent projection series for a number of key macroeconomic variables. The following figures show growth paths (in annual rates of change) of selected macroeconomic indicators which represent general assumptions about economic activity over the study period.

Figure 1.3.1 - Macro Assumptions - California
Percentage Changes

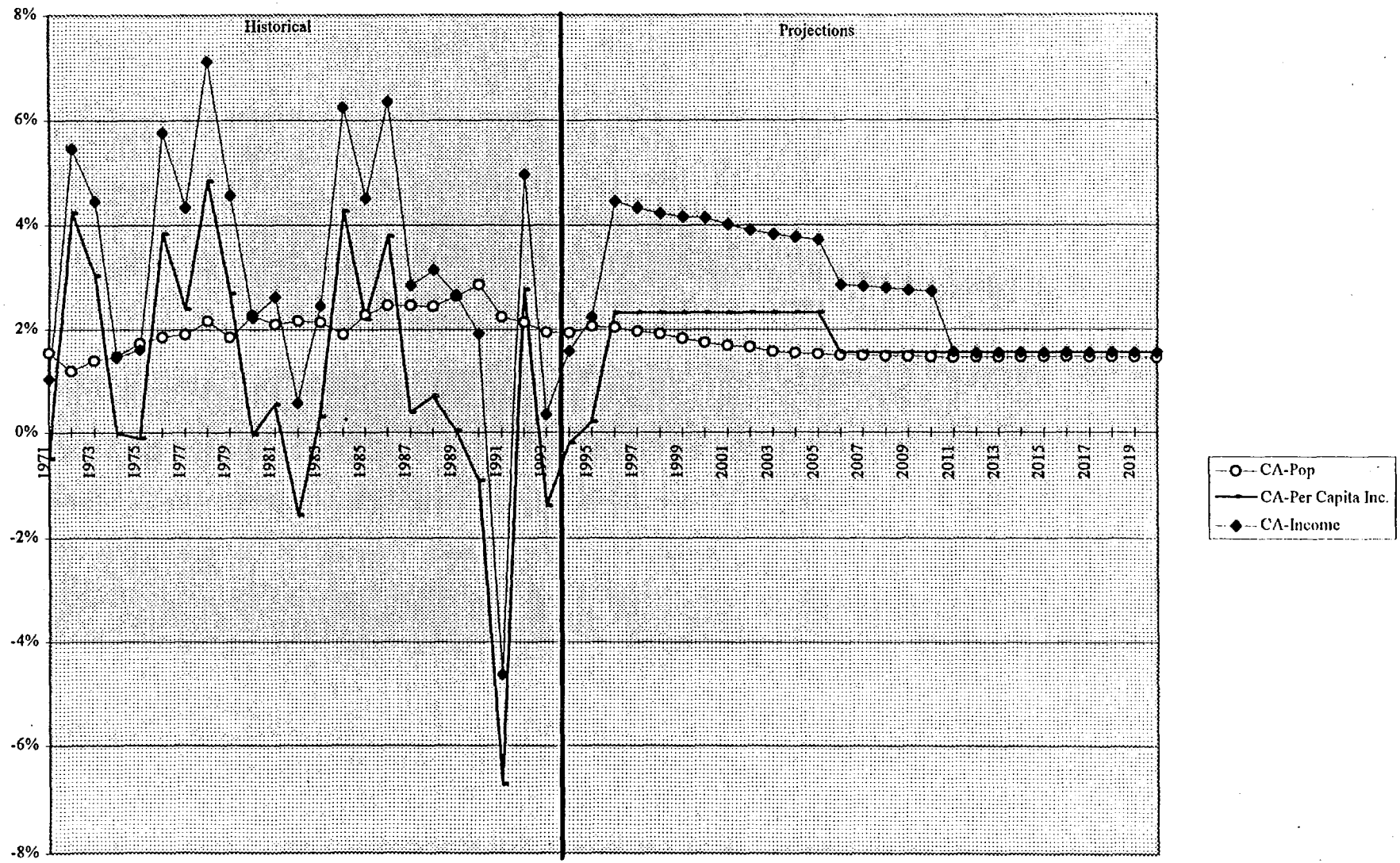


Figure 1.3.2 - Macro Assumptions - United States
Percentage Changes

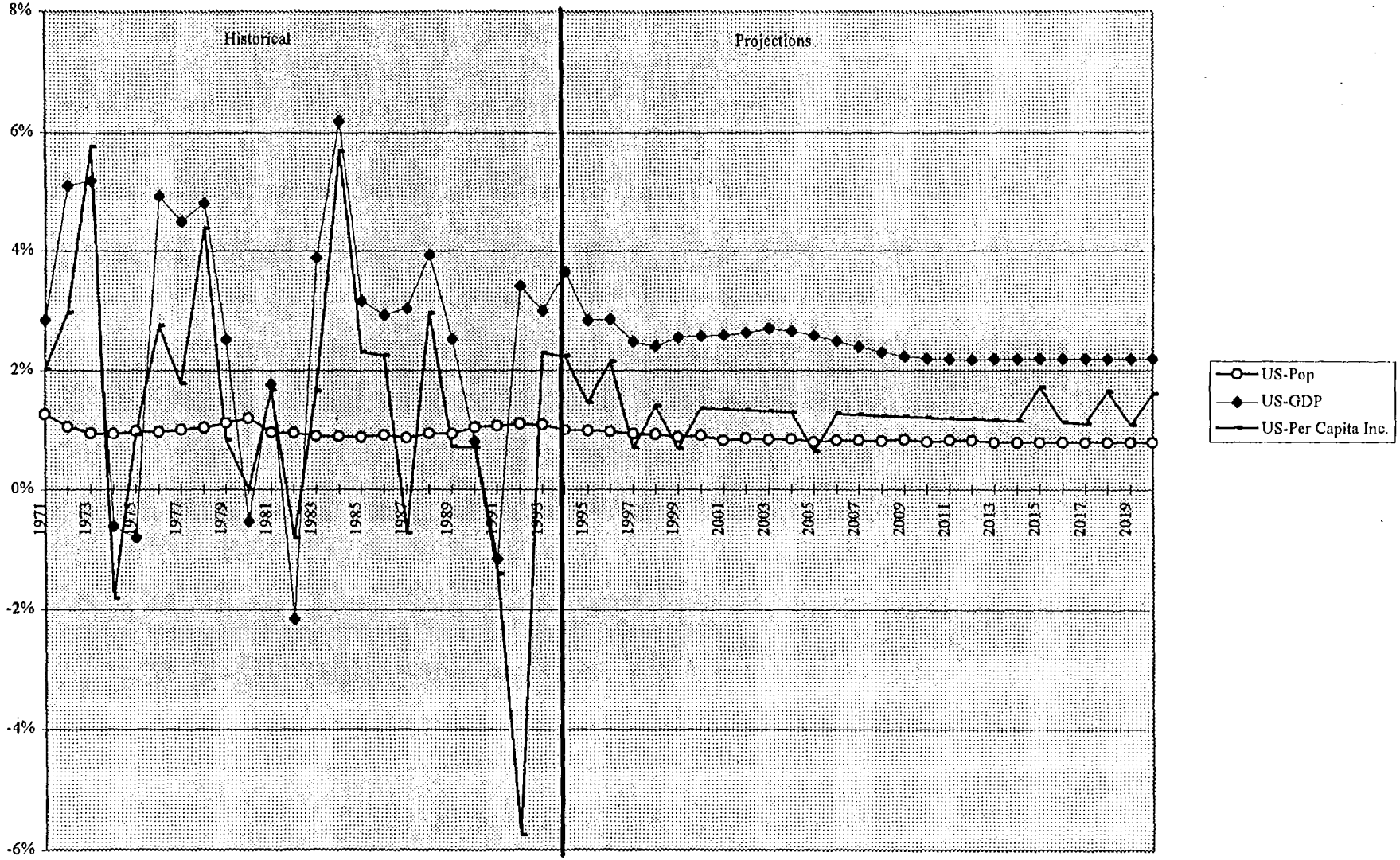
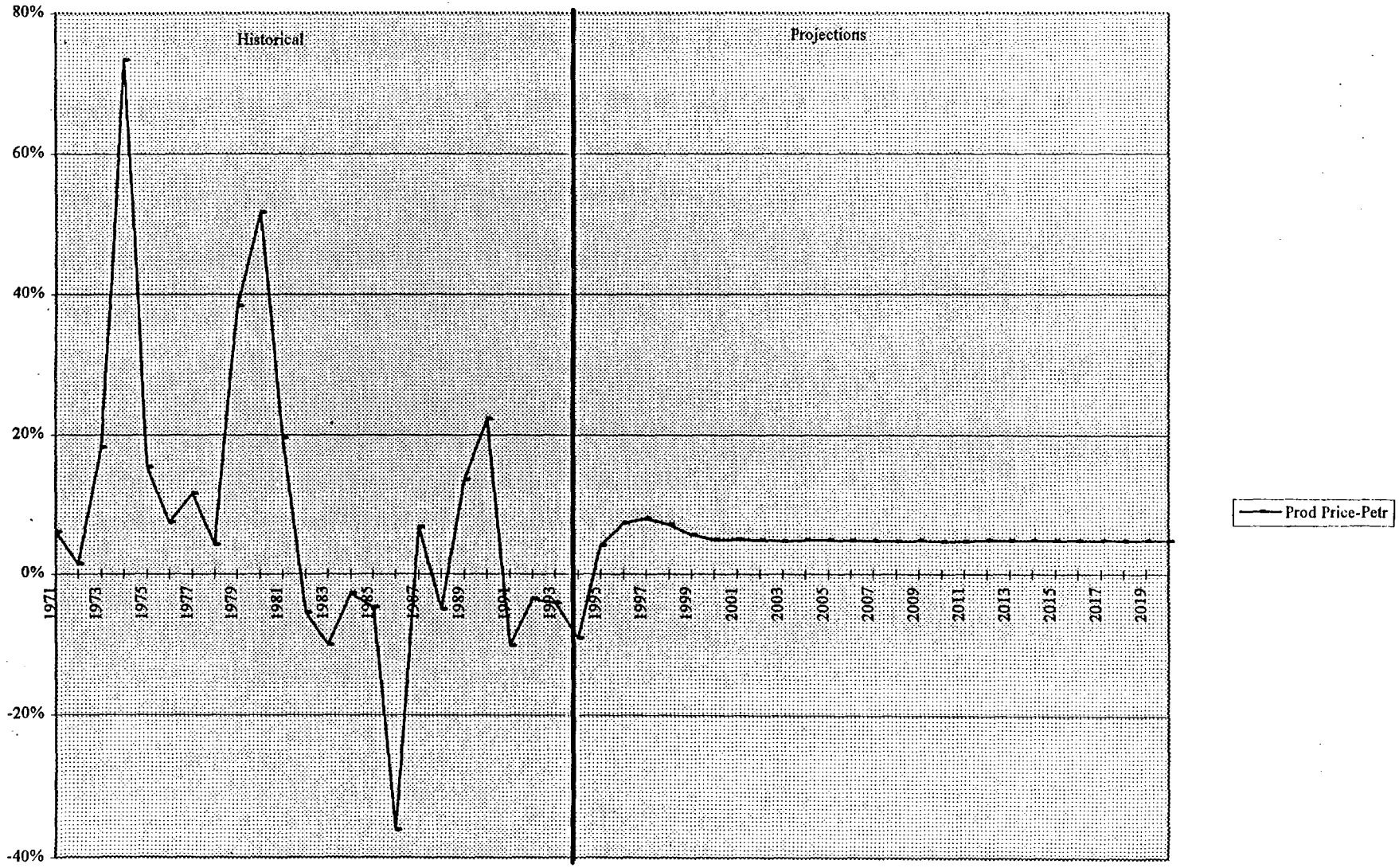


Figure 1.3.3 - Macro Assumptions - Producer Price Index for Petroleum Products
Percentage Change



The non-road mobile categories in this study are listed in the following table.

Non-Road Mobile Sources of Air Pollution

Farm Equipment, Gasoline
Farm Equipment, Diesel
Civil Aircraft, Jet
Civil Aircraft, Piston
Civil Aircraft, Turboprop
Military Aircraft, Jet
Military Aircraft, Piston
Military Aircraft, Turboprop
Recreational Boats, Diesel
Recreational Boats, Gasoline
Commercial Boats, Diesel
Commercial Boats, Gasoline
Commercial Boats, Off Shore Oil Supply
Recreational Vehicles - Motorcycle/ATV
Recreational Vehicles - Four Wheel Drive
Lawn and Garden Equipment, Commercial
Lawn and Garden Equipment, Residential
Non-Farm Equipment, Gasoline
Non-Farm Equipment, Diesel
Ships
Locomotives

Each of the categories is discussed in the following section. Data sources and issues are described for each category, as are the estimation and forecasting techniques that were used to develop statewide and county-level time-series from 1970 to 2020. The projections for each category are also summarized and discussed. The report contains time-series graphs of each category at the State level. Detailed tables showing the series for the State and each county are provided in the appendix. The tables are also being provided in electronic format on a disk.

Overall summaries, conclusions, and recommendations appear at the end of the report.

2.0 ESTIMATION AND PROJECTIONS BY CATEGORY

2.1 FARM EQUIPMENT

Data

Activity in the farm equipment category can be estimated by a number of variables. Such variables include sales of farm equipment, inventory of equipment on the farm, farm output, agricultural land, and fuel used on the farm. Data from the U.S. Bureau of Economic Analysis (BEA) and the United States Department of Agriculture (USDA) were collected on farm production, farm income and expenses, and fuel expenditures for the State and California counties. The Census of Agriculture provided data on the inventory of farm equipment and value by county. Indexes of input usage, prices for agricultural inputs and data on imports and exports of agricultural product were gathered from Statistical Abstract of the United States. California Department of Food and Agriculture sources provided data on farm production, income, expenses, and output by commodities for California counties.

A sufficient number of observations are needed to fit a statistical model and generate projections for the fifty year period 1970-2020. An analysis of all the available data indicated that a number of otherwise theoretically sound variables had no or incomplete series available at the level of detail needed for this category. Data for most variables were published either for a very short time period or were not disaggregated to the county level. Further, when only state data were reported no reliable bases were available to determine county shares from State totals.

The best available measure of farm equipment usage was fuel consumption, measured in real (constant) dollar annual expenditures. Unlike the other variables, the series for this variable was available for both the historical time period and at the desired level of geographic detail.

Estimation and Results

The amount of fuel used on the farm is influenced by a number of variables. It is possible, theoretically, to construct a sophisticated model of farm fuel use to estimate and

forecast such usage. To do this, however, one would need historical data and projections for independent (exogenous or driving) variables to the year 2020. Given the data limitations described above, an appropriate estimation model was constructed to accomplish the goals. (This general strategy was applied throughout this project for each of the categories reported here. This discussion will not be repeated).

Given the multitude of factors affecting farm equipment activity (real fuel consumption), regression analysis was considered to be the most appropriate technique. A multiple regression model was developed to estimate and project the activity. Independent variables used included agricultural output, energy costs, and a one-period lagged dependent variable. Other statistical techniques including ARIMA and moving average models were also tested to assure the best projections. The final estimated equation for the State was:

$$\begin{aligned} \text{FUEL} = {} & \underset{(5.89)}{0.630} + \underset{(5.13)}{0.103\ \text{FUEL}(-1)} - \underset{(3.19)}{0.50\ \text{FUEL}(-2)} \\ & + \underset{(3.00)}{0.002\ \text{PFUEL}} + \underset{(4.13)}{0.471\ \text{DUMMY}} \end{aligned}$$

R-sq = .95 Adjusted R-sq = .93 F = 53.2

where FUEL is the real fuel expenditures by California farms in 1977 dollars (FUEL(-1) and FUEL(-2) are one and two period lagged values), PFUEL is producer price index for fuel, and DUMMY is the dummy variable to account for unusual events of the Arab oil embargo of the early 1970s. Total farm output variable turned out to have very low explanatory power and was dropped from the final equation. Since the estimated equation showed considerable serial autocorrelation, a correction for that was imbedded in the final estimation.

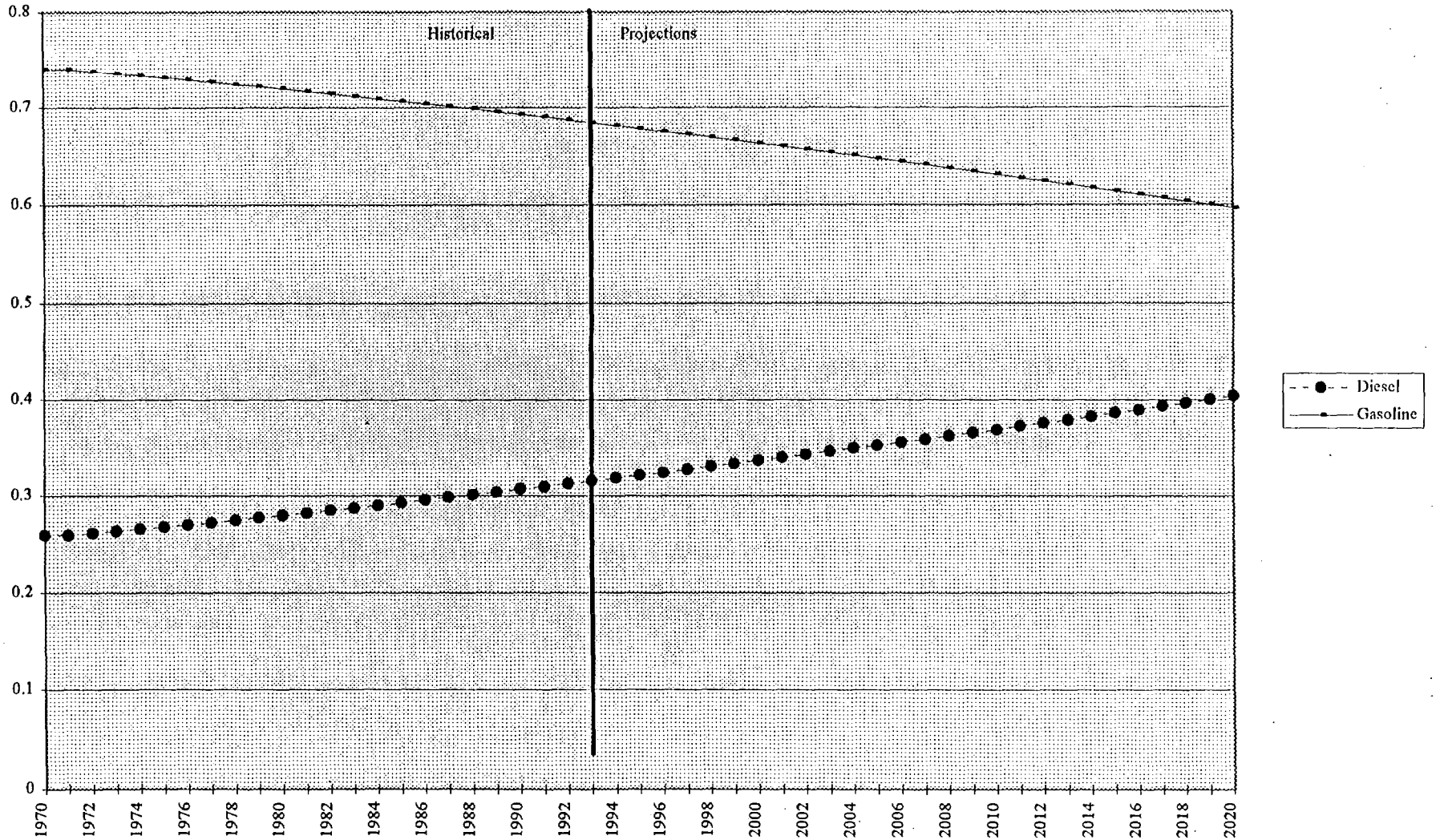
This equation was also used to generate projections to the year 2020. Allocation to counties was made on the basis of historical county farm output shares.

Gasoline-Diesel Breakdown

A number of studies including those by Booz, Allen, and Hamilton and by Sierra Research provide partial information on the split between gasoline and diesel farm equipment. These studies, however, point out the difficulty in estimating this breakdown accurately and point to wide variations in the 1987 and 1991 estimates carried out for the ARB. National data on the gasoline/diesel breakdown, though imperfect and incomplete, are the alternative basis for such a breakdown among the two fuels. Data from the USDA Agriculture Statistics (various years) were available as a complete time-series. A discussion of the decline in gasoline usage in agriculture was found in the USDA's Agriculture Outlook (December 1992).

Based on the USDA data a trend series for relative use of gasoline versus diesel use was constructed as shown on the following page. This was applied to the total farm fuel usage to generate gasoline and diesel use.

Figure 2.1.1 - Gasoline versus Diesel Use on the Farm



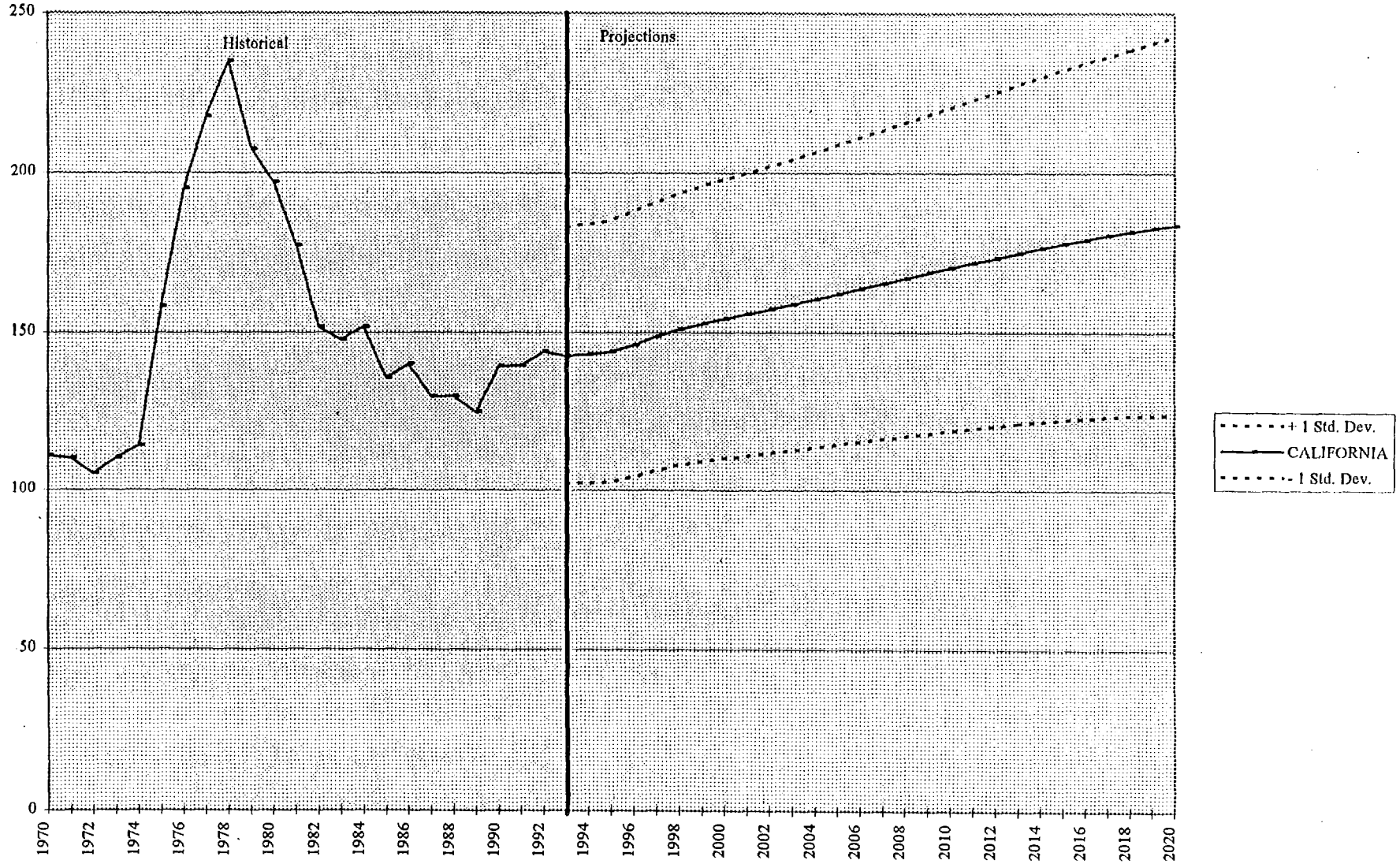
Discussion

Farm fuel use by gasoline and diesel categories is reported in Figures 2.1.2 and 2.1.3 and Tables 1 and 2. Like other types of equipment, farm equipment is constantly evolving due to technological and economic factors. This affects the fuel use. This trend is, however, built into the historical data and is assumed to continue in the future. Similar considerations apply to gasoline versus diesel use where diesel use has been increasing. In the absence of any special knowledge of the future technological or economic factors, it was considered prudent to rely on historical trends only. The projected trends are also generally consistent with forecasts of U.S. farm output.

The five largest counties are Fresno, Kern, Tulare, Monterey, and San Joaquin and the five smallest with no or almost no agricultural activity are San Francisco, Alpine, Sierra, Trinity, and Nevada. The county activity patterns are very similar to the overall State trends.

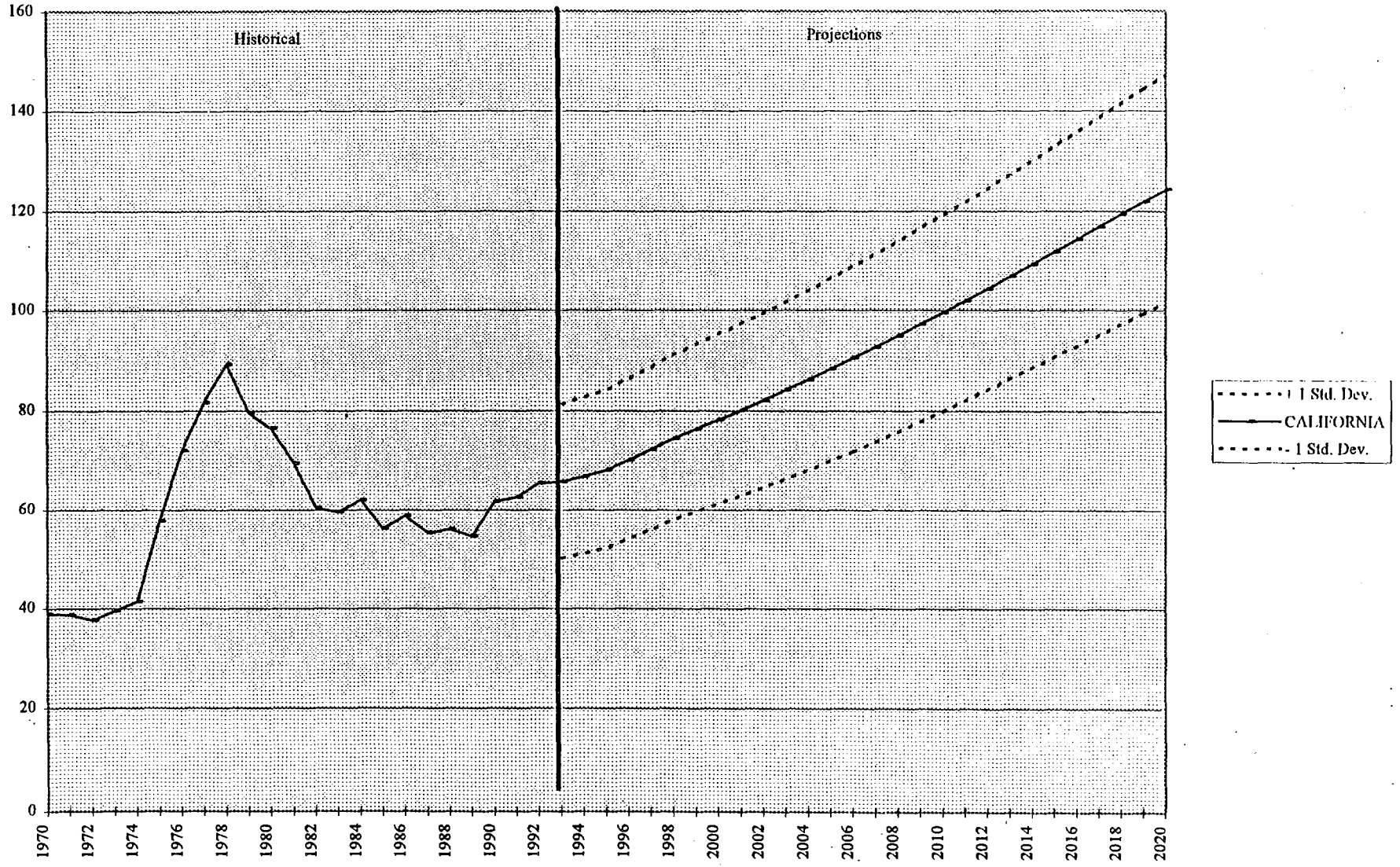
For interpretation of bands, see technical discussion in the appendix.

Figure 2.1.2 - Farm Equipment, Gasoline (Millions in 1977$)



For interpretation of bands, see technical discussion in the appendix.

Figure 2.1.3 - Farm Equipment, Diesel (Millions in 1977$)



2.2 CIVIL AIRCRAFT

Data

The civil aircraft category is divided into three subcategories for the ARB: jet, piston, and turboprop. A great deal of information is available on civil aviation because of its past and current regulatory environment. Two public agencies maintain extensive data series on aviation: The California Department of Transportation Division of Aeronautics and the U.S. Department of Transportation Federal Aviation Administration (FAA), civil aviation's main regulatory agency.

Publications from both agencies were reviewed and compared for content. In addition, officials at each agency were consulted to discuss alternative measures of aviation activity as well as their availability in a time-series at the county level. To a large extent, both rely on the same primary data sources.

The Division of Aeronautics publication, The California Aviation System Plan Inventory, contains data on facilities, annual flight operations, and the number of based aircraft by airport. However, the report is published infrequently (1978, 1987, and 1992) and does not cover the entire historical time period.

The FAA databases were ultimately chosen because they provided activity measures in both the geographic detail and the time frame that were required for the analysis. A number of FAA publications report activity measures such as passenger enplanements, revenue miles, flight operations, fleet composition, and type of aircraft (commercial carrier, general aviation, air taxi). In particular, the FAA's Terminal Area Forecasts provide historical data for the entire period from 1970 through 1992, and publish forecasts by airport to the year 2005.

Data are commonly reported separately for commercial carriers, general aviation, and air taxi. *Commercial carriers* refer to major, national, and regional airlines that offer scheduled service. *General aviation* refers to a wide range of small aircraft including amateur built single engine planes, aircraft for agricultural uses, and multi-engine

corporate jet aircraft. *Air taxi* refers to small aircraft that are available for hire on specific trips. In general, the geographic details and time-series are better for commercial carrier activity than the other types of activity.

There are significant differences between the commercial fleet, which consists largely of jets, and the general aviation and air taxi fleets, which have more piston and turboprop aircraft. Because a separate series was to be constructed for each of jet, piston, and turboprop categories aggregated across commercial, general aviation, and air taxi aircraft types, a common unit of measurement was needed. Given these considerations and the need to develop a series for individual counties, the best available measure was determined to be *flight operations*, which refer to takeoffs and landings.

Flight operations data were available from the FAA for various subsets of airports and for various types of aircraft. The most complete data exist for towered airports, of which there were about 50 during the period 1970-1992. Tower statistics were obtained directly from the FAA for California and its towered airports from 1979 to 1992. To complete the series back to 1970, earlier volumes of Terminal Area Forecasts were used. Forecasts for 1993 to 2005 were obtained from Terminal Area Forecasts, 1993-2005, also from the FAA.

The Terminal Area Forecasts provide data for both towered and non-towered airports. After comparing activity levels for towered airports with the overall levels of activity, it was determined that towered airports account for over 99% of all flight activity in the State.

Data on the flight operations by type of aircraft (jet, piston, turboprop) for major and regional commercial aviation activity were obtained for each airport for each year from 1970 to 1991 from the annual FAA publication Certificated Route Carrier Statistics. Information on the composition of the general aviation and air taxi fleets was available from two sources. The Census of U.S. Civil Aircraft reports the inventory of aircraft by type of aircraft for each county, but does not report on usage by type of aircraft. The

FAA Aviation Forecasts (various years) report hours flown by type of general aviation aircraft, but only at the national level. The latter was chosen to describe the composition of general aviation and air taxi activity by subcategory because 1) it measured usage, not merely population; and 2) it provided forecasts through the year 2004.

Estimation and Results

A bottom-up approach to activity estimation involved 3 steps. First, a separate series was developed by aviation activity (commercial, air taxi, and general aviation) for each towered airport from 1970 to 1992. Forecasts for each airport for the period from 1993 to 2005 were obtained from Terminal Area Forecasts, FY1993-2005. The forecasting branch of the FAA was contacted to discuss plausible growth rates beyond the year 2005, after which trend analysis was used to extend the series at the state level forward to the year 2020. These statewide projections were then distributed across the counties on the basis of each airport's share of statewide activity.

Second, numbers of jet, piston, and turboprop flight operations were determined separately for each aviation activity. For commercial air carriers, the FAA reports annual flights by aircraft model (DC 10, Boeing 727, etc.) in Certificated Route Carrier Statistics. Each aircraft model was identified as a jet, piston, or turboprop aircraft. Then the number of jet, piston, and turboprop flights was tabulated for each airport, and converted to shares of total flights. Finally, the shares were used to split total commercial flight operations for each airport for each year into separate jet, piston, and turboprop components.

For general aviation and air taxi service, the overall measures of activity were distributed across the jet, piston, and turboprop subcategories based upon national estimates of hours flown in each type of aircraft. For each year, hours flown in jet, piston, and turboprop aircraft were determined as shares of total hours flown. Upon multiplying the overall measure by this share, the result is estimated activity by subcategory. Both fixed wing activity and helicopter activity were accounted for in this measure.

Third, data by airport were aggregated for each county, and operations by type of aircraft (jet, piston, turboprop) were summed across aircraft activity (commercial, air taxi, general aviation) to obtain separate measures of jet, piston, and turboprop activity for each county. County totals were added to obtain the total for the State.

Discussion

The results for civil aircraft appear in Figures 2.2.1, 2.2.2, and 2.2.3 and in Tables 3, 4, and 5. Civil aviation is generally regarded as a cyclical activity in the short-run that moves with the business cycle, but the trend for this category is established by long-term economic growth. For California, this trend is primarily the result of State and national population growth and the increase in domestic and international trade, all of which show a trend increase over the forecast time period.

Civil aviation at the county level is generally driven by local population growth and the overall level of economic activity. California's population growth has historically been greater in urban areas than in rural areas. This is expected to continue throughout the forecast period. Consequently, most of the statewide growth in civil aviation is expected in the State's urban areas.

Jet activity in Los Angeles and San Francisco counties together accounts for over half of all jet activity statewide. Other areas with substantial jet activity include San Diego, Santa Clara, and Alameda counties. Each of these counties has significant commercial air carrier, therefore jet, activity. Jet activity in these counties is very closely associated with statewide activity levels.

Piston and turboprop aircraft are more commonly found in the general aviation and air taxi fleets. Also, in large metropolitan areas with several airports, operations at the major or international airport are generally restricted to commercial activity with limited general aviation and air taxi activity. General aviation and air taxi traffic is routed to so-called general aviation and reliever airports in the area. Therefore, counties served by numerous or large general aviation facilities have the biggest shares of statewide piston

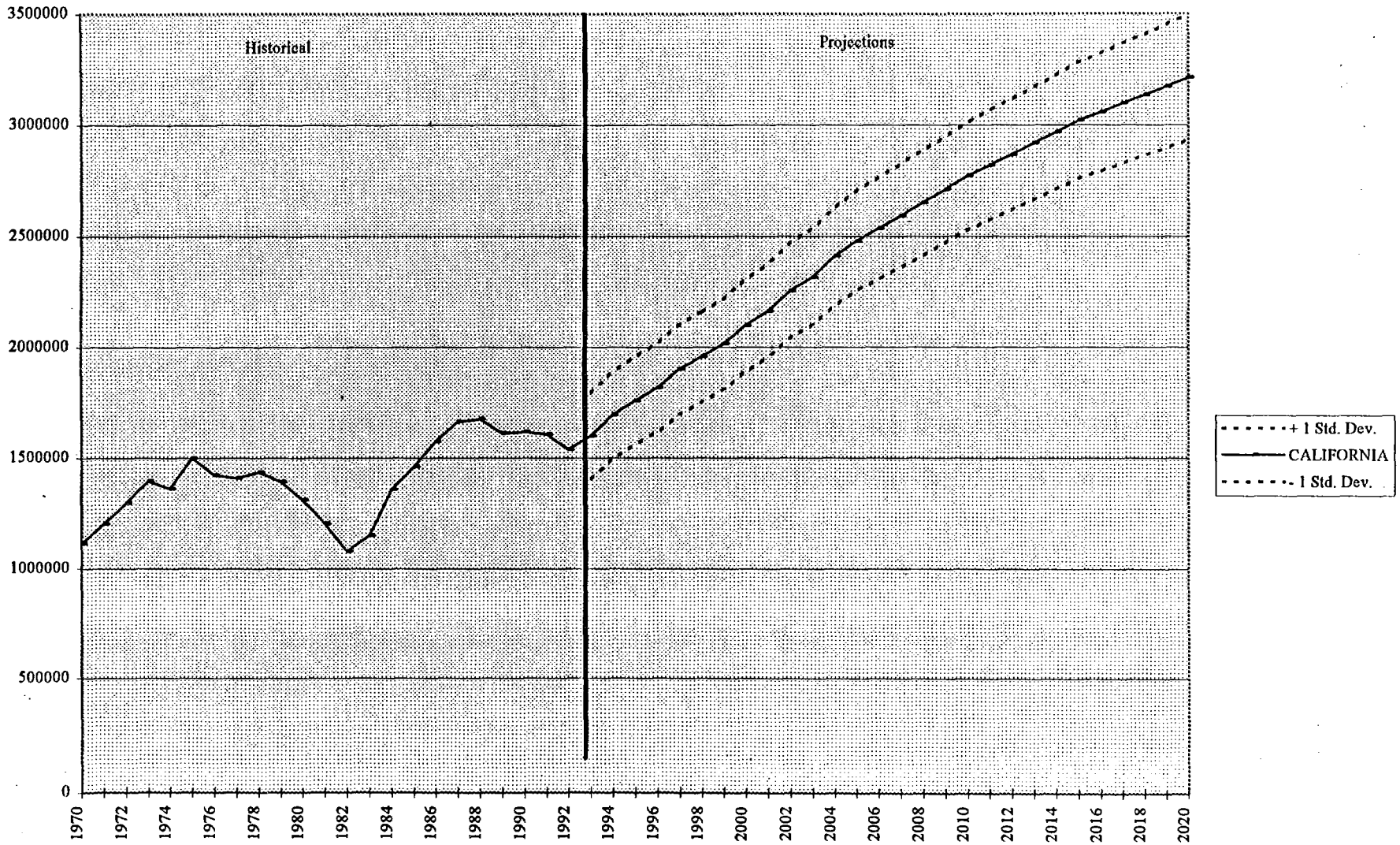
and turboprop flight operations. These include Los Angeles, San Diego, Alameda, Santa Clara, and Orange counties. Since San Francisco county has a large international airport but not a large general aviation airport, it ranks highly in the jet subcategory but not in the piston and turboprop subcategories.

The volume of flight operations associated with general aviation is considerably larger than those associated with commercial activity. As a result, the volume of flight operations in piston aircraft is nearly 4 times that of jet aircraft. The volume of turboprop operations is the smallest of the three.

The share of statewide activity for each of the subcategories is smallest in those counties with little or no urban population. There also tends to be less of a correspondence between the trends in these counties and the statewide trends.

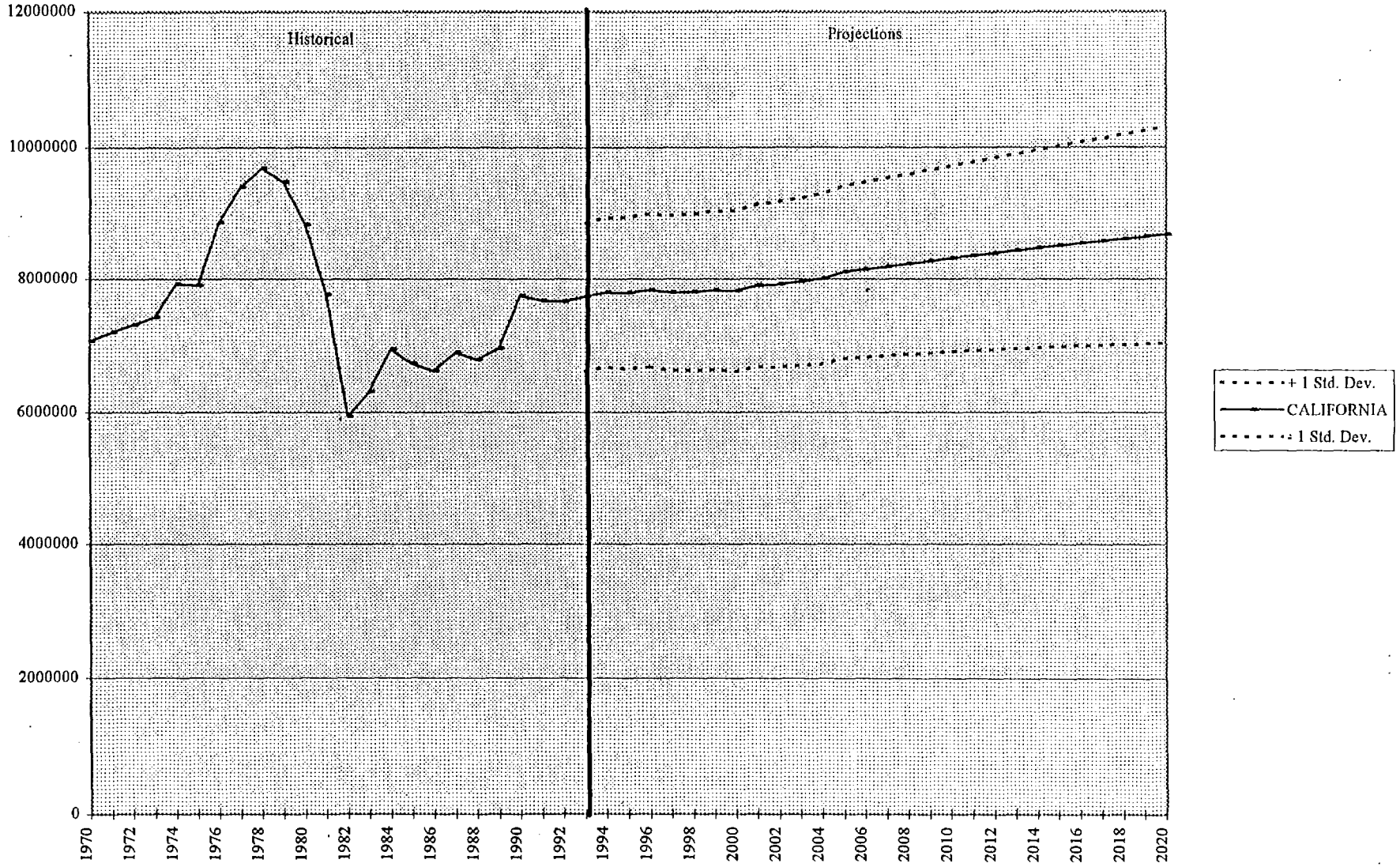
For interpretation of bands, see technical discussion in the appendix.

Figure 2.2.1 - Civil Aircraft, Jet (Flight Operations)



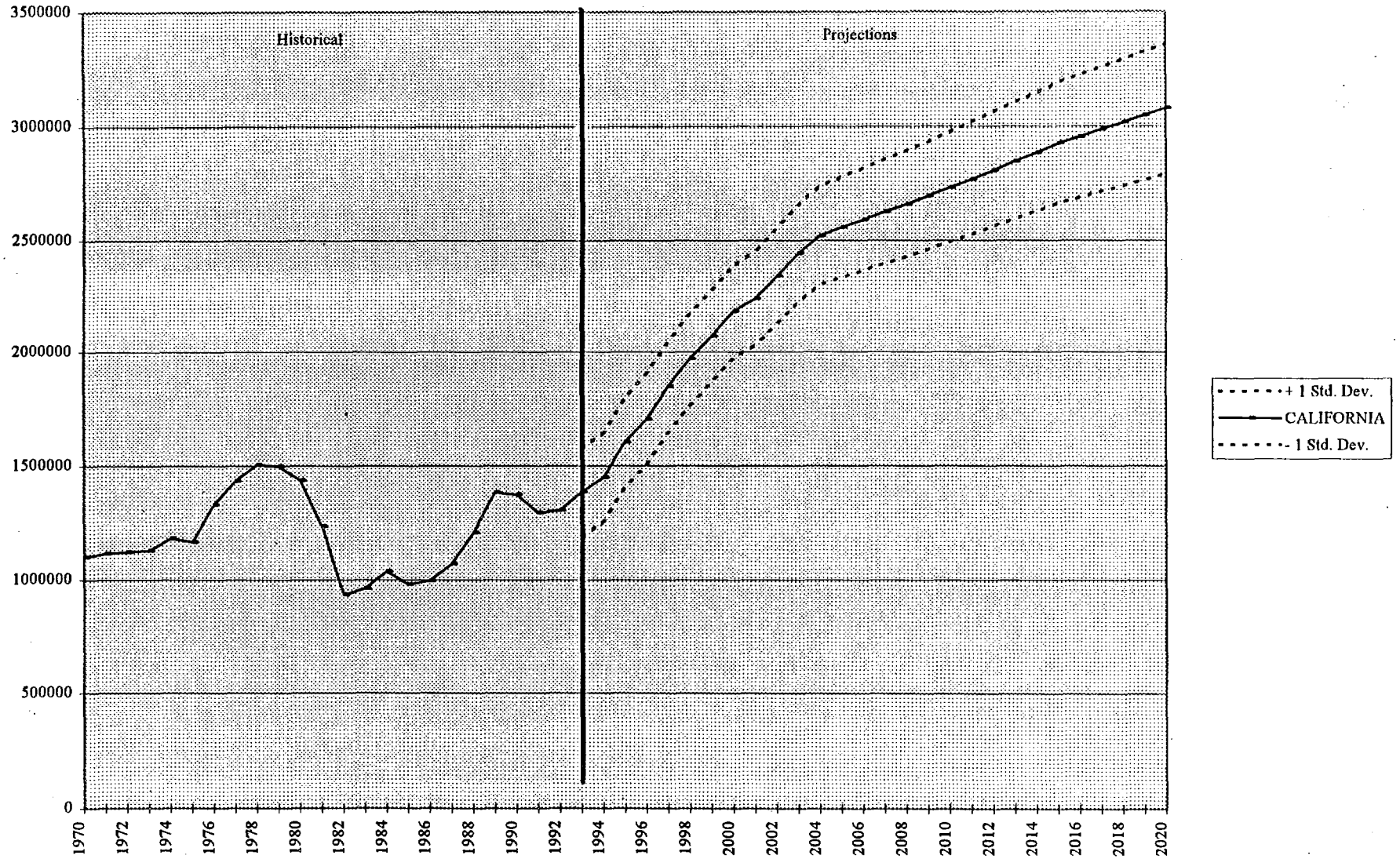
For interpretation of bands, see technical discussion in the appendix.

Figure 2.2.2 - Civil Aircraft, Piston (Flight Operations)



For interpretation of bands, see technical discussion in the appendix.

Figure 2.2.3 - Civil Aircraft, Turboprop (Flight Operations)



2.3 MILITARY AIRCRAFT

Data

The military aircraft category is divided into three subcategories: jet, turboprop, piston. The same FAA data sources that were used for civil aircraft were also used for military aircraft.

The FAA reports Department of Defense estimates of military aviation activity in its FAA Aviation Forecasts and in Terminal Area Forecasts. Additional data on military operations (takeoffs and landings) by flight tower were obtained directly from the FAA. When compared to a more extensive listing of military activity for the year 1992, the data used appear to account for about 83% of the military aviation operations that are tracked by the FAA.

A complete historical data series of flight operations by towered airport was available from 1970 to 1992. Forecasts were also available to the year 2005.

Estimation and Results

A 2-step bottom-up approach was used to generate annual measures of jet, piston, and turboprop flight operations. First, a complete series was developed for military aviation activity for each airport from 1970 to 1992, with forecasts from the FAA to the year 2005. Trend analysis was used to extend the series to 2020.

Second, assignment of total flight operations to the jet, piston, and turboprop subcategories was based upon reported historical and forecast hours of operation by type of aircraft, which was available at the national level from the annual publication FAA Aviation Forecasts (various years). The analysis of fleet composition accounted for both fixed-wing and helicopter activity. The fleet composition data were applied to the military aviation figures for each of the airports. Data by airport were then aggregated for each county. These were summed to obtain the statewide totals.

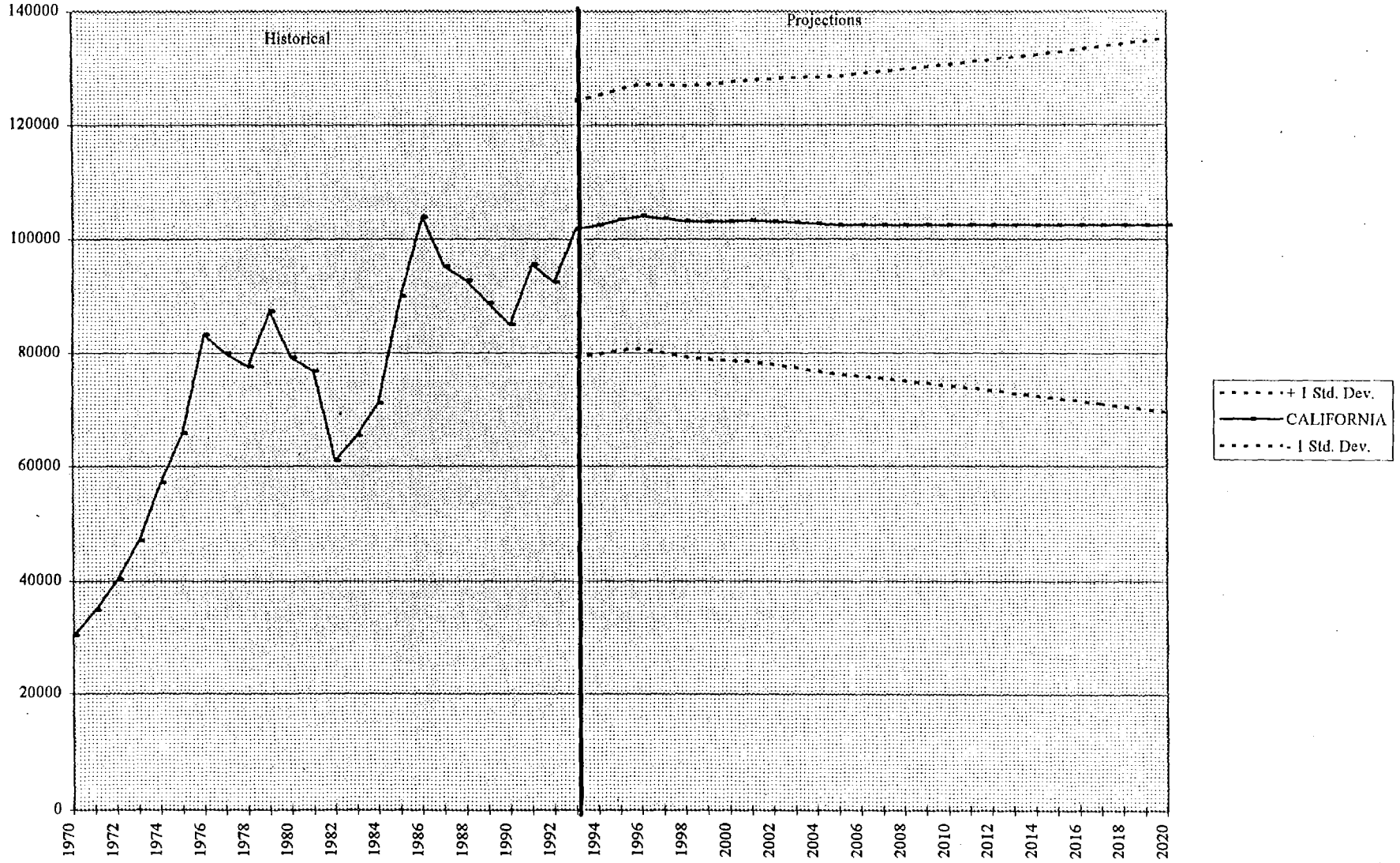
Discussion

The results for military aircraft appear in Figures 2.3.1, 2.3.2, and 2.3.3 and in Tables 6, 7, and 8. Military flight operations are generally driven by military activity in the U.S. and around the world. In the present post-Cold War era, the U.S. military has continued the downsizing that began in the late 1980s.

Los Angeles and San Diego counties have the largest volumes of military flight operations in each of the three subcategories and correspond closely to statewide trends. The effects of downsizing are reflected in the forecasts for military flight operations, which show no growth through the year 2020. Since the forecasts are based upon the latest official forecasts of the Department of Defense which were obtained through the FAA, the forecasts are presumed to take military base closures into account. Even after military bases close, however, military flight operations at civilian airports are expected to continue. Additionally, California Air National Guard operations are expected to continue.

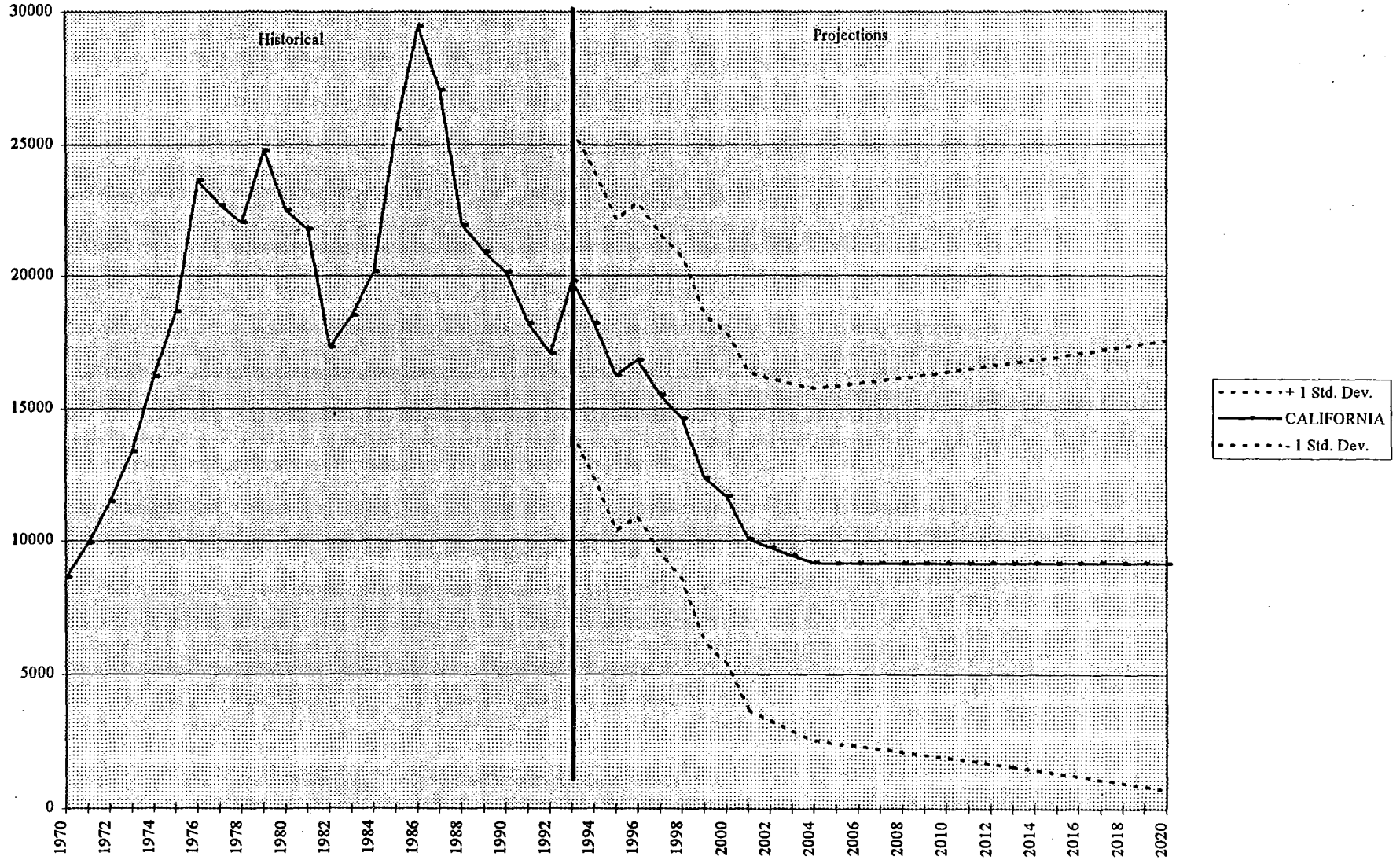
For interpretation of bands, see technical discussion in the appendix.

Figure 2.3.1 - Military Aircraft, Jet (Flight Operations)



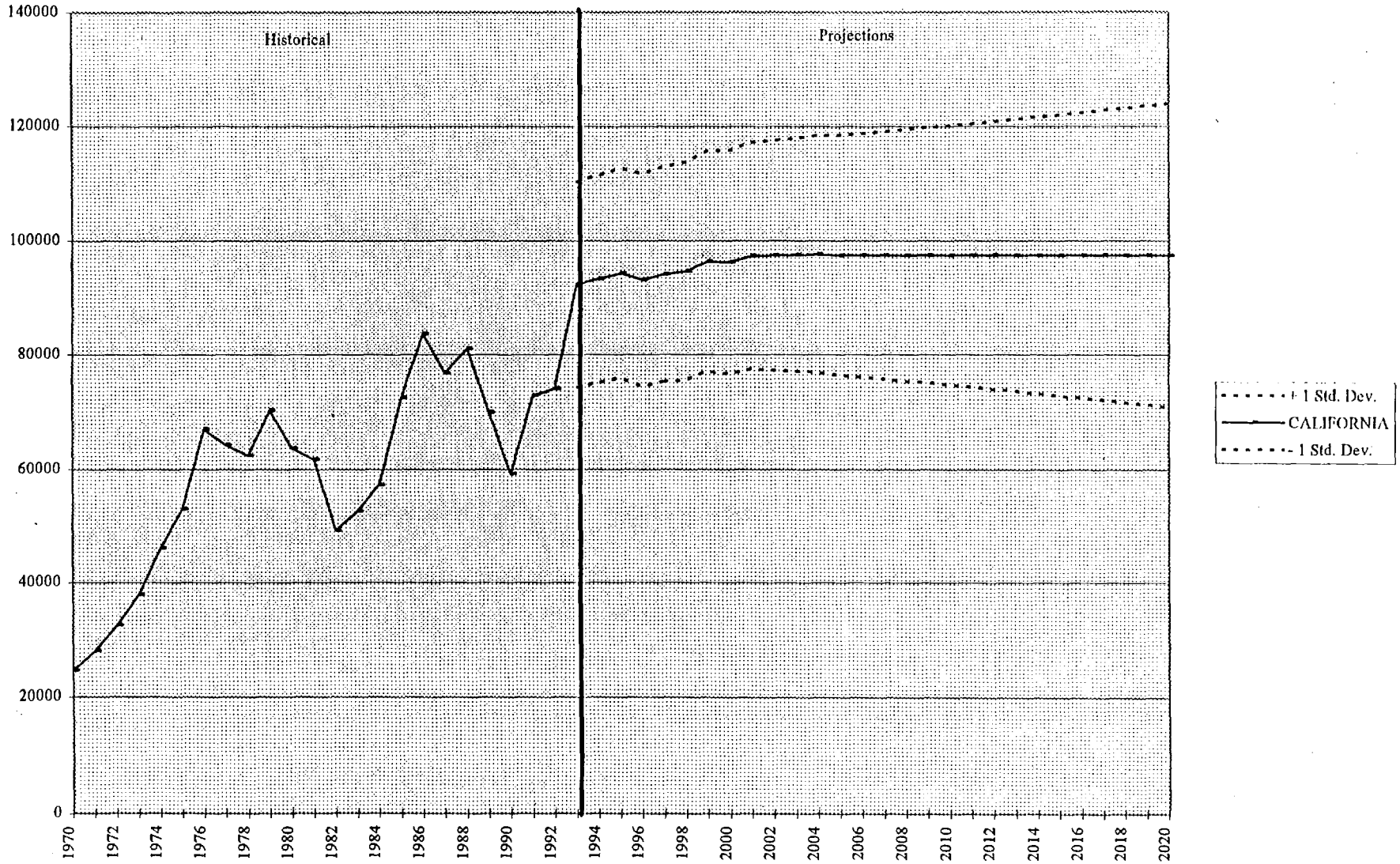
For interpretation of bands, see technical discussion in the appendix.

Figure 2.3.2 - Military Aircraft, Piston (Flight Operations)



For interpretation of bands, see technical discussion in the appendix.

Figure 2.3.3 - Military Aircraft, Turboprop (Number of Flight Operations)



2.4 RECREATIONAL BOATS

Data

Two series are generated for recreational boats: gasoline-powered vessels and diesel-powered vessels. Possible measures of recreational boating activity included boat registrations, marine fuel sales, and marina activity. A direct measure of marine activity obviously would be preferred. For example, marine fuel sales would have been an ideal indicator of usage. The most likely source for such data was the California Board of Equalization. In conversations with officials at the Board of Equalization it was determined that these data are not kept at the county level. Marina employment and payroll were available at the state level, but only since 1989 following the BEA's revisions to the SICs. Accurate estimates of employment and payroll were not available at the county level.

Other agencies contacted included the California Department of Boating and Waterways, the California Department of Motor Vehicles (DMV), and the U.S. Coast Guard. In a series of telephone conversations it was established that the Department of Boating and Waterways did not publish the type of data needed for this category. Agency officials referred the IEES to the California DMV.

Data on registrations were obtained from the U.S. Coast Guard. The Coast Guard maintains data for the State only, and does not provide adequate information about the composition of the fleet.

Registrations data from the DMV provide the most comprehensive measure of activity in this category. Moreover, data exist from 1981 to 1993 for the State and each county. Data on the composition of the fleet (type of propulsion and size of watercraft) at the state level were also obtained from the DMV. DMV data were used in the analysis below.

Estimation and Results

Sufficient details were available for the period 1981-1993 to separate the number of pleasure crafts from total vessel registrations for each county. Further analysis using state level data made it possible to determine number of motorized pleasure crafts by summing inboards, outboards, inboard/outboards, auxiliary engine sailboats, and jet skis. The share of motorized pleasure crafts in total pleasure craft registrations was determined at the state level for each year, then applied to the county registrations data to obtain motorized pleasure crafts by county.

It was necessary to estimate data for the years 1970-1980. Several explanatory variables were analyzed for their relationship to recreational boat ownership: population, real personal income, and other county characteristics including water area. A statistical model of recreational boating was then developed at the state level, with registrations as the dependent variable and population, real personal income, and real income per capita, as explanatory variables.

Various specification were tested and a final specification was developed and used to estimate missing values in the historical series, as well as to develop state level forecasts to the year 2020. The final specification was

$$\underset{\text{(t-ratio)}}{\text{REGS}} = \underset{(-8.30)}{-748819} + \underset{(23.16)}{0.037652\ \text{POP}} + \underset{(4.06)}{17.404290\ \text{PICAP}}$$

$$\text{R-sq} = 98.7 \quad \text{Adjusted R-sq} = 98.4 \quad F = 343.0$$

Here REGS refers to the total number of motorized pleasure craft registrations for the year, POP refers to State population, and PICAP refers to personal income per capita (in constant 1993 dollars). The t-ratios are shown below each parameter estimate in parentheses. Tests for serial correlation were inconclusive, and alternative specifications were attempted, but little could be done to test for or correct it because of the brevity of the series. However, serial correlation is known to be a problem with time-series data on personal income and population.

The historical series from 1970 to 1980 were distributed across the counties based upon the distribution for the reference year 1981. The forecast series were distributed across the counties using the distribution for the reference year 1993. The procedure is described as follows. Let R_t be the estimate of registrations at the state level in year t, r_{cy} be the registrations in county c in reference year y, and R_y be State registrations in reference year y. Then the estimate in year t for county r_{ct} will be:

$$r_{ct} = (r_{cy}/R_y)R_t$$

Gasoline-Diesel Breakdown

The split between gasoline and diesel boating activity was based upon observations of officials at the U.S. Coast Guard and the California Department of Boating and Waterways: larger boats (generally over 40 feet) tend to be powered by diesel engines, smaller boats are almost always gasoline-powered. The distribution of boat registrations by length was also obtained from the DMV for the available years. Motorized boats were divided into 2 classes: less than 40 feet in length, greater than or equal to 40 feet. The share of boats in the under 40 feet class was taken as a proxy for the share of gasoline-powered boats. The share of boats in the 40 feet or larger class was taken as a proxy for the share of diesel-powered boats. These shares were computed for each year, then applied to overall commercial boat registrations to determine the split between gasoline and diesel-powered recreational or pleasure boats. On this basis, about 1% of all boats registered with the DMV are diesel-powered.

Other ARB-funded studies offer comparative data on the split between diesel and gasoline split, but they generally refer to a single year. A 1992 "Briefing on Development of a Non-Road Equipment Emissions Model" from Energy and Environmental Analysis indicated that just over 4% of all pleasure boats in the South Coast of California were diesel-powered. The discrepancy probably results from the under-reporting of large vessels - typically diesel - in the DMV registrations. As described below in the section on commercial boats, larger vessels are required to have U.S. Coast Guard documentation, which precludes the need for DMV registration.

Discussion

Recreational boating activity is shown for the gasoline and diesel subcategories in Figures 2.4.1 and 2.4.2 and in Tables 9 and 10. Recreational boating registrations show growth over the forecast period in response to projected growth in population and real per capita income.

Owing to their coastal locations, large populations, and relatively warmer ocean temperatures, Los Angeles, Orange, and San Diego counties have the largest number of recreational boat registrations. These counties also follow the state trend very closely. As expected, the smallest number of registrations is found in mountainous inland locations such as Sierra and Alpine counties.

As indicated earlier, registrations are only an indirect measure of boat usage. The possibility exists that a county shows a positive value for boat registrations but has no navigable waterways and therefore not boating usage. This possibility was examined as follows.

First, each county was identified as coastal or non-coastal. All coastal counties were assumed to have boating activity. Second, each water reservoir in the State which is available for recreational use was identified by county. All counties with such a reservoir were likewise assumed to have boating activity. Third, waterway areas for each county were obtained from the California Statistical Abstract for all years from 1970 through 1992. The data for 1992 appear on page 34. All non-coastal counties with substantial amounts of water were assumed to have boating activity.

A number of counties were identified as non-coastal counties with relatively small water areas and potentially no boating activity: Alpine, Amador, Colusa, Glenn, Kings, Mariposa, San Benito, Sierra, Sutter, Tehama, and Yolo. California Department of Boating and Waterways publications were examined to determine whether any boating facilities existed in these counties. The 1987 Inventory of Boating Facilities showed berths and moorings available by county. Of the counties with small water area, only

Sierra county showed no boating facilities in 1987. To determine whether other counties may have had no boating activity prior to 1987, figures were obtained on dollar allocations by county for a launch facilities grant program from the agency's Biennial Report back to 1978. All of the above counties showed facilities completed and/or in progress back to 1978. (Data for the earlier years could not be obtained.) On this basis, all non-coastal counties with small water areas were judged to have boat usage over the historical period. Accordingly, there was no apparent need to adjust the registrations series to account for counties without boating activity.

Exhibit A

LAND AND WATER AREAS OF CALIFORNIA COUNTIES, 1992

County	Water area a/		Land area a/		Total area a/	
	Acres	Square miles	Acres	Square miles	Acres	Square miles
Total	4,949,750	7,734.0	99,822,800	155,973.1	104,772,550	163,707.1
Alameda	53,610	83.8	472,000	737.5	525,610	821.3
Alpine	2,930	4.6	472,740	738.7	475,670	743.2
Amador	7,490	11.7	379,240	592.6	386,730	604.3
Butte	24,070	37.6	1,049,340	1,639.6	1,073,410	1,677.2
Calaveras	10,710	16.7	652,920	1,020.2	663,630	1,036.9
Colusa	3,550	5.5	736,500	1,150.8	740,050	1,156.3
Contra Costa	52,410	81.9	460,980	720.3	513,390	802.2
Del Norte	142,050	222.0	645,050	1,007.9	787,100	1,229.8
El Dorado	51,080	79.8	1,095,350	1,711.5	1,146,430	1,791.3
Fresno	35,000	54.7	3,816,450	5,963.2	3,851,450	6,017.9
Glenn	7,910	12.4	841,530	1,314.9	849,440	1,327.2
Humboldt	307,020	479.7	2,286,590	3,572.8	2,593,610	4,052.5
Imperial	196,500	307.0	2,672,030	4,175.1	2,868,530	4,482.1
Inyo	22,830	35.7	6,522,930	10,192.1	6,545,760	10,227.7
Kern	13,070	20.4	5,210,630	8,141.6	5,223,700	8,162.0
Kings	1,340	2.1	889,270	1,389.5	890,610	1,391.6
Lake	45,520	71.1	805,420	1,258.5	850,940	1,329.6
Lassen	104,400	163.1	2,916,790	4,557.5	3,021,190	4,720.6
Los Angeles	443,100	692.3	2,598,380	4,060.0	3,041,480	4,752.3
Madera	9,580	15.0	1,368,590	2,138.4	1,378,170	2,153.4
Marin	197,400	308.4	332,660	519.8	530,060	828.2
Mariposa	7,470	11.7	928,780	1,451.2	936,250	1,462.9
Mendocino	236,300	369.2	2,245,940	3,509.3	2,482,240	3,878.5
Merced	27,600	43.1	1,234,490	1,928.9	1,262,090	1,972.0
Modoc	165,920	259.3	2,524,390	3,944.4	2,690,310	4,203.6
Mono	55,940	87.4	1,948,470	3,044.5	2,004,410	3,131.9
Monterey	287,460	449.2	2,126,040	3,321.9	2,413,500	3,771.1
Napa	22,070	34.5	482,470	753.9	504,540	788.3
Nevada	10,800	16.9	612,900	957.7	623,700	974.5
Orange	101,260	158.2	505,400	789.7	606,660	947.9
Placer	61,330	95.8	898,820	1,404.4	960,150	1,500.2
Plumas	38,260	59.8	1,634,540	2,554.0	1,672,800	2,613.7
Riverside	61,220	95.7	4,613,220	7,208.2	4,674,440	7,303.8
Sacramento	19,180	30.0	618,040	965.7	637,220	995.7
San Benito	1,070	1.7	889,050	1,389.1	890,120	1,390.8
San Bernardino	28,550	44.6	12,839,540	20,061.8	12,868,090	20,106.4
San Diego	205,720	321.4	2,690,870	4,204.5	2,896,590	4,525.9
San Francisco	118,520	185.2	29,890	46.7	148,410	231.9
San Joaquin	17,240	26.9	895,640	1,399.4	912,880	1,426.4
San Luis Obispo	199,190	311.2	2,114,880	3,304.5	2,314,070	3,615.7
San Mateo	186,850	292.0	287,430	449.1	474,280	741.1
Santa Barbara	672,700	1,051.1	1,752,620	2,738.5	2,425,320	3,789.6
Santa Clara	8,520	13.3	826,380	1,291.2	834,900	1,304.5
Santa Cruz	103,640	161.9	285,310	445.8	388,950	607.7
Shasta	39,650	62.0	2,422,820	3,785.7	2,462,470	3,847.6
Sierra	5,500	8.6	610,200	953.4	615,700	962.0
Siskiyou	38,760	60.6	4,023,850	6,287.3	4,062,610	6,347.8
Solano	50,360	78.7	530,030	828.2	580,390	906.9
Sonoma	122,970	192.1	1,008,770	1,576.2	1,131,740	1,768.3
Stanislaus	12,950	20.2	956,520	1,494.6	969,470	1,514.8
Sutter	3,940	6.2	385,720	602.7	389,660	608.9
Tehama	7,200	11.3	1,888,670	2,951.0	1,895,870	2,962.3
Trinity	18,510	28.9	2,034,470	3,178.9	2,052,980	3,207.8
Tulare	9,650	15.1	3,087,570	4,824.3	3,097,220	4,839.4
Tuolumne	24,880	38.9	1,430,820	2,235.6	1,455,700	2,274.5
Ventura	231,940	362.4	1,181,410	1,846.0	1,413,350	2,208.4
Yolo	6,670	10.4	647,960	1,012.4	654,630	1,022.9
Yuba	8,390	13.1	403,490	630.5	411,880	643.6

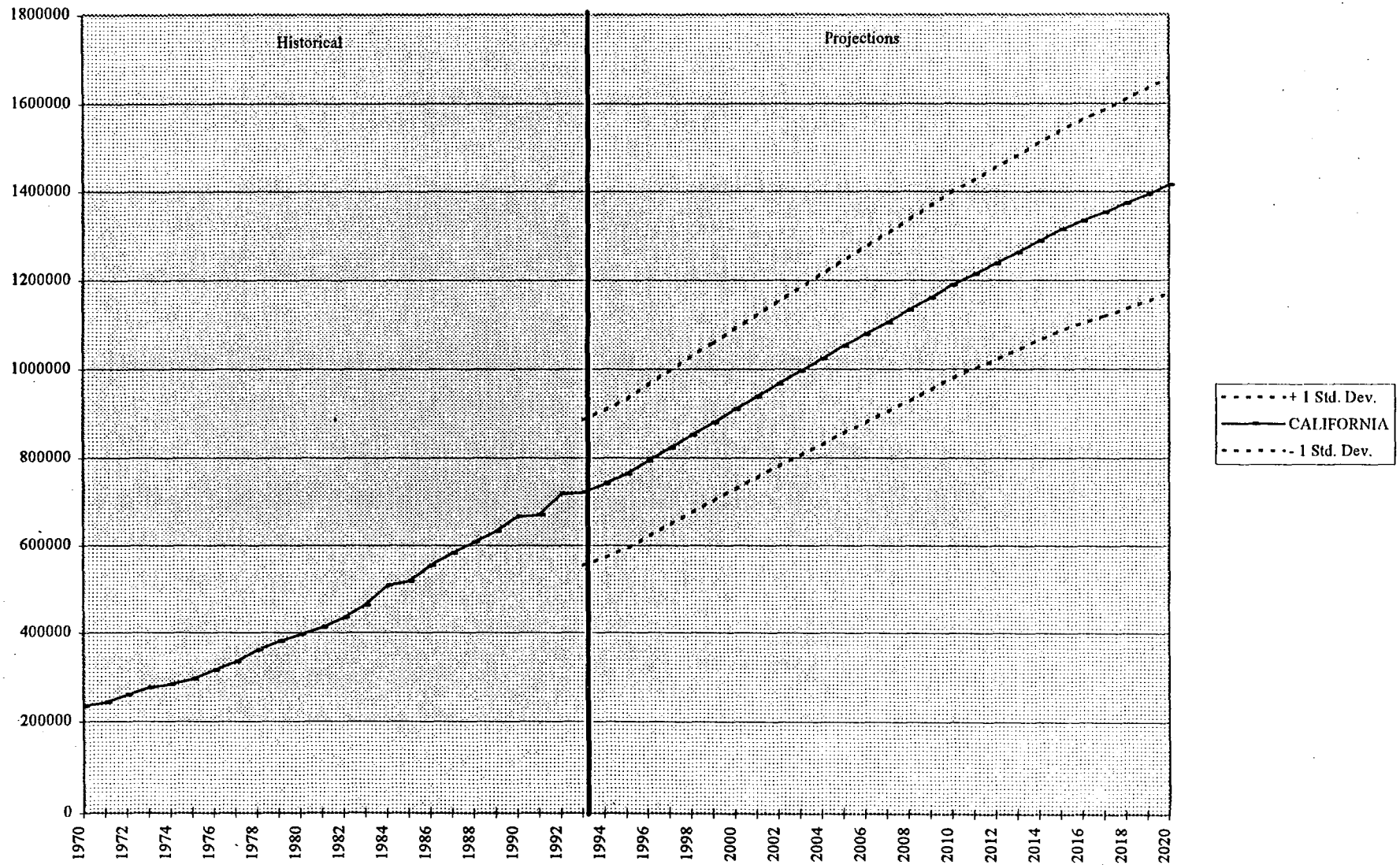
a/ Components for counties rounded to nearest 10 acres and tenths of square miles.

Source: Sacramento Area Council of Governments, 1990 Census Geographic Areas Reference List, Part A

Department of Water Resources, Statewide Planning Branch (916) 653-8023

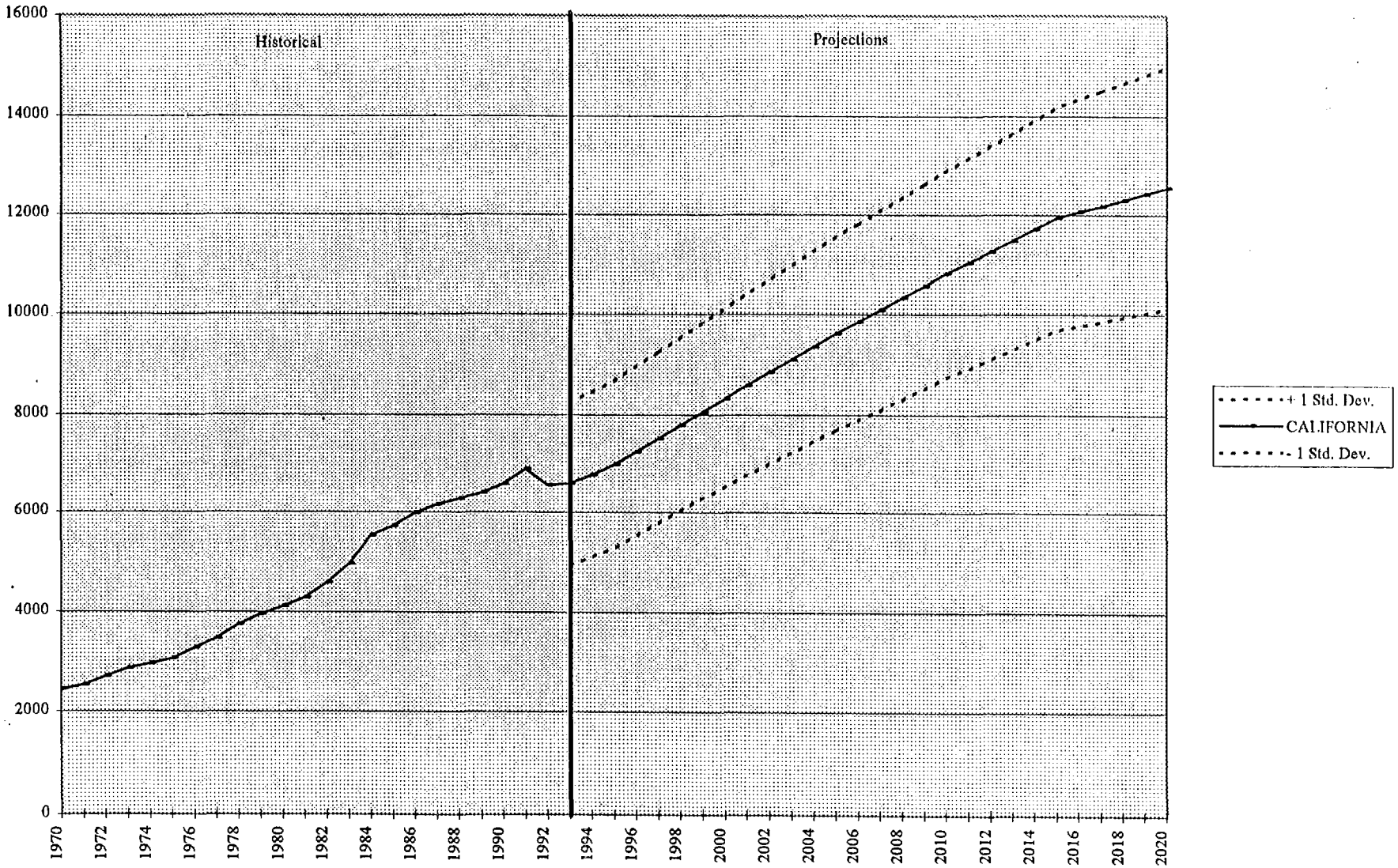
For interpretation of bands, see technical discussion in the appendix.

Figure 2.4.1 - Recreational Boats, Gasoline (DMV Registrations)



For interpretation of bands, see technical discussion in the appendix.

Figure 2.4.2 - Recreational Boats, Diesel (DMV Registrations)



2.5 COMMERCIAL BOATS

Data

The ARB category for commercial boating includes smaller boats used in commerce, available for hire, fishing vessels, and government-operated boats. For the purposes of this study, commercial boats are divided into gasoline-powered vessels, diesel-powered vessels, and offshore oil supply vessels.

It should be noted that the distinction between ARB categories shipping and commercial boating is not clear. In usage by marine officials, commercial boating refers to any vessel used in trade or for hire. By that definition, both of the ARB categories fall under commercial boating. In this study, shipping activity refers to large freight and passenger vessels over 5 net tons in size, and vessels that engage in coastal trade. These vessels must obtain documentation from the U.S. Coast Guard. Commercial boating activity, on the other hand, refers to vessels for hire and for other commercial uses that are less than 5 net tons.

There exist a number of measures of water transportation activity at the state level, including a breakdown by freight and passenger activity. Data sources include figures on State sectoral output from the BEA, County Business Patterns employment, and similar information from the 5-year Census of Transportation and from data currently being assembled by the newly-formed U.S. Bureau of Transportation Statistics. In each case, there was insufficient detail geographically to disaggregate to the county level, an insufficient or incomplete time-series, or both. Additionally, these data sources generally refer to water transportation and related activities in the aggregate, from which the commercial boating component could not be readily extracted. Data on fishing harvests are available, but fishing is just one portion of commercial boating, and would therefore be an inadequate measure of overall commercial boating activity.

DMV registrations are used as an indirect measure of gasoline and diesel commercial boating activity by county. Discussions with individuals at the DMV, the California Department of Boating and Waterways, local and national offices of the U.S. Coast

Guard, and the San Pedro Marine exchange indicated that there is no overall measure of commercial boating activity, while measures of individual components of commercial boating could not be aggregated.

In general, the smaller vessels are registered with the DMV. Vessel registration data provide the most comprehensive measure of activity in this category. Moreover, data exist from 1981 to 1993 inclusive for the State and each county. These data are used to develop time-series for gasoline and diesel commercial boats. Commercial boats that serve offshore oil supply facilities are handled separately, using oil production of offshore oil facilities.

Fishing activity is captured to a certain extent in the commercial vessel figures, although fishing vessels are not singled out in the DMV data. U.S. Coast Guard officials estimate that DMV registrations probably account for 1/2 to 2/3 of all fishing vessels, the remainder of which consists of larger vessels that have the required Coast Guard documentation but not DMV registration.

The series for commercial offshore oil supply boating activity utilized data on production and reserves from the Annual Report of the State Oil and Gas Supervisor, published by the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources. Data on offshore oil production by State and Federal offshore oil field were available for most years back to 1970. Offshore production data for the period 1976 through 1978 was reported at the state level but not by field. A series on reserves was available from 1981 forward.

Estimation and Results

From the data for the period 1981-1993, it was possible to separate the number of commercial and government boat registrations from total registrations. It was necessary to estimate data for the years 1970-1980, and to develop forecasts for the period from 1994-2020. A statistical model of commercial boating at the state level was developed, based upon relationships between registrations and explanatory variables for which

historical and forecast series exist. These include population, real personal income, and real income per capita. The final specification was similar to that of recreational boating although commercial boating shows a trend decline in activity. Serial correlation was a problem. Correction methods were employed but did not improve the estimation. Again, the brevity of the time series proved to be a major shortcoming.

The historical series were distributed across the counties based upon the distribution for the reference year 1981. The forecast series were distributed across the counties using the distribution for the reference year 1993. The procedure is the same as that described earlier for recreational boats.

The distribution of boat registrations by length was also obtained from the DMV for the available years. As described earlier for recreational boats, boats smaller than 40 feet are generally gasoline-powered while those larger than 40 feet are diesel-powered. The share of boats in the under 40 feet class was taken as a proxy for the share of gasoline-powered boats. The share of boats in the 40 feet or larger class was taken as a proxy for the share of diesel-powered boats. These shares were computed for each year, then applied to overall commercial boat registrations to determine the split between gasoline- and diesel-powered commercial boats.

A separate time series was developed for commercial offshore oil supply boating activity with data on production and reserves from the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources. Historical data back to 1970 were available by oil field and each oil field could be identified by county location. Therefore a bottom-up approach could be used for the historical series through 1992. Over the historical time period, offshore oil extraction in State and Federal oil fields took place in Los Angeles, Orange, Santa Barbara, Solano, and Ventura Counties. Oil production ceased in Solano county in the late 1980s.

In order to determine the long-term trend in offshore oil production, several specifications of a statistical model were tested using annual oil production (in barrels) as the dependent

variable and the following variables as explanatory variables: oil reserves (in barrels), the producer price index for petroleum and related fuels, a national index of petroleum production, U.S. and California population, real personal income, and real income per capita. Oil reserves are an important determinant of oil production. Since offshore oil reserves data were available for the last decade only, models including oil reserves were not at all robust. Alternative models dropped oil reserves as an explanatory variable, but the series for the remaining variables extended back to 1970. Moreover, projections were available for all remaining explanatory variables.

Projections by county were generated but proved unsatisfactory, so statewide projections of offshore oil production were generated, then distributed to each individual county on the basis of its share of statewide oil production for the reference year 1992. The final specification was

$$\begin{aligned} PROD = {} & \underset{(4.34)}{178.87} - \underset{(-6.84)}{0.3854\ PPI\_PETR} + \underset{(2.23)}{0.4572\ EXTR\_OIL} \\ & - \underset{(-5.90)}{0.012378\ PICAPUS} + \underset{(6.65)}{31.396\ DUM} \end{aligned}$$

R-sq = 93.7 Adjusted R-sq = 90.2 F = 51.79

Here PROD refers to the total number of registrations for the year, PPI_PETR refers to the producer price index for petroleum, EXTR_OIL is an index of U.S. oil production, PICAPUS is real U.S. per capita income, and DUM refers to a dummy variable to account for a structural break in the series.

Production clearly depends on the available reserves. Assuming no new reserves are discovered (reserves have declined in all but a few years since 1970), the remaining reserves could be computed each year by subtracting production in a given year from reserves shown at the end of the previous year. The procedure was applied, beginning with actual reserves in 1992. Therefore, the production series was constrained by the projected series for reserves.

Discussion

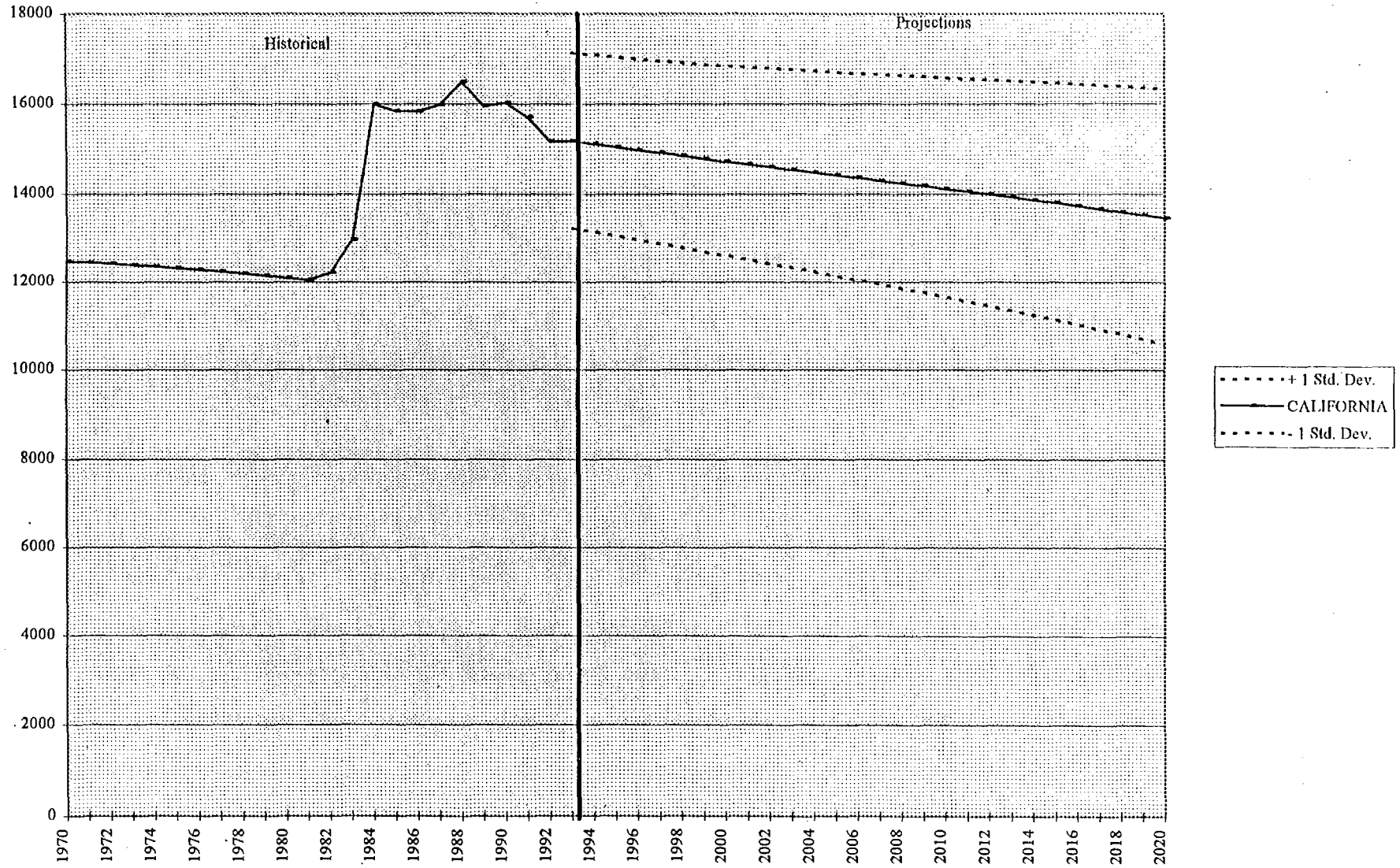
Commercial boating activity is shown in Figures 2.5.1, 2.5.2, and 2.5.3 and in Tables 11, 12 and 13. Commercial boat registrations have declined over the past several years and are expected to continue this trend. This may be attributed to a decline in commercial boating activity as a whole, a gradual shift from smaller to larger vessels, and a long-term decline in fishing. DMV boat registrations also under-represent commercial boating because commercial boats are often larger than 5 net tons, therefore required to have Coast Guard documentation which supersedes State registration.

The counties with the largest number of commercial boat registrations are the same as those for recreational boating: Los Angeles, San Diego, and Orange. The trends in these counties bear a strong resemblance to those of the State, although the correspondence is not as pronounced as with other categories. As with recreational boating, inland mountainous counties have few commercial boating registrations.

As indicated earlier, offshore oil production currently takes place in Los Angeles, Santa Barbara, Orange, and Ventura counties, with production levels ranked in that order. Offshore production ceased in Solano county in the late 1980s. Production at the county level appeared to proceed without regard to the trend in oil prices. Production typically leveled off at some stable rate, then declined rapidly as reserves were depleted. This trend occurs in each county series. Based upon forecast production through 2020, and assuming no new reserves would be discovered after 1992, estimated reserves by 2020 would equal 15 percent of actual 1992 reserves.

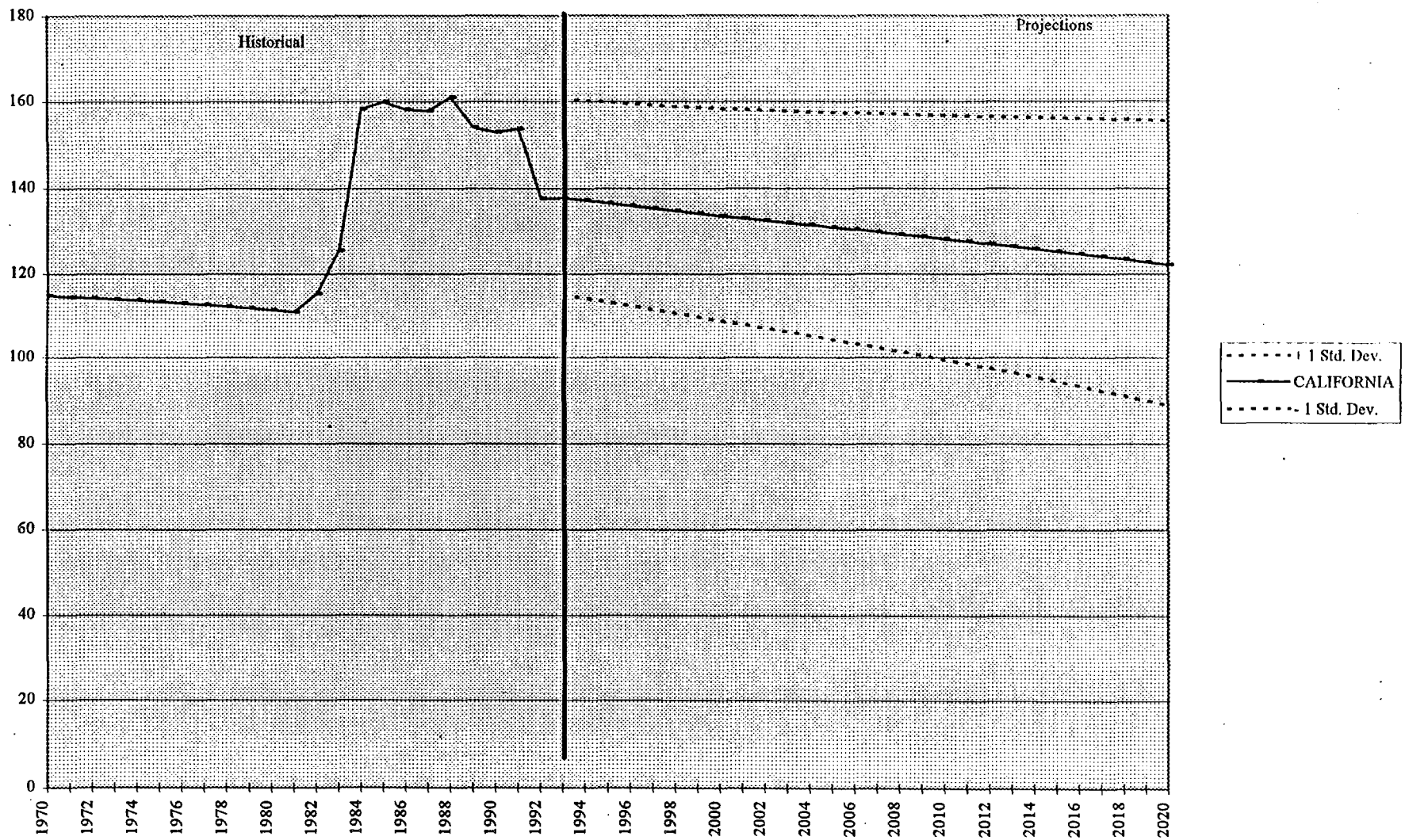
For interpretation of bands, see technical discussion in the appendix.

Figure 2.5.1 - Commercial Boats, Gasoline (DMV Registrations)



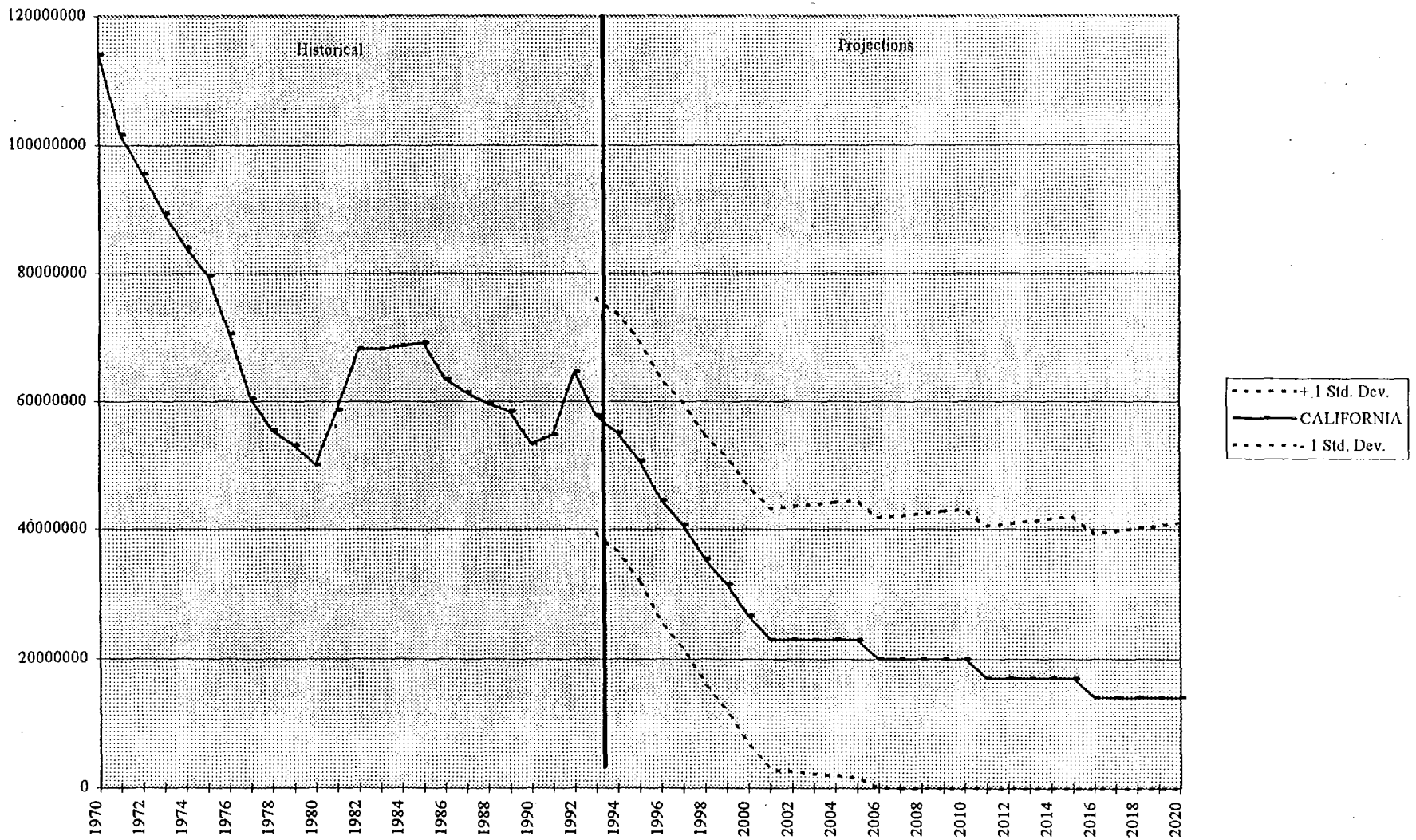
For interpretation of bands, see technical discussion in the appendix.

Figure 2.5.2- Commercial Boats, Diesel (DMV Registrations)



For interpretation of bands, see technical discussion in the appendix.

Figure 2.5.3 - Commercial Boats, Offshore Oil Production (Barrels per year)



2.6 RECREATIONAL VEHICLES

Data

The ARB requests 2 subcategories of off-highway recreational motor vehicles (OHVs): all-terrain vehicles/motorcycles (ATV/MTCs) and four-wheel drive vehicles (FWDs). No specific mention was made of snowmobiles, but these were included in the ATV/MTC category. There were three possible sources of data: the California Department of Parks and Recreation Off-highway Motor Vehicle Recreation Division (OHMVR), the Motorcycle Industry Council, and the California DMV.

The OHMVR Division has data on State Recreation Areas including State Recreational Vehicle Areas (SRVAs) where off-highway vehicles may be used. The agency publishes data on entrance fees for SRVAs statewide and by each SRVA, but a substantial portion of OHV activity occurs on Federal public lands in the State and in private user areas. A guidebook was first published in 1992 listing State, Federal, and private OHV user areas throughout the State, but no consistent measure of capacity or usage is reported. As for OHV-related fuel taxes, agency officials indicated no knowledge of whether or where historical data are kept.

The Motorcycle Industry Council (MIC) reports a variety of information on-and off-road vehicles including data on population, production, sales, and usage in its Motorcycle Statistical Annual. The MIC data are published at the state or national level. No data are reported at the county level. Usage by state is represented by the number of ATV/MTCs used off-highway. There also are estimates of the annual miles traveled for the U.S. as a whole.

DMV data were used in this analysis because they offered the required county-level detail for nearly the entire historical period. DMV registrations measure the OHV population by county but not usage, and thus are an indirect measure of activity in this category. Discussions with individuals at the DMV and the California Department of Parks and Recreation (Off-Highway Motor Vehicle Recreation Division) indicated that no overall measures of OHV and FWD activity exist over time.

The DMV maintains a database of 'green-sticker' off-road recreational motor vehicle registrations by county. The series extends from 1972-1993. The series undercounts the FWD registrations because many enthusiasts use their four-wheel drive on-road vehicle with conventional registration for off-road purposes.

DMV categories changed in number and definition over the period for which data were available. As a rule, there were 4 categories of vehicles. Separate categories existed throughout the period for *motorcycles* and *snowmobiles*. Categories that were present on an irregular basis include *4-wheel drive*, *3-wheel motorcycle*, and *pickups*. A final category, *all others*, was present throughout the series and presumably included 4-wheel drives and pickups when they were not mentioned explicitly. Moreover, the DMV only recorded active registrations prior to 1979, but recorded both active and inactive (expired) registrations from 1979 on.

Estimation and Results

In order to develop a consistent time-series from 1970 through 1993 for the ARB categories, a data set was created for active registrations only. DMV categories were grouped as follows: the ARB category ATV/MTC consists of DMV categories for motorcycles and snowmobiles, and 3-wheel motorcycles when listed separately; the ARB category FWDs consists of the all others category, and the 4-wheel drives and pickups categories when listed separately.

OHV registrations from the DMV are reported for selected years in the table on the following page. The numbers shown characterize those with current registrations. In the early 1990s approximately current registrations comprised 60% of all OHVs with current or expired registrations.

ACTIVE IN-STATE REGISTRATIONS BY OHV CATEGORY, SELECTED YEARS

Number of Registrations[1]

Year	MTC/ATVs	Snowmobiles	All Others	Total
1975	41,485	621	5,523	47,629
1980	172,896	5,472	16,427	194,795
1985	298,423	5,423	19,821	323,667
1990	296,501	7,893	24,463	328,857
1993	284,288	10,090	25,454	319,832

Category as Percentage of Total Registrations

Year	MTC/ATVs	Snowmobiles	All Others	Total
1975	87.1%	1.3%	11.6%	100.0%
1980	88.8	2.8	8.4	100.0
1985	92.2	1.7	6.1	100.0
1990	90.2	2.4	7.4	100.0
1993	88.9	3.2	8.0	100.0

[1] MTC/ATV registrations were reported as a single category in 1975 and 1980. For the years 1985, 1990, and 1993, the number shown in this column is the sum of the registrations for off-road motorcycles and 3-wheel motorcycles.

The data from the DMV were checked for consistency across the time-series and for each county. Fluctuations in the series appear to result from lapsed registrations, lax efforts to enforce registration requirements (mainly in the early 1970s), and common measurement error. Analysis was based on the continuous series from 1977 thorough 1993. Furthermore, since the data in 1979 greatly exceeded the prior and subsequent year, the county totals for 1979 were replaced by an average of the registrations for the years 1978 and 1980, then summed to obtain the 1979 State total.

Regression analysis was utilized to establish a trend for all OHV registrations at the State level. Registrations were estimated as a function of relevant variables for which consistent historical and forecast data existed, but the small number of observations in the series restricted the number of explanatory variables that could be used. In addition to simple time-series analysis, a number of specifications were tested using combinations explanatory variables that included population, personal income (constant 1993 dollars), personal income per capita (constant 1993 dollars), and a national index of real personal consumption spending on gasoline/oil. The final specification was

REGS = -542517 + 0.011194 POP + 24.426 PICAP
(-4.53) (4.25) (3.37)

R-sq = 86.6 Adjusted R-sq = 84.7 F = 45.3

Here REGS refers to the total number of registrations for the year, POP refers to State population, and PICAP refers to State personal income per capita (in constant 1993 dollars). The t-ratios are shown below each parameter estimate in parentheses. A Durbin-Watson value of 0.90 indicated that the presence of serial correlation was inconclusive. Additional tests for serial correlation required more data points that those available. However, serial correlation is known to be a problem with time-series data on personal income and population. Two alternative specifications - one using differences and another using a Cochrane-Orcutt transformation - were tested with no improvement relative to the final model. Plots of the residuals indicate heteroscedasticity as well. The model was specified in log and semi-log form and re-estimated. Neither of these alternative forms was superior to the final model.

The series consists of actual county and state level registrations for 1973, 1977-78, and 1980-1993; and state level estimates for 1970-1972, 1974-1976, and 1979 that were distributed to the counties on the basis of available data for years before or after the estimated year. Forecasts at the state level from 1994-2020 were obtained from the regression model, then distributed to the counties on the basis of the distribution for 1993.

In order to ensure consistency between the actual data and the estimates, the implied growth rate from the regression model was applied to actual data in completing or extending the series.

Discussion

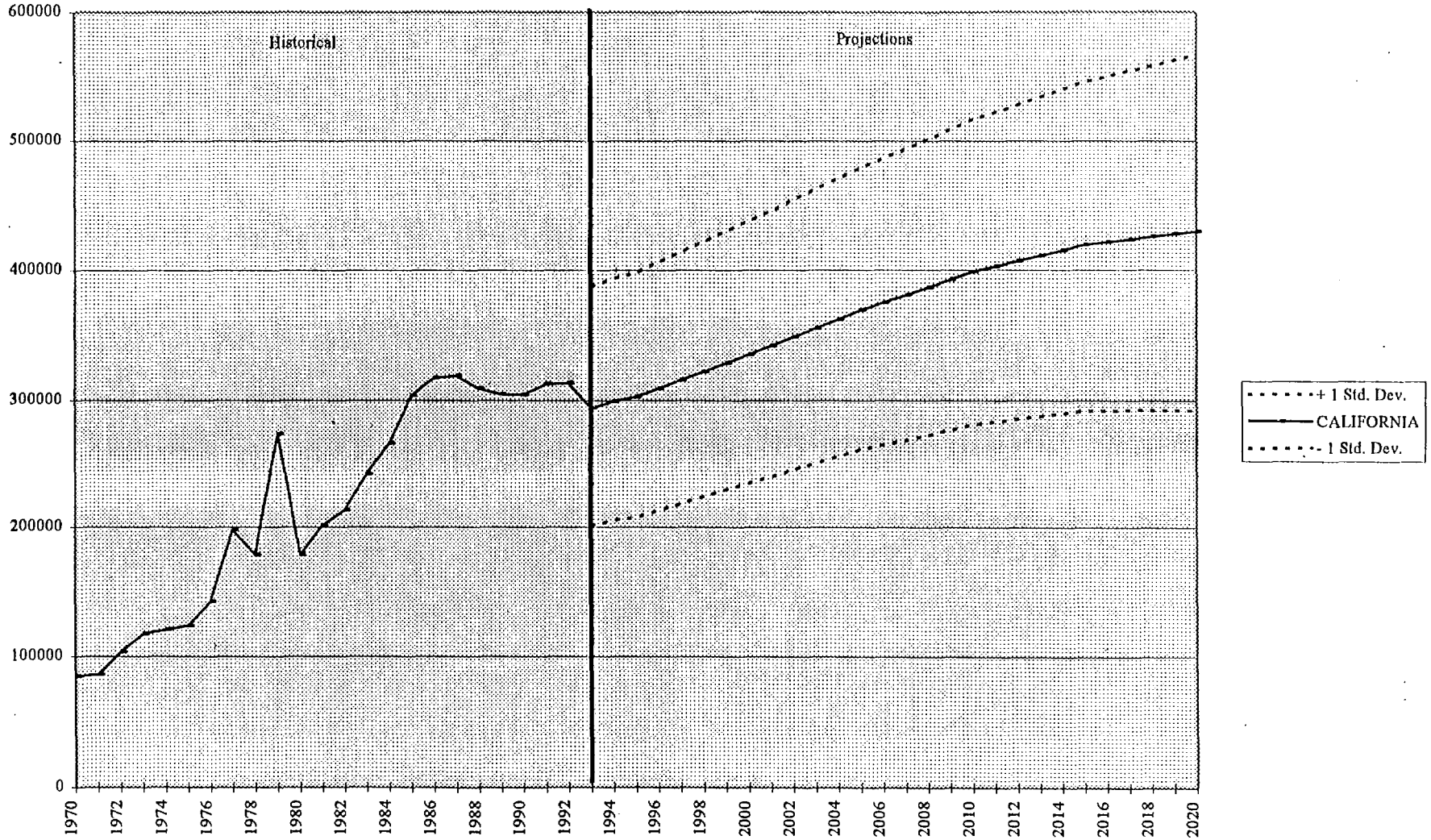
OHV activity is shown Figures 2.6.1 and 2.6.2 and in Tables 14 and 15. This activity is driven primarily by population growth and real income per capita, both of which are expected to grow well into the 21st Century. Hence the trend shows growth throughout

the forecast period. The trend will be mitigated by net increases or decreases in public lands designated for OHV use. Officials at the OHMVR Division indicated that private facilities for OHV use have dwindled in number over the years and relatively few remain compared to the 1970s. Among the reasons cited for this decline was the tremendous liability these facilities assume when open to the public.

Recreational vehicle registrations by county correspond closely to county population. The largest numbers of registrations are found in Los Angeles, San Diego, Orange, and San Bernardino counties. There are several OHV user areas in southern California, mainly in Imperial and San Bernardino counties. Notably, registrations in Imperial county amount to less than one percent of the State total. This illustrates the drawback of using registrations as a proxy for usage. The 1993 Statewide Off-Highway-Vehicle User Survey Analysis of the OHMVR Division reports that more OHV miles are driven in Imperial county than any other, about 70 percent more than in second-ranked San Bernardino county. Yet on the basis of registrations, Imperial county ranks 28th for the ATV/MTC subcategory, and 12th for the FWD subcategory. Unfortunately, this survey was the first ever. Consequently, the survey's findings on usage could not be applied to the 50 year time span of this study.

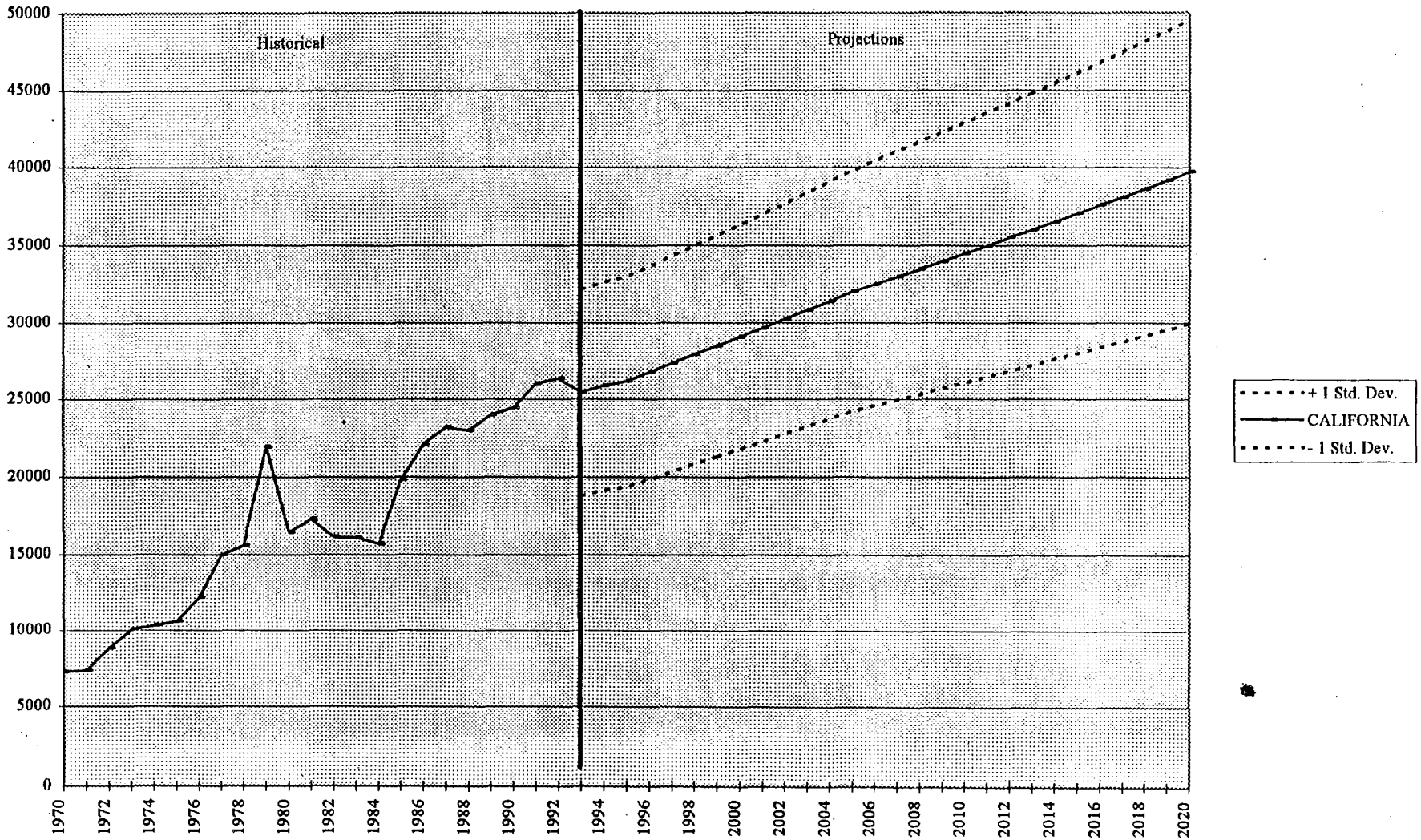
For interpretation of bands, see technical discussion in the appendix.

Figure 2.6.1 - Recreational Vehicle, ATV/Snowmobiles (DMV registrations)



For interpretation of bands, see technical discussion in the appendix.

Figure 2.6.2 - Recreational Vehicles, 4-Wheel Drive (DMV registrations)



2.7 LAWN AND GARDEN EQUIPMENT

Data

The lawn and garden equipment category includes not only the household purchase and use of equipment but also that used by commercial landscaping operations. No time-series data of usable quality are available for lawn and garden equipment sales or usage though a number of sources were discovered to have detailed point-in-time information on the type and use of such equipment. County Business Patterns provide data on employment and sales in landscaping and horticulture industry for the counties and the State. The Census of Agriculture has data on revenues in landscaping and sales for California. These data do not lend themselves to separate estimations for the residential and commercial sector usages.

In the absence of any consistent time-series of equipment use, it was decided to use the number of households as the best proxy for residential use of lawn and garden equipment and to use the nominal(current) value of commercial construction as the measure for commercial activity in this category.

Estimation and Results

The Center for Continuing Study of California Economy (CCSCE) developed the projections for households and construction. The household projections to 2010 were based on CCSCE's model of household formation in which the key determinants are projections of population by county and trends in person per household. All county projections are constrained by regional projections which depend on job growth, population projection by age and ethnic group, and household formation rates by age and ethnic group. Projections for 2010-2020 were developed separately. California projections were based on Department of Finance's population growth projections for 2010-2020 and the assumptions that persons per household would remain at the 2010 level. County projections were prepared by extending the 2000-2010 rate of growth while them by the statewide total household projection.

The construction projections were based on the household growth projections. Data for

1970-1992 were analyzed to determine relationship between household growth and construction levels for the state. The construction data were obtained from the Construction Industry Research Board. The relationship between average construction levels and household growth was used with projections of household growth to project average construction levels. No cycles were included.

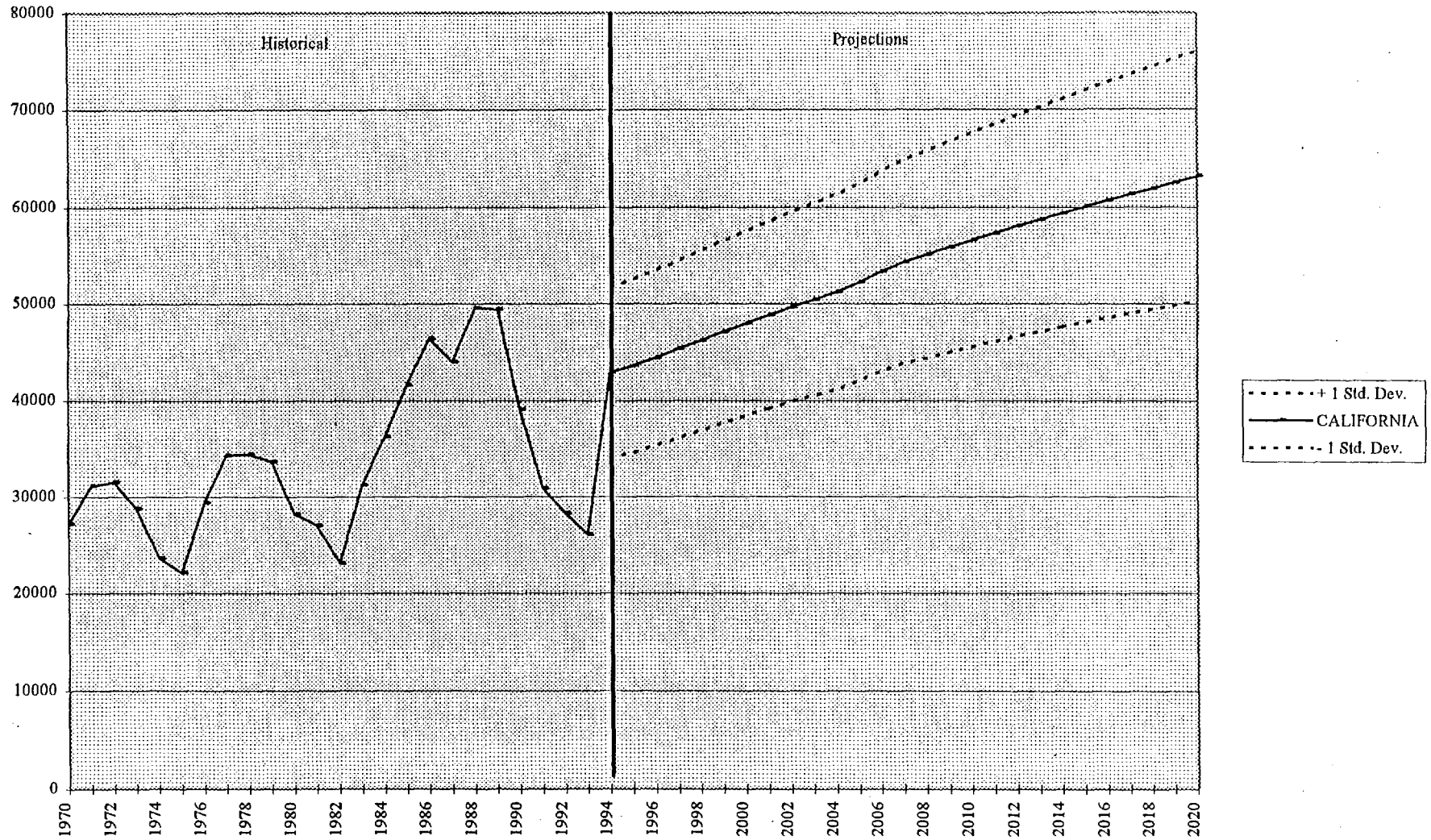
Discussion

The results for lawn and garden equipment are reported in the Figures 2.7.1 and 2.7.2 and Tables 16 and 17. Though there are substantial short-run fluctuations in both the residential and commercial sectors which affect the use of lawn and garden equipment, both sectors have healthy long-term growth prospects. There is also continuing innovation and development activity in the lawn and garden equipment market and the long-term trends are assumed to be similar in that regard.

The five largest counties are Los Angeles, San Diego, Orange, Santa Clara, and San Bernardino and the five smallest are Alpine, Sierra, Modoc, Mono, and Trinity. The county activity patterns are similar to the overall State trends.

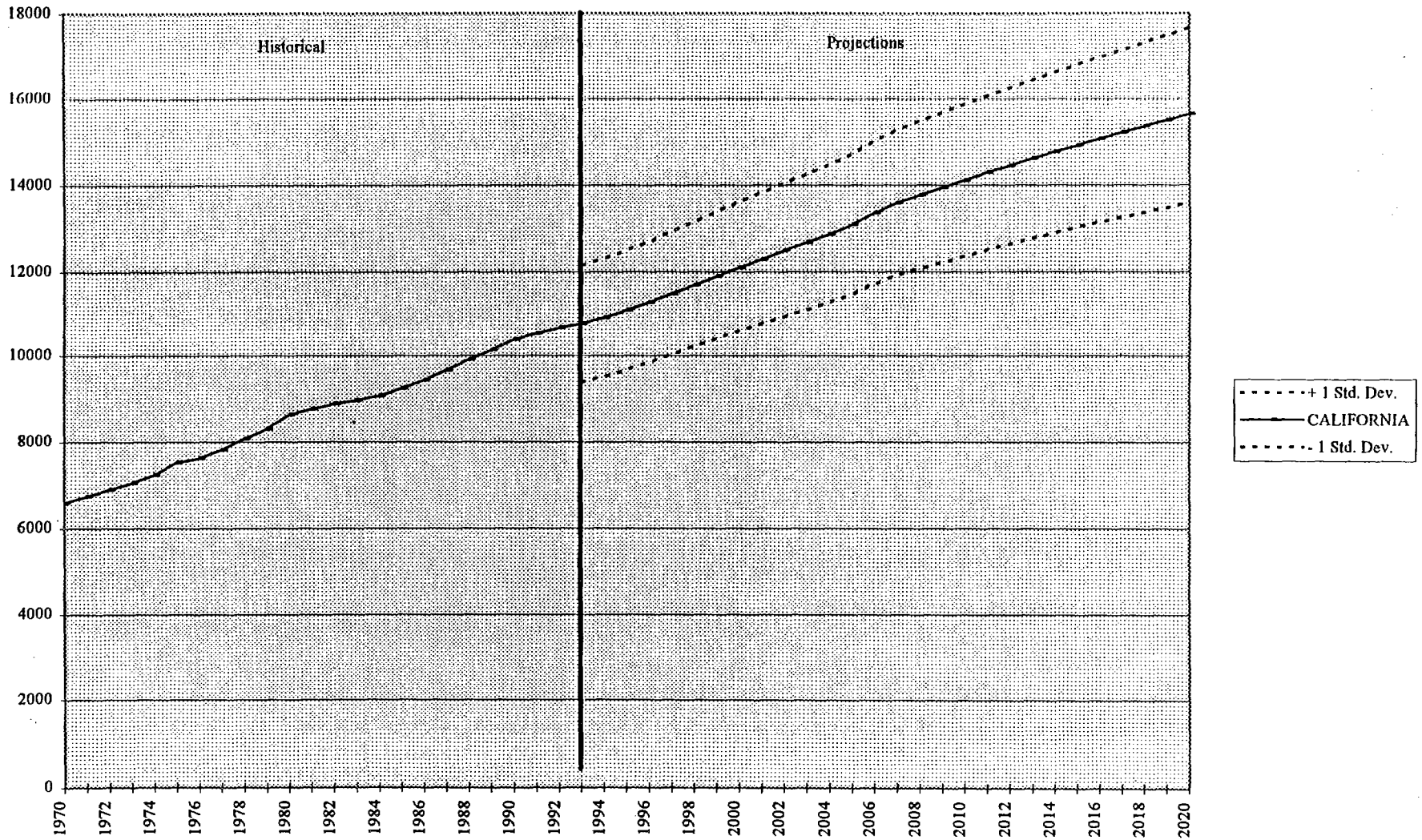
For interpretation of bands, see technical discussion in the appendix.

Figure 2.7.1 - Lawn & Garden Equipment, Commercial ('000$ Comm. Construction)



For interpretation of bands, see technical discussion in the appendix.

Figure 2.7.2 - Lawn & Garden Equipment, Residential ('000s of Households)



2.8 NON-FARM EQUIPMENT

Data

Non-farm equipment is a composite category that includes the equipment for mining, logging, construction, commercial and industrial material handling, and material handling in transportation (warehousing, aviation, etc). Due to the highly diverse nature of the equipment used and the fact that a number of sectors employ such equipment, the search for an appropriate measure of activity had to be restricted to variables common to these sectors. Time-series data of an aggregate nature whereby equipment used in all of these sectors could be added were not available. Therefore, a search was made for a surrogate variable that could fulfil the conditions for estimation and projection of a broad category of non-farm equipment use.

Employment and output in major non-farm sectors using such equipment were determined to be two such variables that could be used to develop trends in activity. Output data are generally subject to a greater degree of uncertainty than employment since it involves the use of changing prices and product quality to measure the value of output. Employment, on the other hand, is easier to measure and add across sectors and is reported in rather concrete terms (number of employees) and at the geographically detailed county levels. For these reasons employment was chosen as the activity variable for this category.

Estimation and Results

DRI/McGraw-Hill has produced for ARB estimates of employment for the desired period for the following relevant SIC categories:

Logging (SIC 08)
Mining (SIC 10)
Construction (SICs 15, 16, 17)
Rail Transportation (SIC 40)
Trucking and Warehousing (SIC 42)
Water Transportation (SIC 44)
Air Transportation (SIC 45)

Total employment in these industries was aggregated to design a measure of activity for non-farm equipment category. Such a measure allows for appropriate weighting by size of the individual sectors. The DRI/McGraw-Hill data also provide projections for the

series which are used in this report.

Gasoline-Diesel Breakdown

Complete data on diesel versus gasoline based equipment were not available either for the period or for the geographic areas needed. Partial data, however, are available from various sources on the usage of diesel- versus gasoline-powered equipment. Publications of the U.S. Department of Energy as well as those for the state of California were used to create series of the relative use of the two fuels. Based on the historical trends in their usage, forecasts were developed for the trends in diesel/gasoline usage. These trends were developed using a modified moving average method taking into account the historical and expected changes in the relative use for the two fuels. These trends were used in estimating the diesel versus gasoline split as reported in the end tables.

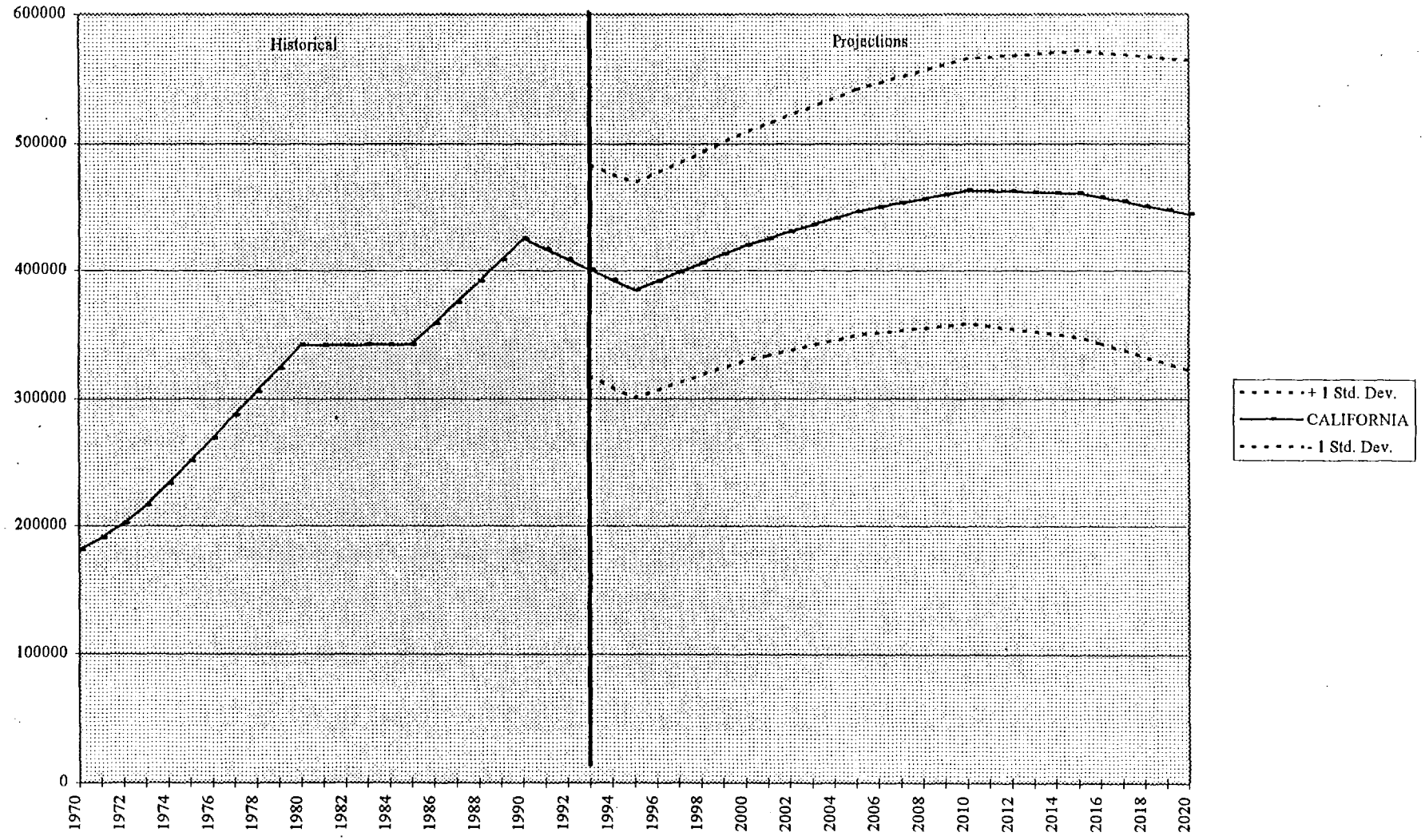
Discussion

The series for the non-farm equipment subcategories appear in Figures 2.8.1 and 2.8.2 and Tables 18 and 19. These represent highly aggregated and diverse sectors which are closely related to the overall economy. Non-farm equipment is subject to constant innovation and development. Historical data already incorporate these trends and projections have the same trends built in.

The 5 largest counties in this category are Los Angeles, Orange, San Diego, Alameda, and Santa Clara. These counties have relatively large shares of manufacturing activity and/or are major transshipment points, thus have significant material handling operations. They also have had historically high levels of construction. San Francisco county is an anomaly in that it has substantial level of activity in this category, but the level has been declining. This may be due to the shrinking manufacturing base of the county. In addition, new construction is constrained by the unavailability of space.

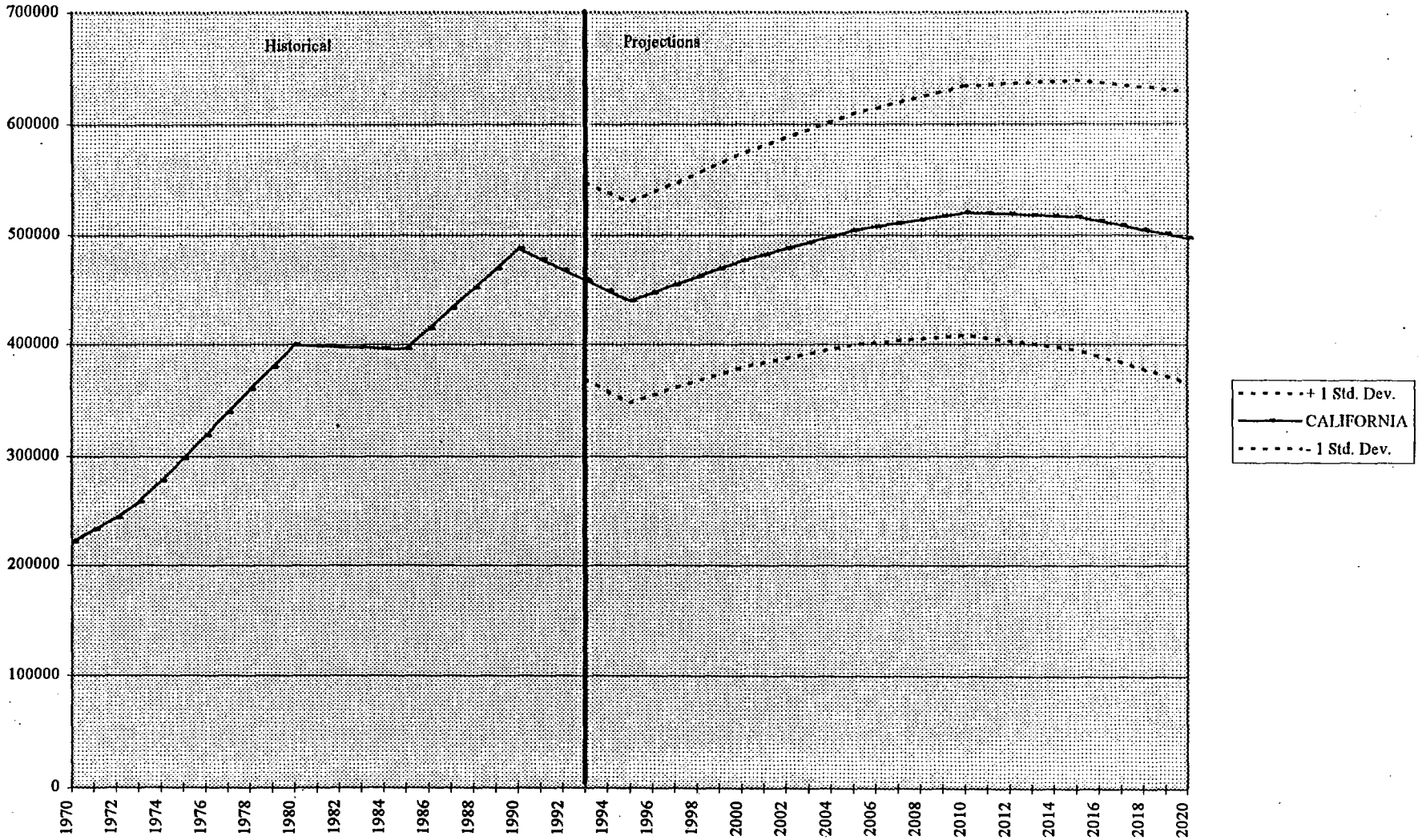
For interpretation of bands, see technical discussion in the appendix.

Figure 2.8.1 - Non-farm Equipment, Gasoline (Employment)



For interpretation of bands, see technical discussion in the appendix.

Figure 2.8.2 - Non-farm Equipment, Diesel (Employment)



2.9 SHIPS

Data

In the ARB request for proposals, the shipping category is divided into three subcategories: Ships-U.S./Foreign Berthing, U.S./Foreign Transit, and U.S./Foreign Maneuvering. A thorough review of data sources, discussions with port officials from the Marine Exchanges and the U.S. Coast Guard, and an examination of the methodological issues involved led to the conclusion that a key issue limited our ability to estimate activity for each of these subcategories. A single economic activity, namely overall shipping, dictates the level of activity for each of the three subcategories. Unlike a breakdown by freight vs. passenger activity, a breakdown by transit, maneuvering, and berthing is not economically meaningful. Freight and passenger travel are two distinct types of economic activity, while transit, maneuvering, and berthing are all aspects of the same economic activity. In short, while there may be technological distinctions between the subcategories, it is not economically meaningful to separate the overall economic measure into the subcategories. It was decided, therefore, to estimate historical and projected activity for *total* shipping activity.

A number of data sources were consulted but judged inadequate or inappropriate for the scope of work in the category. The 5-year Census of Transportation reports shipping revenues for freight and passenger shipping, but do not provide sufficient detail for estimation at the county level. The Army Corps of Engineers publishes Waterborne Commerce of the United States, which presents freight tonnage and passenger activity by ports, but provides no common unit of measurement for both freight and passenger activity, e.g. revenues, employment. A State publication, California's Transportation Future, presents cargo forecasts for ports from 1990 through 2010.

Shipping makes up a large part of SIC category 44, water transportation. Historical time-series for employment, output, and earnings in this category are available from the BEA and the California Employment Development Department (EDD) by State and for county and/or metropolitan areas. Since the most reliable long-term measure is employment, it was selected as the activity measure for this category.

Estimation and Results

DRI/McGraw-Hill has produced under contract with ARB estimates of employment and output for shipping activity under SIC 44 for the ARB. The DRI/McGraw-Hill employment estimates are used in this report.

Discussion

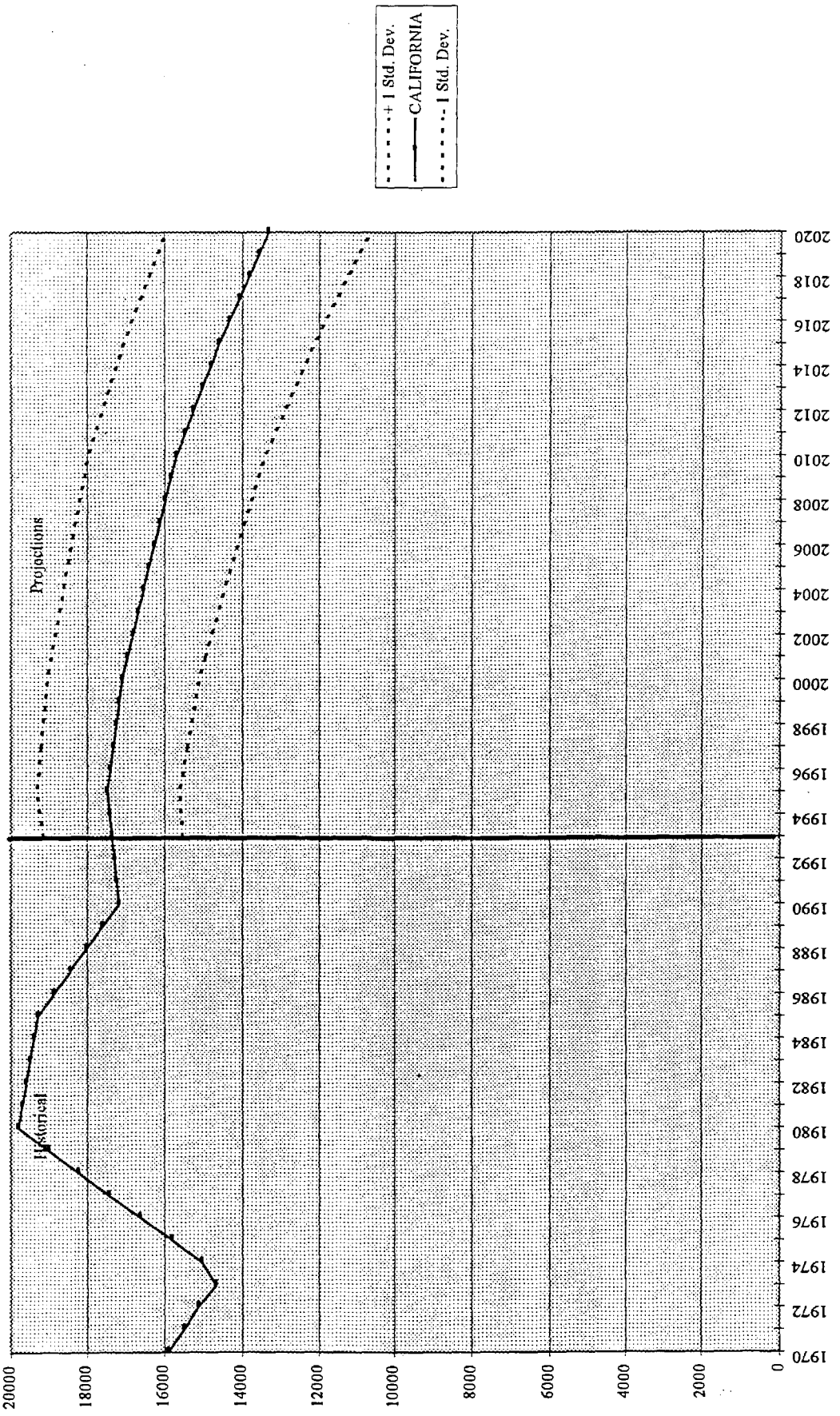
The series for shipping statewide appears in Figure 2.9.1. Table 20 shows the series at both the State and county level. Shipping activity is driven by the general level of economic activity in the U.S. and California, as well as trade between the U.S. and the rest of the world. Shipping employment expanded in the 1970s with the increase in U.S. trade with the rest of the world and peaked in 1980. The employment series exhibits a slowly declining trend after 1980, although there were slight increases in the early 1990s which are expected to continue through 1995.

Given the prospects of increased global trade in the coming years, shipping volume is expected to show gains. However, the size of ships and the technology of shipping has been undergoing substantial changes. The trend towards larger ships and labor-saving innovations has kept down the number of sea-faring vessels and employment in the industry. This historical trend is assumed to continue during the forecast period.

Activity in this category is greatest in Los Angeles county and the Bay Area (San Francisco and Alameda counties). Los Angeles county accounts for about 38 percent of the State's total, followed by San Francisco county with 33 percent, and Alameda county with 14 percent. Activity at the county level is closely associated with statewide activity.

For interpretation of bands, see technical discussion in the appendix.

Figure 2.9.1 - Shipping (Employment)



2.10 LOCOMOTIVES

Data

Locomotive activity is broken down by ARB into two subcategories: hauling and switching/yard operations. A thorough review of data sources, and an examination of the methodological issues involved indicated that a key issue limits our ability to estimate activity for each of these subcategories. A single economic activity, namely overall rail activity, dictates the level of activity for each of the subcategories. In this sense, locomotive activity resembles shipping. Based upon the rationale discussed in the previous section under ships, it was decided, therefore, to estimate historical and projected activity for total locomotive activity.

The Census of Transportation reports revenue, freight tonnage, and number of passengers for Class 1 railroads in California. Transportation Statistics in the United States from the Interstate Commerce Commission reports income, expenses, and fuel use by type of operation (linehaul vs. switching yard) for Class 1 railroads by region in the U.S. Separate data for California are not available, but were included in the figures for the Western region. Neither of these sources offered the county-level details that this study requires. Direct telephone inquiries to discover county-level data from the U.S. Department of Transportation, the U.S. Department of Commerce, and the California Public Utilities Commission were not successful.

Since the railroad sector corresponded directly to SIC category 40, and since employment series and forecasts are generally available for 2-digit SICs, measures of railroad employment were sought. County Business Patterns is generally one of the best sources of sectoral employment data at the county level. However, railroad activity is the only major transportation sector for which employment is not reported. The same is true of the employment series from the EDD.

Estimation and Results

DRI/McGraw-Hill has produced estimates of employment and output for rail activity under SIC 40 for the ARB. The DRI/McGraw-Hill estimates for employment are used in

this report.

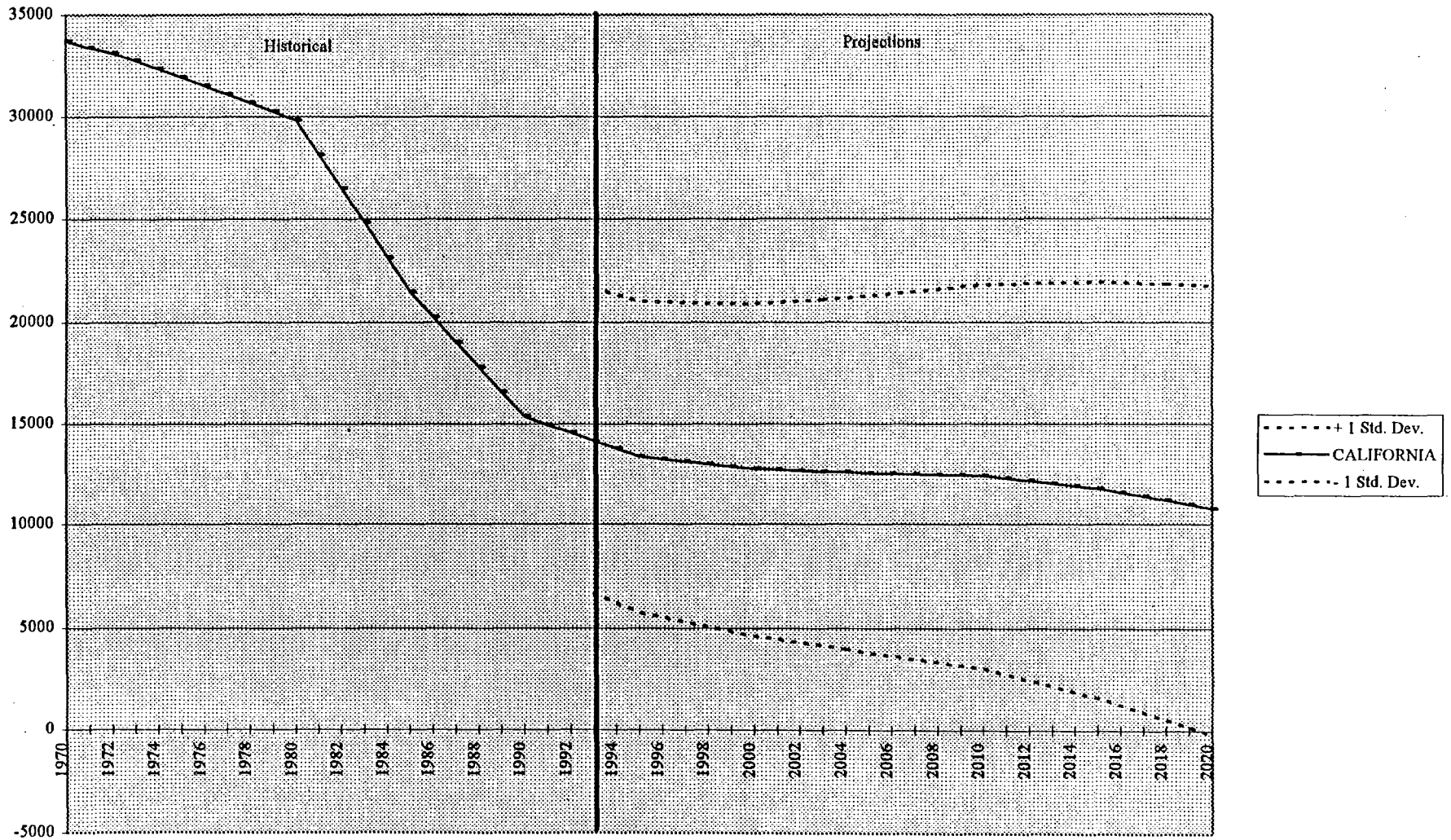
Discussion

Rail employment is shown in Figure 2.10.1 and in Table 21. Although rail activity shows a decline throughout the entire series, the industry suffered a significant decline in the late 1970s and the 1980s as it adjusted to the era of transportation deregulation. The rail industry gave up a sizable share of business to the trucking industry. The sector is expected to decline through the year 2020, but the rate of decline shows some stability beyond 1990.

Most of the State's rail activity is closely tied to shipping activity. Ports in Los Angeles, San Francisco, and Alameda county are transshipment points where foodstuffs, manufactured and processed goods, and materials are transferred from one mode of travel to the other, for eventual shipment overseas or for overland movement to locations in California and North America. Railyard activity is greatest in these counties. A moderate amount of activity occurs in adjacent counties which may also have smaller rail yards. Counties with low levels of activity generally have linehaul and spur operations.

For interpretation of bands, see technical discussion in the appendix.

Figure 2.10.1 - Locomotive (Employment)



3.0 SUMMARY AND CONCLUSIONS

This report presents estimates and projections for 21 categories of non-road mobile sources of pollution in California and its 58 counties. The categories include: farm equipment, aircraft, locomotives, ships, commercial and recreational boats, lawn and garden equipment, off-highway recreational motor vehicles, and non-farm equipment. Accurate forecasts of long-term trends for each of these categories are essential to the accurate forecast of emissions and control measure effectiveness.

The categories studied clearly encompass a wide variety of activities from household oriented recreational activities to major commercial, industrial, and transportation sectors. Moreover, a series for each category was required at the county-level for a lengthy 50-year time span. With these considerations in mind, an exhaustive search for data was undertaken. Because of the variety of categories, diverse data sources were consulted.

For each activity, an individualized statistical model was developed based upon the nature of the historical time-series and underlying causal variables. The projections should be viewed as long-term trends which are driven by economic and demographic variables such as annual personal income, employment, and population, and do not capture short-term fluctuations in activity. In the absence of any special knowledge for alternative assumptions, long-term historical trends in product innovation, fuel consumption, and technological change were assumed to continue for the projected period. In spite of short-run downswings, the long-run projections for key economic variables all exhibit positive growth.

Categories showing trend increase include civil aviation, recreational activities, and residential lawn and garden activity, all of which are fundamentally driven by population growth and increases in real personal income. Industrial and transportation categories show modest growth or decline in the long-term. These categories are driven by State, national, and worldwide economic growth, the ongoing transformation of the economy from manufacturing-based activities to service-based activities. Finally, the slowdown in military aviation is the result of the Cold War's end.

4.0 RECOMMENDATIONS

This report represents the culmination of an ambitious effort to develop series for the 21 non-road categories. The geographic detail and time period requirements for data in each individual category were extensive, while the availability of such data was limited.

Indeed, this study should be viewed as an initial, yet comprehensive, attempt to develop projections for the 21 non-road mobile categories. The IEES recommends that the projections be updated at regular intervals, preferably category by category or by functional groupings of categories. It is suggested that special projects be developed which call for the in-depth analysis of specific categories, a detailed understanding of the sector under study, and, ideally, the use of a bottom-up approach to activity estimation.

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GLOSSARY OF TERMS, ABBREVIATIONS, AND SYMBOLS

APCD - Air Pollution Control District
AQMD - Air Quality Management District
AR - autoregressive time series analysis
ARB - California Air Resources Board
ARIMA - autoregressive integrative moving averages method of time series analysis
ATV - all-terrain vehicle
BEA - Bureau of Economic Analysis, U.S. Department of Commerce
DMV - California Department of Motor Vehicles
EDD - Employment Development Department, State of California
FAA - Federal Aviation Administration, U.S. Department of Transportation
Flight operations - takeoffs and landings by aircraft
FWD - four-wheel drive off-highway vehicle
GDP - Gross Domestic Product
Gross Domestic Product - value of output produced in the economy over a certain time period, usually a year.
MA - moving average method of time series analysis
MIC - Motorcycle Industry Council
MTC - Off-highway motorcycle
OHMVR - Off-Highway Motor Vehicle Recreation Division, California Department of Parks and Recreation
OHV - off-highway recreational motor vehicle other than an all-terrain vehicle
Per Capita Income - personal income divided by population
Personal Income - the sum of earned income, unearned income, and transfer payments to households
SIC - Standard Industrial Classification
SRVA - state recreational vehicle area
Standard Industrial Classification - U.S. Government numerical classification scheme for economic activity. Most official economic data are reported by SIC.
USDA - U.S. Department of Agriculture

APPENDIX A - DATA TABLES

Table 1 - Farm Equipment, Gasoline (Millions in 1977$)

	1970	1971	1972	1973	1974	1975
CALIFORNIA	111.03	110.35	105.42	110.52	114.35	158.04
ALAMEDA	1.10	1.07	1.01	1.05	1.08	1.59
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.14	0.13	0.12	0.12	0.12	0.16
BUTTE	2.25	2.23	2.12	2.22	2.29	3.15
CALAVERAS	0.15	0.13	0.13	0.12	0.11	0.15
COLUSA	2.07	2.03	1.92	2.00	2.06	2.72
CONTRA COSTA	0.99	0.94	0.86	0.87	0.87	1.23
DEL NORTE	0.18	0.20	0.20	0.23	0.25	0.22
EL DORADO	0.23	0.21	0.18	0.18	0.17	0.20
FRESNO	11.70	11.82	11.42	12.09	12.60	16.85
GLENN	1.91	1.94	1.89	2.00	2.10	2.70
HUMBOLDT	0.61	0.56	0.50	0.49	0.48	0.62
IMPERIAL	4.72	4.86	4.78	5.12	5.39	6.25
INYO	0.12	0.11	0.10	0.10	0.10	0.12
KERN	8.60	8.77	8.55	9.10	9.54	13.15
KINGS	3.90	4.10	4.08	4.41	4.69	6.64
LAKE	0.46	0.44	0.41	0.41	0.42	0.44
LASSEN	0.39	0.37	0.33	0.33	0.33	0.46
LOS ANGELES	2.19	1.94	1.69	1.62	1.56	2.47
MADERA	2.59	2.56	2.44	2.54	2.63	3.62
MARIN	0.29	0.27	0.25	0.25	0.25	0.33
MARIPOSA	0.13	0.12	0.11	0.11	0.11	0.11
MENDOCINO	0.67	0.62	0.55	0.55	0.55	0.74
MERCED	4.90	5.12	5.08	5.48	5.80	8.20
MODOC	0.91	0.87	0.80	0.81	0.82	1.10
MONO	0.00	0.00	0.00	0.07	0.07	0.10
MONTEREY	4.33	4.47	4.40	4.71	4.96	7.92
NAPA	0.52	0.50	0.47	0.48	0.49	0.49
NEVADA	0.00	0.00	0.00	0.00	0.00	0.07
ORANGE	1.20	1.17	1.10	1.14	1.17	1.52
PLACER	0.57	0.52	0.45	0.44	0.43	0.59
PLUMAS	0.12	0.12	0.11	0.12	0.12	0.11
RIVERSIDE	3.58	3.54	3.37	3.52	3.64	5.03
SACRAMENTO	2.04	2.07	2.01	2.14	2.24	2.99
SAN BENITO	0.93	0.89	0.82	0.83	0.84	1.12
SAN BERNARDINO	2.00	1.90	1.76	1.79	1.81	2.41
SAN DIEGO	2.59	2.57	2.45	2.56	2.65	4.25
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	6.12	6.06	5.77	6.03	6.23	8.47
SAN LUIS OBISPO	1.79	1.69	1.55	1.57	1.58	2.11
SAN MATEO	0.70	0.71	0.69	0.74	0.78	1.56
SANTA BARBARA	1.84	1.80	1.71	1.78	1.83	2.66
SANTA CLARA	2.21	2.01	1.79	1.77	1.73	2.62
SANTA CRUZ	0.78	0.76	0.72	0.75	0.77	1.41
SHASTA	0.44	0.41	0.36	0.36	0.36	0.46
SIERRA	0.00	0.00	0.00	0.00	0.00	0.05
SISKIYOU	1.01	0.96	0.89	0.90	0.92	1.26
SOLANO	1.67	1.71	1.67	1.78	1.87	2.37
SONOMA	1.92	1.80	1.64	1.65	1.65	2.32
STANISLAUS	4.97	4.78	4.45	4.56	4.63	6.24
SUTTER	2.64	2.62	2.50	2.62	2.71	4.29
TEHAMA	1.01	0.95	0.88	0.89	0.89	1.32
TRINITY	0.00	0.00	0.00	0.00	0.00	0.05
TULARE	8.25	8.12	7.70	8.01	8.25	11.11
TUOLUMNE	0.10	0.09	0.08	0.07	0.07	0.08
VENTURA	2.46	2.48	2.39	2.53	2.63	3.74
YOLO	3.28	3.44	3.43	3.71	3.94	4.94
YUBA	0.82	0.80	0.75	0.78	0.79	1.14

Table 1 - Farm Equipment, Gasoline (Millions in 1977$)

	1976	1977	1978	1979	1980	1981
CALIFORNIA	195.07	217.98	235.13	207.50	197.24	177.02
ALAMEDA	2.03	2.33	2.50	1.92	1.60	1.24
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.20	0.22	0.23	0.14	0.10	0.12
BUTTE	3.87	4.33	4.58	4.09	3.65	3.52
CALAVERAS	0.17	0.15	0.15	0.13	0.10	0.12
COLUSA	3.29	3.62	3.88	3.29	3.03	2.49
CONTRA COSTA	1.52	1.71	1.82	1.50	1.34	1.12
DEL NORTE	0.27	0.27	0.30	0.21	0.14	0.12
EL DORADO	0.19	0.24	0.25	0.21	0.17	0.20
FRESNO	20.40	22.58	23.73	21.77	21.43	19.58
GLENN	3.20	3.49	3.63	3.18	3.02	2.57
HUMBOLDT	0.73	0.79	0.82	0.76	0.76	0.70
IMPERIAL	7.60	6.99	9.82	7.50	6.19	4.77
INYO	0.14	0.10	0.15	0.15	0.15	0.15
KERN	16.18	18.09	19.16	19.16	20.12	19.31
KINGS	8.29	9.35	9.96	8.60	8.05	7.04
LAKE	0.47	0.50	0.76	0.62	0.48	0.50
LASSEN	0.57	0.64	0.68	0.66	0.68	0.65
LOS ANGELES	3.25	3.79	4.12	3.43	3.10	2.63
MADERA	4.45	4.98	5.27	5.20	5.40	5.15
MARIN	0.40	0.44	0.46	0.47	0.49	0.47
MARIPOSA	0.11	0.09	0.12	0.12	0.10	0.10
MENDOCINO	0.89	0.99	1.05	0.90	0.63	0.72
MERCED	10.24	11.54	12.30	10.78	10.22	9.04
MODOC	1.34	1.48	1.56	1.34	1.24	1.08
MONO	0.12	0.13	0.15	0.16	0.17	0.17
MONTEREY	10.47	12.21	13.30	11.61	10.97	10.36
NAPA	0.60	1.01	1.25	1.02	0.91	0.76
NEVADA	0.09	0.09	0.11	0.08	0.08	0.10
ORANGE	1.81	1.98	2.07	1.76	1.62	1.55
PLACER	0.70	0.70	0.86	0.67	0.59	0.51
PLUMAS	0.11	0.13	0.16	0.16	0.12	0.11
RIVERSIDE	6.20	6.95	7.36	6.53	6.26	5.58
SACRAMENTO	3.61	3.99	4.19	3.56	3.29	2.84
SAN BENITO	1.03	1.35	1.68	1.46	1.37	1.20
SAN BERNARDINO	2.91	3.21	3.37	3.42	3.62	3.50
SAN DIEGO	5.64	6.59	7.18	6.31	5.99	5.31
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	10.35	11.52	12.16	10.54	9.89	8.68
SAN LUIS OBISPO	2.56	2.84	2.99	2.64	2.52	2.25
SAN MATEO	2.26	2.75	3.08	2.34	1.93	1.60
SANTA BARBARA	3.37	3.84	4.11	3.63	3.46	3.08
SANTA CLARA	3.37	3.88	4.19	3.49	3.15	2.67
SANTA CRUZ	1.97	2.37	2.63	2.19	1.99	1.69
SHASTA	0.54	0.59	0.61	0.60	0.62	0.58
SIERRA	0.06	0.06	0.08	0.08	0.06	0.06
SISKIYOU	1.55	1.73	1.83	1.66	1.62	1.47
SOLANO	2.78	3.01	3.12	2.66	2.46	2.13
SONOMA	2.76	3.25	3.52	3.04	2.85	2.49
STANISLAUS	7.59	8.42	8.87	7.70	7.25	6.37
SUTTER	5.64	6.57	7.15	5.67	4.88	3.94
TEHAMA	1.68	1.92	2.06	1.78	1.67	1.46
TRINITY	0.06	0.00	0.08	0.06	0.05	0.04
TULARE	13.50	14.98	15.78	14.55	14.39	13.20
TUOLUMNE	0.07	0.08	0.10	0.08	0.07	0.08
VENTURA	4.68	5.28	5.63	4.92	4.65	4.19
YOLO	5.76	6.22	6.42	5.38	4.90	4.17
YUBA	1.43	1.62	1.74	1.62	1.62	1.50

Table 1 - Farm Equipment, Gasoline (Millions in 1977$)

	1982	1983	1984	1985	1986	1987
CALIFORNIA	151.59	147.77	151.73	135.75	140.12	130.12
ALAMEDA	0.93	0.92	0.96	0.87	0.91	0.87
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.09	0.11	0.13	0.14	0.17	0.19
BUTTE	2.71	2.53	2.64	2.31	2.32	2.10
CALAVERAS	0.09	0.11	0.13	0.14	0.17	0.18
COLUSA	2.12	2.10	2.35	2.29	2.35	2.31
CONTRA COSTA	0.91	0.90	0.94	0.85	0.88	0.84
DEL NORTE	0.07	0.08	0.08	0.08	0.09	0.09
EL DORADO	0.17	0.17	0.18	0.17	0.18	0.18
FRESNO	17.18	16.69	17.46	15.72	16.29	15.37
GLENN	2.28	2.22	2.26	2.00	2.04	1.88
HUMBOLDT	0.62	0.61	0.63	0.56	0.58	0.55
IMPERIAL	3.54	3.99	4.43	4.45	5.08	5.63
INYO	0.14	0.13	0.13	0.11	0.11	0.10
KERN	17.63	16.43	15.86	13.17	12.95	10.17
KINGS	5.95	5.63	5.86	5.18	5.25	4.82
LAKE	0.41	0.37	0.42	0.39	0.40	0.39
LASSEN	0.59	0.56	0.56	0.49	0.49	0.44
LOS ANGELES	2.16	2.05	2.03	1.74	1.70	1.49
MADERA	4.68	4.13	4.22	3.43	3.30	2.73
MARIN	0.43	0.43	0.44	0.39	0.40	0.38
MARIPOSA	0.08	0.09	0.11	0.11	0.13	0.14
MENDOCINO	0.61	0.53	0.63	0.58	0.61	0.59
MERCED	7.72	7.27	7.50	6.58	6.60	5.98
MODOC	0.91	0.87	0.87	0.76	0.75	0.67
MONO	0.16	0.16	0.16	0.14	0.14	0.13
MONTEREY	8.77	9.09	8.67	7.69	7.82	7.21
NAPA	0.61	0.63	0.68	0.65	0.71	0.71
NEVADA	0.08	0.08	0.09	0.09	0.09	0.09
ORANGE	1.29	1.36	1.51	1.47	1.65	1.70
PLACER	0.41	0.43	0.47	0.46	0.51	0.52
PLUMAS	0.09	0.11	0.13	0.13	0.16	0.17
RIVERSIDE	4.80	4.74	4.91	4.44	4.62	4.38
SACRAMENTO	2.37	2.32	2.39	2.14	2.21	2.07
SAN BENITO	1.02	1.02	1.07	0.99	1.05	1.02
SAN BERNARDINO	3.21	3.03	2.97	2.52	2.42	2.08
SAN DIEGO	4.54	4.58	4.86	4.51	4.84	4.74
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	7.35	7.09	7.46	6.71	6.95	6.55
SAN LUIS OBISPO	1.93	2.12	2.02	1.85	1.96	1.90
SAN MATEO	1.22	1.25	1.36	1.29	1.41	1.42
SANTA BARBARA	2.64	2.62	2.73	2.49	2.62	2.51
SANTA CLARA	2.20	2.10	2.09	1.81	1.79	1.59
SANTA CRUZ	1.39	1.52	1.76	1.77	2.06	2.19
SHASTA	0.53	0.51	0.52	0.46	0.46	0.43
SIERRA	0.05	0.05	0.05	0.04	0.04	0.04
SISKIYOU	1.28	1.21	1.20	1.03	1.00	0.87
SOLANO	1.78	1.73	1.75	1.54	1.56	1.43
SONOMA	2.10	2.08	2.16	1.97	2.05	1.96
STANISLAUS	5.40	5.27	5.74	5.47	5.67	5.52
SUTTER	3.08	3.07	3.22	2.95	3.12	3.01
TEHAMA	1.24	1.20	1.21	1.06	1.07	0.98
TRINITY	0.03	0.03	0.03	0.03	0.04	0.04
TULARE	11.62	11.26	11.21	9.89	10.12	9.32
TUOLUMNE	0.06	0.07	0.08	0.09	0.10	0.11
VENTURA	3.56	3.60	3.82	3.55	4.13	3.74
YOLO	3.44	3.34	3.40	3.00	3.05	2.80
YUBA	1.33	1.19	1.20	1.00	0.93	0.77

Table 1 - Farm Equipment, Gasoline (Millions in 1977$)

	1988	1989	1990	1991	1992	1993
CALIFORNIA	130.13	125.19	139.48	139.72	143.92	142.65
ALAMEDA	0.87	0.83	0.93	0.93	0.96	0.95
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.19	0.18	0.21	0.21	0.21	0.21
BUTTE	2.10	2.01	2.26	2.27	2.33	2.31
CALAVERAS	0.18	0.18	0.20	0.20	0.20	0.20
COLUSA	2.55	2.94	2.85	2.73	2.90	2.95
CONTRA COSTA	0.84	0.81	0.90	0.90	0.93	0.92
DEL NORTE	0.09	0.09	0.10	0.10	0.10	0.10
EL DORADO	0.18	0.17	0.19	0.19	0.20	0.19
FRESNO	15.36	14.72	16.52	16.55	17.02	16.87
GLENN	1.88	1.80	2.02	2.02	2.08	2.06
HUMBOLDT	0.55	0.52	0.59	0.59	0.61	0.60
IMPERIAL	5.62	5.40	5.94	5.89	6.17	6.11
INYO	0.10	0.09	0.10	0.10	0.11	0.11
KERN	10.16	9.74	10.93	10.17	11.10	10.97
KINGS	4.61	4.62	5.18	5.19	5.29	5.24
LAKE	0.39	0.37	0.41	0.42	0.43	0.42
LASSEN	0.44	0.42	0.47	0.48	0.49	0.48
LOS ANGELES	1.49	1.43	1.22	1.19	1.32	1.27
MADERA	2.73	2.62	2.94	2.94	3.03	3.00
MARIN	0.38	0.36	0.41	0.41	0.42	0.42
MARIPOSA	0.14	0.14	0.16	0.16	0.16	0.16
MENDOCINO	0.59	0.56	0.63	0.63	0.65	0.64
MERCED	5.87	5.69	6.34	6.36	6.56	6.49
MODOC	0.67	0.64	0.72	0.72	0.74	0.73
MONO	0.13	0.12	0.14	0.14	0.14	0.14
MONTEREY	7.21	6.91	7.85	7.77	8.01	7.94
NAPA	0.71	0.79	0.76	0.98	0.86	0.86
NEVADA	0.09	0.09	0.07	0.07	0.09	0.09
ORANGE	1.70	1.63	1.83	1.83	1.88	1.86
PLACER	0.52	0.50	0.56	0.56	0.57	0.57
PLUMAS	0.17	0.16	0.18	0.18	0.19	0.19
RIVERSIDE	4.49	4.20	4.71	4.59	4.85	4.81
SACRAMENTO	2.07	1.98	2.23	2.23	2.29	2.27
SAN BENITO	1.02	0.98	1.10	1.10	1.13	1.12
SAN BERNARDINO	2.08	2.00	2.24	2.24	2.31	2.29
SAN DIEGO	4.74	4.54	5.33	5.52	5.38	5.36
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	6.54	6.27	7.04	7.05	7.25	7.19
SAN LUIS OBISPO	1.89	1.81	2.04	2.04	2.10	2.08
SAN MATEO	1.42	1.36	1.52	1.53	1.57	1.56
SANTA BARBARA	2.51	2.40	2.70	2.70	2.78	2.75
SANTA CLARA	1.52	1.45	1.40	1.40	1.60	1.55
SANTA CRUZ	2.19	2.10	2.36	2.36	2.43	2.41
SHASTA	0.43	0.41	0.46	0.46	0.47	0.47
SIERRA	0.03	0.03	0.04	0.04	0.04	0.04
SISKIYOU	0.87	0.84	0.94	0.94	0.97	0.96
SOLANO	1.43	1.37	1.54	1.54	1.59	1.57
SONOMA	1.96	1.88	2.11	2.32	2.21	2.20
STANISLAUS	5.52	5.18	5.97	6.05	6.12	6.07
SUTTER	3.01	2.97	2.91	3.39	3.32	3.29
TEHAMA	0.98	0.94	1.05	1.05	1.08	1.07
TRINITY	0.04	0.04	0.04	0.04	0.04	0.04
TULARE	9.31	8.61	10.20	10.04	10.29	10.19
TUOLUMNE	0.11	0.11	0.12	0.12	0.12	0.12
VENTURA	3.93	3.76	4.10	4.19	4.28	4.26
YOLO	2.80	2.69	3.01	3.02	3.11	3.08
YUBA	0.77	0.74	0.72	0.88	0.84	0.83

Table 1 - Farm Equipment, Gasoline (Millions in 1977$)

	1994	1995	1996	1997	1998	1999
CALIFORNIA	143.15	143.94	146.19	148.67	150.95	152.72
ALAMEDA	0.96	0.96	0.98	0.99	1.01	1.02
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.21	0.21	0.22	0.22	0.22	0.23
BUTTE	2.32	2.33	2.37	2.41	2.44	2.47
CALAVERAS	0.20	0.20	0.21	0.21	0.21	0.22
COLUSA	2.99	2.93	2.97	3.04	3.10	3.13
CONTRA COSTA	0.93	0.93	0.95	0.96	0.98	0.99
DEL NORTE	0.10	0.10	0.10	0.10	0.10	0.11
EL DORADO	0.19	0.20	0.20	0.20	0.21	0.21
FRESNO	16.93	17.03	17.30	17.59	17.86	18.07
GLENN	2.07	2.08	2.11	2.15	2.18	2.21
HUMBOLDT	0.60	0.61	0.62	0.63	0.64	0.64
IMPERIAL	6.12	6.14	6.23	6.36	6.45	6.52
INYO	0.11	0.11	0.11	0.11	0.11	0.11
KERN	10.97	10.99	11.11	11.39	11.55	11.67
KINGS	5.29	5.32	5.39	5.48	5.56	5.63
LAKE	0.43	0.43	0.43	0.44	0.45	0.45
LASSEN	0.49	0.49	0.50	0.51	0.51	0.52
LOS ANGELES	1.27	1.28	1.30	1.32	1.34	1.36
MADERA	3.01	3.03	3.08	3.13	3.18	3.21
MARIN	0.42	0.42	0.43	0.44	0.44	0.45
MARIPOSA	0.16	0.16	0.16	0.17	0.17	0.17
MENDOCINO	0.65	0.65	0.66	0.67	0.68	0.69
MERCED	6.52	6.55	6.65	6.77	6.87	6.95
MODOC	0.73	0.74	0.75	0.76	0.77	0.78
MONO	0.14	0.14	0.15	0.15	0.15	0.15
MONTEREY	7.97	8.03	8.14	8.28	8.41	8.51
NAPA	0.88	0.88	0.91	0.91	0.93	0.94
NEVADA	0.09	0.08	0.09	0.09	0.09	0.09
ORANGE	1.87	1.88	1.91	1.94	1.97	2.00
PLACER	0.57	0.57	0.58	0.59	0.60	0.61
PLUMAS	0.19	0.19	0.19	0.19	0.20	0.20
RIVERSIDE	4.80	4.82	4.89	4.99	5.06	5.12
SACRAMENTO	2.28	2.29	2.33	2.37	2.41	2.43
SAN BENITO	1.12	1.13	1.15	1.17	1.18	1.20
SAN BERNARDINO	2.30	2.31	2.35	2.38	2.42	2.45
SAN DIEGO	5.41	5.49	5.57	5.62	5.72	5.80
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	7.21	7.26	7.37	7.49	7.61	7.70
SAN LUIS OBISPO	2.09	2.10	2.13	2.17	2.20	2.23
SAN MATEO	1.56	1.57	1.60	1.62	1.65	1.67
SANTA BARBARA	2.76	2.78	2.82	2.87	2.91	2.95
SANTA CLARA	1.54	1.52	1.56	1.60	1.62	1.63
SANTA CRUZ	2.41	2.43	2.47	2.51	2.55	2.58
SHASTA	0.47	0.47	0.48	0.49	0.50	0.50
SIERRA	0.04	0.04	0.04	0.04	0.04	0.04
SISKIYOU	0.96	0.97	0.98	1.00	1.02	1.03
SOLANO	1.58	1.59	1.61	1.64	1.67	1.68
SONOMA	2.22	2.24	2.29	2.31	2.35	2.38
STANISLAUS	6.09	6.15	6.25	6.33	6.43	6.51
SUTTER	3.29	3.29	3.40	3.42	3.48	3.52
TEHAMA	1.08	1.08	1.10	1.12	1.14	1.15
TRINITY	0.04	0.04	0.04	0.04	0.05	0.05
TULARE	10.22	10.34	10.47	10.64	10.80	10.93
TUOLUMNE	0.12	0.12	0.13	0.13	0.13	0.13
VENTURA	4.27	4.28	4.36	4.43	4.50	4.55
YOLO	3.09	3.11	3.16	3.21	3.26	3.30
YUBA	0.83	0.83	0.87	0.87	0.88	0.89

Table 1 - Farm Equipment, Gasoline (Millions in 1977$)

	2000	2001	2002	2003	2004	2005
CALIFORNIA	154.21	155.60	157.07	158.64	160.26	161.89
ALAMEDA	1.03	1.04	1.05	1.06	1.07	1.08
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.23	0.23	0.23	0.23	0.24	0.24
BUTTE	2.50	2.52	2.54	2.57	2.59	2.62
CALAVERAS	0.22	0.22	0.22	0.22	0.23	0.23
COLUSA	3.15	3.18	3.22	3.25	3.28	3.31
CONTRA COSTA	1.00	1.01	1.02	1.03	1.04	1.05
DEL NORTE	0.11	0.11	0.11	0.11	0.11	0.11
EL DORADO	0.21	0.21	0.21	0.22	0.22	0.22
FRESNO	18.25	18.41	18.58	18.77	18.96	19.15
GLENN	2.23	2.25	2.27	2.29	2.32	2.34
HUMBOLDT	0.65	0.66	0.66	0.67	0.68	0.68
IMPERIAL	6.58	6.64	6.71	6.77	6.84	6.91
INYO	0.11	0.12	0.12	0.12	0.12	0.12
KERN	11.78	11.89	12.01	12.13	12.25	12.37
KINGS	5.69	5.74	5.79	5.85	5.91	5.97
LAKE	0.46	0.46	0.47	0.47	0.48	0.48
LASSEN	0.52	0.53	0.53	0.54	0.54	0.55
LOS ANGELES	1.37	1.39	1.40	1.41	1.43	1.44
MADERA	3.25	3.27	3.31	3.34	3.37	3.41
MARIN	0.45	0.46	0.46	0.46	0.47	0.47
MARIPOSA	0.17	0.17	0.17	0.18	0.18	0.18
MENDOCINO	0.70	0.70	0.71	0.72	0.72	0.73
MERCED	7.02	7.08	7.15	7.22	7.29	7.37
MODOC	0.79	0.80	0.81	0.81	0.82	0.83
MONO	0.15	0.16	0.16	0.16	0.16	0.16
MONTEREY	8.59	8.67	8.75	8.84	8.93	9.02
NAPA	0.95	0.96	0.96	0.98	0.99	1.00
NEVADA	0.09	0.09	0.09	0.09	0.10	0.10
ORANGE	2.02	2.03	2.05	2.07	2.10	2.12
PLACER	0.62	0.62	0.63	0.63	0.64	0.65
PLUMAS	0.20	0.20	0.20	0.21	0.21	0.21
RIVERSIDE	5.17	5.22	5.27	5.32	5.37	5.43
SACRAMENTO	2.46	2.48	2.50	2.53	2.55	2.58
SAN BENITO	1.21	1.22	1.23	1.24	1.26	1.27
SAN BERNARDINO	2.47	2.50	2.52	2.54	2.57	2.60
SAN DIEGO	5.86	5.90	5.95	6.02	6.08	6.14
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	7.77	7.84	7.92	8.00	8.08	8.16
SAN LUIS OBISPO	2.25	2.27	2.29	2.31	2.34	2.36
SAN MATEO	1.68	1.70	1.71	1.73	1.75	1.77
SANTA BARBARA	2.98	3.00	3.03	3.06	3.09	3.12
SANTA CLARA	1.65	1.67	1.68	1.70	1.72	1.73
SANTA CRUZ	2.60	2.63	2.65	2.68	2.70	2.73
SHASTA	0.51	0.51	0.52	0.52	0.53	0.53
SIERRA	0.04	0.04	0.04	0.04	0.04	0.04
SISKIYOU	1.04	1.05	1.06	1.07	1.08	1.09
SOLANO	1.70	1.72	1.73	1.75	1.77	1.79
SONOMA	2.40	2.43	2.44	2.47	2.50	2.52
STANISLAUS	6.58	6.64	6.70	6.76	6.83	6.90
SUTTER	3.55	3.59	3.62	3.66	3.69	3.73
TEHAMA	1.16	1.17	1.18	1.19	1.21	1.22
TRINITY	0.05	0.05	0.05	0.05	0.05	0.05
TULARE	11.05	11.14	11.24	11.36	11.47	11.59
TUOLUMNE	0.13	0.13	0.14	0.14	0.14	0.14
VENTURA	4.60	4.64	4.68	4.73	4.78	4.83
YOLO	3.33	3.36	3.39	3.42	3.46	3.49
YUBA	0.90	0.91	0.92	0.93	0.94	0.95

Table 1 - Farm Equipment, Gasoline (Millions in 1977$)

	2006	2007	2008	2009	2010	2011
CALIFORNIA	163.53	165.16	166.78	168.40	169.99	171.56
ALAMEDA	1.09	1.10	1.11	1.12	1.14	1.15
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.24	0.24	0.25	0.25	0.25	0.25
BUTTE	2.65	2.67	2.70	2.73	2.75	2.78
CALAVERAS	0.23	0.23	0.24	0.24	0.24	0.24
COLUSA	3.35	3.38	3.41	3.45	3.48	3.51
CONTRA COSTA	1.06	1.07	1.08	1.09	1.10	1.11
DEL NORTE	0.11	0.11	0.12	0.12	0.12	0.12
EL DORADO	0.22	0.22	0.23	0.23	0.23	0.23
FRESNO	19.35	19.54	19.73	19.92	20.11	20.30
GLENN	2.36	2.39	2.41	2.44	2.46	2.48
HUMBOLDT	0.69	0.70	0.70	0.71	0.72	0.72
IMPERIAL	6.98	7.05	7.12	7.19	7.26	7.32
INYO	0.12	0.12	0.12	0.13	0.13	0.13
KERN	12.50	12.62	12.75	12.87	12.99	13.11
KINGS	6.03	6.09	6.15	6.21	6.27	6.33
LAKE	0.49	0.49	0.50	0.50	0.50	0.51
LASSEN	0.56	0.56	0.57	0.57	0.58	0.58
LOS ANGELES	1.46	1.47	1.48	1.50	1.51	1.53
MADERA	3.44	3.48	3.51	3.54	3.58	3.61
MARIN	0.48	0.48	0.49	0.49	0.50	0.50
MARIPOSA	0.18	0.18	0.19	0.19	0.19	0.19
MENDOCINO	0.74	0.74	0.75	0.76	0.77	0.77
MERCED	7.44	7.52	7.59	7.66	7.74	7.81
MODOC	0.84	0.85	0.86	0.86	0.87	0.88
MONO	0.16	0.17	0.17	0.17	0.17	0.17
MONTEREY	9.11	9.20	9.29	9.38	9.47	9.56
NAPA	1.01	1.02	1.03	1.04	1.05	1.06
NEVADA	0.10	0.10	0.10	0.10	0.10	0.10
ORANGE	2.14	2.16	2.18	2.20	2.22	2.24
PLACER	0.65	0.66	0.67	0.67	0.68	0.68
PLUMAS	0.21	0.22	0.22	0.22	0.22	0.22
RIVERSIDE	5.48	5.54	5.59	5.65	5.70	5.75
SACRAMENTO	2.61	2.63	2.66	2.68	2.71	2.73
SAN BENITO	1.28	1.30	1.31	1.32	1.33	1.35
SAN BERNARDINO	2.62	2.65	2.68	2.70	2.73	2.75
SAN DIEGO	6.20	6.26	6.33	6.39	6.45	6.51
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	8.24	8.33	8.41	8.49	8.57	8.65
SAN LUIS OBISPO	2.39	2.41	2.43	2.46	2.48	2.50
SAN MATEO	1.78	1.80	1.82	1.84	1.86	1.87
SANTA BARBARA	3.16	3.19	3.22	3.25	3.28	3.31
SANTA CLARA	1.75	1.77	1.79	1.80	1.82	1.84
SANTA CRUZ	2.76	2.79	2.81	2.84	2.87	2.89
SHASTA	0.54	0.54	0.55	0.55	0.56	0.56
SIERRA	0.04	0.04	0.05	0.05	0.05	0.05
SISKIYOU	1.10	1.11	1.12	1.13	1.14	1.15
SOLANO	1.80	1.82	1.84	1.86	1.88	1.89
SONOMA	2.55	2.57	2.60	2.62	2.65	2.67
STANISLAUS	6.97	7.04	7.11	7.18	7.25	7.32
SUTTER	3.77	3.81	3.84	3.88	3.92	3.95
TEHAMA	1.23	1.24	1.26	1.27	1.28	1.29
TRINITY	0.05	0.05	0.05	0.05	0.05	0.05
TULARE	11.71	11.82	11.94	12.06	12.17	12.28
TUOLUMNE	0.14	0.14	0.14	0.15	0.15	0.15
VENTURA	4.87	4.92	4.97	5.02	5.07	5.11
YOLO	3.53	3.56	3.60	3.63	3.67	3.70
YUBA	0.96	0.97	0.98	0.98	0.99	1.00

Table 1 - Farm Equipment, Gasoline (Millions in 1977$)

	2012	2013	2014	2015	2016	2017
CALIFORNIA	173.12	174.65	176.15	177.59	178.95	180.24
ALAMEDA	1.16	1.17	1.18	1.19	1.20	1.20
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.26	0.26	0.26	0.26	0.26	0.27
BUTTE	2.80	2.83	2.85	2.88	2.90	2.92
CALAVERAS	0.24	0.25	0.25	0.25	0.25	0.26
COLUSA	3.54	3.58	3.61	3.64	3.66	3.69
CONTRA COSTA	1.12	1.13	1.14	1.15	1.16	1.17
DEL NORTE	0.12	0.12	0.12	0.12	0.12	0.12
EL DORADO	0.24	0.24	0.24	0.24	0.24	0.24
FRESNO	20.48	20.66	20.84	21.01	21.17	21.32
GLENN	2.50	2.53	2.55	2.57	2.59	2.61
HUMBOLDT	0.73	0.74	0.74	0.75	0.75	0.76
IMPERIAL	7.39	7.46	7.52	7.58	7.64	7.70
INYO	0.13	0.13	0.13	0.13	0.13	0.13
KERN	13.23	13.35	13.46	13.57	13.68	13.78
KINGS	6.38	6.44	6.50	6.55	6.60	6.65
LAKE	0.51	0.52	0.52	0.53	0.53	0.54
LASSEN	0.59	0.59	0.60	0.60	0.61	0.61
LOS ANGELES	1.54	1.55	1.57	1.58	1.59	1.60
MADERA	3.64	3.68	3.71	3.74	3.77	3.79
MARIN	0.51	0.51	0.52	0.52	0.52	0.53
MARIPOSA	0.19	0.19	0.20	0.20	0.20	0.20
MENDOCINO	0.78	0.79	0.79	0.80	0.81	0.81
MERCED	7.88	7.95	8.02	8.08	8.14	8.20
MODOC	0.89	0.90	0.90	0.91	0.92	0.92
MONO	0.17	0.18	0.18	0.18	0.18	0.18
MONTEREY	9.64	9.73	9.81	9.89	9.97	10.04
NAPA	1.06	1.07	1.08	1.09	1.10	1.11
NEVADA	0.10	0.10	0.10	0.11	0.11	0.11
ORANGE	2.26	2.28	2.30	2.32	2.34	2.36
PLACER	0.69	0.70	0.70	0.71	0.71	0.72
PLUMAS	0.23	0.23	0.23	0.23	0.23	0.23
RIVERSIDE	5.81	5.86	5.91	5.95	6.00	6.04
SACRAMENTO	2.76	2.78	2.81	2.83	2.85	2.87
SAN BENITO	1.36	1.37	1.38	1.39	1.40	1.41
SAN BERNARDINO	2.78	2.80	2.83	2.85	2.87	2.89
SAN DIEGO	6.57	6.63	6.68	6.74	6.79	6.84
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	8.73	8.80	8.88	8.95	9.02	9.09
SAN LUIS OBISPO	2.52	2.55	2.57	2.59	2.61	2.63
SAN MATEO	1.89	1.91	1.92	1.94	1.95	1.97
SANTA BARBARA	3.34	3.37	3.40	3.43	3.45	3.48
SANTA CLARA	1.85	1.87	1.89	1.90	1.92	1.93
SANTA CRUZ	2.92	2.95	2.97	3.00	3.02	3.04
SHASTA	0.57	0.57	0.58	0.58	0.59	0.59
SIERRA	0.05	0.05	0.05	0.05	0.05	0.05
SISKIYOU	1.17	1.18	1.19	1.20	1.20	1.21
SOLANO	1.91	1.93	1.94	1.96	1.97	1.99
SONOMA	2.70	2.72	2.74	2.77	2.79	2.81
STANISLAUS	7.38	7.45	7.51	7.57	7.63	7.69
SUTTER	3.99	4.03	4.06	4.09	4.12	4.15
TEHAMA	1.30	1.31	1.33	1.34	1.35	1.36
TRINITY	0.05	0.05	0.05	0.05	0.05	0.05
TULARE	12.39	12.50	12.61	12.71	12.81	12.90
TUOLUMNE	0.15	0.15	0.15	0.15	0.15	0.16
VENTURA	5.16	5.21	5.25	5.29	5.33	5.37
YOLO	3.74	3.77	3.80	3.83	3.86	3.89
YUBA	1.01	1.02	1.03	1.04	1.05	1.05

Table 1 - Farm Equipment, Gasoline (Millions in 1977$)

	2018	2019	2020
CALIFORNIA	181.43	182.52	183.48
ALAMEDA	1.21	1.22	1.23
ALPINE	0.00	0.00	0.00
AMADOR	0.27	0.27	0.27
BUTTE	2.94	2.95	2.97
CALAVERAS	0.26	0.26	0.26
COLUSA	3.71	3.74	3.76
CONTRA COSTA	1.17	1.18	1.19
DEL NORTE	0.13	0.13	0.13
EL DORADO	0.25	0.25	0.25
FRESNO	21.47	21.59	21.71
GLENN	2.62	2.64	2.65
HUMBOLDT	0.77	0.77	0.77
IMPERIAL	7.75	7.79	7.83
INYO	0.13	0.14	0.14
KERN	13.87	13.95	14.02
KINGS	6.69	6.73	6.77
LAKE	0.54	0.54	0.55
LASSEN	0.62	0.62	0.62
LOS ANGELES	1.62	1.63	1.63
MADERA	3.82	3.84	3.86
MARIN	0.53	0.53	0.54
MARIPOSA	0.20	0.20	0.20
MENDOCINO	0.82	0.82	0.83
MERCED	8.26	8.31	8.35
MODOC	0.93	0.94	0.94
MONO	0.18	0.18	0.18
MONTEREY	10.11	10.17	10.22
NAPA	1.12	1.12	1.13
NEVADA	0.11	0.11	0.11
ORANGE	2.37	2.39	2.40
PLACER	0.72	0.73	0.73
PLUMAS	0.24	0.24	0.24
RIVERSIDE	6.08	6.12	6.15
SACRAMENTO	2.89	2.91	2.92
SAN BENITO	1.42	1.43	1.44
SAN BERNARDINO	2.91	2.93	2.94
SAN DIEGO	6.88	6.92	6.96
SAN FRANCISCO	0.00	0.00	0.00
SAN JOAQUIN	9.15	9.20	9.25
SAN LUIS OBISPO	2.65	2.66	2.68
SAN MATEO	1.98	1.99	2.00
SANTA BARBARA	3.50	3.52	3.54
SANTA CLARA	1.94	1.95	1.96
SANTA CRUZ	3.06	3.08	3.10
SHASTA	0.60	0.60	0.60
SIERRA	0.05	0.05	0.05
SISKIYOU	1.22	1.23	1.24
SOLANO	2.00	2.01	2.02
SONOMA	2.83	2.84	2.86
STANISLAUS	7.74	7.78	7.82
SUTTER	4.18	4.21	4.23
TEHAMA	1.37	1.37	1.38
TRINITY	0.05	0.05	0.05
TULARE	12.99	13.07	13.14
TUOLUMNE	0.16	0.16	0.16
VENTURA	5.41	5.44	5.47
YOLO	3.92	3.94	3.96
YUBA	1.06	1.07	1.07

Table 2 - Farm Equipment, Diesel (Millions in 1977$)

	1970	1971	1972	1973	1974	1975
CALIFORNIA	38.86	38.62	37.67	39.49	41.32	57.76
ALAMEDA	0.38	0.38	0.36	0.37	0.39	0.58
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.05	0.05	0.04	0.04	0.04	0.06
BUTTE	0.79	0.78	0.76	0.79	0.83	1.15
CALAVERAS	0.05	0.05	0.04	0.04	0.04	0.06
COLUSA	0.72	0.71	0.69	0.72	0.74	1.00
CONTRA COSTA	0.35	0.33	0.31	0.31	0.32	0.45
DEL NORTE	0.06	0.07	0.07	0.08	0.09	0.08
EL DORADO	0.08	0.07	0.06	0.06	0.06	0.07
FRESNO	4.10	4.14	4.08	4.32	4.55	6.16
GLENN	0.67	0.68	0.67	0.72	0.76	0.99
HUMBOLDT	0.21	0.19	0.18	0.18	0.17	0.23
IMPERIAL	1.65	1.70	1.71	1.83	1.95	2.28
INYO	0.04	0.04	0.04	0.04	0.04	0.04
KERN	3.01	3.07	3.06	3.25	3.45	4.81
KINGS	1.36	1.43	1.46	1.58	1.69	2.43
LAKE	0.16	0.15	0.15	0.15	0.15	0.16
LASSEN	0.14	0.13	0.12	0.12	0.12	0.17
LOS ANGELES	0.77	0.68	0.60	0.58	0.56	0.90
MADERA	0.91	0.90	0.87	0.91	0.95	1.32
MARIN	0.10	0.09	0.09	0.09	0.09	0.12
MARIPOSA	0.05	0.04	0.04	0.04	0.04	0.04
MENDOCINO	0.23	0.22	0.20	0.20	0.20	0.27
MERCED	1.71	1.79	1.81	1.96	2.10	3.00
MODOC	0.32	0.30	0.29	0.29	0.30	0.40
MONO	0.00	0.00	0.00	0.02	0.02	0.04
MONTEREY	1.52	1.57	1.57	1.68	1.79	2.90
NAPA	0.18	0.17	0.17	0.17	0.18	0.18
NEVADA	0.00	0.00	0.00	0.00	0.00	0.03
ORANGE	0.42	0.41	0.39	0.41	0.42	0.56
PLACER	0.20	0.18	0.16	0.16	0.16	0.22
PLUMAS	0.04	0.04	0.04	0.04	0.04	0.04
RIVERSIDE	1.25	1.24	1.20	1.26	1.31	1.84
SACRAMENTO	0.71	0.73	0.72	0.76	0.81	1.09
SAN BENITO	0.33	0.31	0.29	0.30	0.30	0.41
SAN BERNARDINO	0.70	0.67	0.63	0.64	0.65	0.88
SAN DIEGO	0.91	0.90	0.87	0.91	0.96	1.55
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	2.14	2.12	2.06	2.16	2.25	3.10
SAN LUIS OBISPO	0.63	0.59	0.55	0.56	0.57	0.77
SAN MATEO	0.24	0.25	0.25	0.26	0.28	0.57
SANTA BARBARA	0.64	0.63	0.61	0.63	0.66	0.97
SANTA CLARA	0.77	0.71	0.64	0.63	0.63	0.96
SANTA CRUZ	0.27	0.27	0.26	0.27	0.28	0.52
SHASTA	0.15	0.14	0.13	0.13	0.13	0.17
SIERRA	0.00	0.00	0.00	0.00	0.00	0.02
SISKIYOU	0.35	0.34	0.32	0.32	0.33	0.46
SOLANO	0.58	0.60	0.60	0.64	0.68	0.87
SONOMA	0.67	0.63	0.59	0.59	0.60	0.85
STANISLAUS	1.74	1.67	1.59	1.63	1.67	2.28
SUTTER	0.92	0.92	0.89	0.94	0.98	1.57
TEHAMA	0.35	0.33	0.31	0.32	0.32	0.48
TRINITY	0.00	0.00	0.00	0.00	0.00	0.02
TULARE	2.89	2.84	2.75	2.86	2.98	4.06
TUOLUMNE	0.04	0.03	0.03	0.03	0.03	0.03
VENTURA	0.86	0.87	0.86	0.90	0.95	1.37
YOLO	1.15	1.21	1.22	1.33	1.42	1.81
YUBA	0.29	0.28	0.27	0.28	0.29	0.42

Table 2 - Farm Equipment, Diesel (Millions in 1977$)

	1976	1977	1978	1979	1980	1981
CALIFORNIA	72.13	81.57	89.07	79.58	76.59	69.60
ALAMEDA	0.75	0.87	0.95	0.74	0.62	0.49
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.07	0.08	0.09	0.05	0.04	0.05
BUTTE	1.43	1.62	1.74	1.57	1.42	1.39
CALAVERAS	0.06	0.06	0.06	0.05	0.04	0.05
COLUSA	1.21	1.35	1.47	1.26	1.18	0.98
CONTRA COSTA	0.56	0.64	0.69	0.57	0.52	0.44
DEL NORTE	0.10	0.10	0.11	0.08	0.06	0.05
EL DORADO	0.07	0.09	0.09	0.08	0.07	0.08
FRESNO	7.54	8.45	8.99	8.35	8.32	7.70
GLENN	1.18	1.30	1.37	1.22	1.17	1.01
HUMBOLDT	0.27	0.30	0.31	0.29	0.30	0.28
IMPERIAL	2.81	2.61	3.72	2.88	2.40	1.88
INYO	0.05	0.04	0.06	0.06	0.06	0.06
KERN	5.98	6.77	7.26	7.35	7.81	7.59
KINGS	3.06	3.50	3.77	3.30	3.13	2.77
LAKE	0.17	0.19	0.29	0.24	0.19	0.20
LASSEN	0.21	0.24	0.26	0.25	0.27	0.26
LOS ANGELES	1.20	1.42	1.56	1.32	1.20	1.03
MADERA	1.65	1.86	2.00	1.99	2.10	2.03
MARIN	0.15	0.16	0.18	0.18	0.19	0.19
MARIPOSA	0.04	0.03	0.05	0.05	0.04	0.04
MENDOCINO	0.33	0.37	0.40	0.34	0.24	0.28
MERCED	3.78	4.32	4.66	4.13	3.97	3.55
MODOC	0.49	0.55	0.59	0.51	0.48	0.43
MONO	0.04	0.05	0.06	0.06	0.07	0.07
MONTEREY	3.87	4.57	5.04	4.45	4.26	4.07
NAPA	0.22	0.38	0.47	0.39	0.35	0.30
NEVADA	0.03	0.03	0.04	0.03	0.03	0.04
ORANGE	0.67	0.74	0.78	0.67	0.63	0.61
PLACER	0.26	0.26	0.33	0.26	0.23	0.20
PLUMAS	0.04	0.05	0.06	0.06	0.05	0.04
RIVERSIDE	2.29	2.60	2.79	2.50	2.43	2.20
SACRAMENTO	1.33	1.49	1.59	1.37	1.28	1.12
SAN BENITO	0.38	0.50	0.64	0.56	0.53	0.47
SAN BERNARDINO	1.08	1.20	1.28	1.31	1.41	1.37
SAN DIEGO	2.08	2.46	2.72	2.42	2.33	2.09
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	3.83	4.31	4.61	4.04	3.84	3.41
SAN LUIS OBISPO	0.95	1.06	1.13	1.01	0.98	0.88
SAN MATEO	0.83	1.03	1.17	0.90	0.75	0.63
SANTA BARBARA	1.25	1.44	1.56	1.39	1.34	1.21
SANTA CLARA	1.25	1.45	1.59	1.34	1.22	1.05
SANTA CRUZ	0.73	0.89	0.99	0.84	0.77	0.66
SHASTA	0.20	0.22	0.23	0.23	0.24	0.23
SIERRA	0.02	0.02	0.03	0.03	0.02	0.02
SISKIYOU	0.57	0.65	0.69	0.64	0.63	0.58
SOLANO	1.03	1.13	1.18	1.02	0.95	0.84
SONOMA	1.02	1.21	1.34	1.17	1.11	0.98
STANISLAUS	2.81	3.15	3.36	2.95	2.81	2.50
SUTTER	2.09	2.46	2.71	2.17	1.90	1.55
TEHAMA	0.62	0.72	0.78	0.68	0.65	0.57
TRINITY	0.02	0.00	0.03	0.02	0.02	0.01
TULARE	4.99	5.61	5.98	5.58	5.59	5.19
TUOLUMNE	0.03	0.03	0.04	0.03	0.03	0.03
VENTURA	1.73	1.98	2.13	1.89	1.80	1.65
YOLO	2.13	2.33	2.43	2.06	1.90	1.64
YUBA	0.53	0.61	0.66	0.62	0.63	0.59

Table 2 - Farm Equipment, Diesel (Millions in 1977$)

	1982	1983	1984	1985	1986	1987
CALIFORNIA	60.37	59.61	62.00	56.19	58.77	55.30
ALAMEDA	0.37	0.37	0.39	0.36	0.38	0.37
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.04	0.04	0.05	0.06	0.07	0.08
BUTTE	1.08	1.02	1.08	0.96	0.97	0.89
CALAVERAS	0.04	0.04	0.05	0.06	0.07	0.08
COLUSA	0.84	0.85	0.96	0.95	0.99	0.98
CONTRA COSTA	0.36	0.36	0.38	0.35	0.37	0.36
DEL NORTE	0.03	0.03	0.03	0.03	0.04	0.04
EL DORADO	0.07	0.07	0.07	0.07	0.08	0.07
FRESNO	6.84	6.73	7.13	6.51	6.83	6.53
GLENN	0.91	0.90	0.92	0.83	0.85	0.80
HUMBOLDT	0.25	0.25	0.26	0.23	0.24	0.23
IMPERIAL	1.41	1.61	1.81	1.84	2.13	2.39
INYO	0.05	0.05	0.05	0.05	0.05	0.04
KERN	7.02	6.63	6.48	5.45	5.43	4.32
KINGS	2.37	2.27	2.39	2.14	2.20	2.05
LAKE	0.16	0.15	0.17	0.16	0.17	0.16
LASSEN	0.23	0.23	0.23	0.20	0.21	0.19
LOS ANGELES	0.86	0.83	0.83	0.72	0.71	0.63
MADERA	1.86	1.67	1.72	1.42	1.38	1.16
MARIN	0.17	0.17	0.18	0.16	0.17	0.16
MARIPOSA	0.03	0.04	0.04	0.05	0.06	0.06
MENDOCINO	0.24	0.22	0.26	0.24	0.26	0.25
MERCED	3.07	2.93	3.06	2.72	2.77	2.54
MODOC	0.36	0.35	0.36	0.31	0.31	0.28
MONO	0.06	0.06	0.06	0.06	0.06	0.06
MONTEREY	3.49	3.66	3.54	3.18	3.28	3.07
NAPA	0.24	0.25	0.28	0.27	0.30	0.30
NEVADA	0.03	0.03	0.04	0.04	0.04	0.04
ORANGE	0.51	0.55	0.62	0.61	0.69	0.72
PLACER	0.16	0.17	0.19	0.19	0.21	0.22
PLUMAS	0.04	0.04	0.05	0.05	0.07	0.07
RIVERSIDE	1.91	1.91	2.01	1.84	1.94	1.86
SACRAMENTO	0.94	0.94	0.98	0.89	0.93	0.88
SAN BENITO	0.40	0.41	0.44	0.41	0.44	0.43
SAN BERNARDINO	1.28	1.22	1.21	1.04	1.02	0.89
SAN DIEGO	1.81	1.85	1.99	1.87	2.03	2.01
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	2.93	2.86	3.05	2.78	2.92	2.78
SAN LUIS OBISPO	0.77	0.86	0.83	0.77	0.82	0.81
SAN MATEO	0.48	0.51	0.55	0.53	0.59	0.60
SANTA BARBARA	1.05	1.06	1.12	1.03	1.10	1.07
SANTA CLARA	0.87	0.85	0.86	0.75	0.75	0.68
SANTA CRUZ	0.55	0.61	0.72	0.73	0.87	0.93
SHASTA	0.21	0.21	0.21	0.19	0.19	0.18
SIERRA	0.02	0.02	0.02	0.02	0.02	0.01
SISKIYOU	0.51	0.49	0.49	0.43	0.42	0.37
SOLANO	0.71	0.70	0.72	0.64	0.66	0.61
SONOMA	0.84	0.84	0.88	0.81	0.86	0.83
STANISLAUS	2.15	2.12	2.34	2.26	2.38	2.35
SUTTER	1.23	1.24	1.32	1.22	1.31	1.28
TEHAMA	0.49	0.48	0.49	0.44	0.45	0.42
TRINITY	0.01	0.01	0.01	0.01	0.02	0.02
TULARE	4.63	4.54	4.58	4.09	4.24	3.96
TUOLUMNE	0.02	0.03	0.03	0.04	0.04	0.05
VENTURA	1.42	1.45	1.56	1.47	1.73	1.59
YOLO	1.37	1.35	1.39	1.24	1.28	1.19
YUBA	0.53	0.48	0.49	0.41	0.39	0.33

Table 2 - Farm Equipment, Diesel (Millions in 1977$)

	1988	1989	1990	1991	1992	1993
CALIFORNIA	56.04	54.64	61.70	62.64	65.41	65.72
ALAMEDA	0.37	0.36	0.41	0.42	0.44	0.44
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.08	0.08	0.09	0.09	0.10	0.10
BUTTE	0.90	0.88	1.00	1.02	1.06	1.06
CALAVERAS	0.08	0.08	0.09	0.09	0.09	0.09
COLUSA	1.10	1.28	1.26	1.22	1.32	1.36
CONTRA COSTA	0.36	0.35	0.40	0.41	0.42	0.43
DEL NORTE	0.04	0.04	0.04	0.04	0.05	0.05
EL DORADO	0.08	0.07	0.08	0.09	0.09	0.09
FRESNO	6.61	6.43	7.31	7.42	7.74	7.77
GLENN	0.81	0.79	0.89	0.91	0.95	0.95
HUMBOLDT	0.24	0.23	0.26	0.26	0.28	0.28
IMPERIAL	2.42	2.36	2.63	2.64	2.81	2.81
INYO	0.04	0.04	0.05	0.05	0.05	0.05
KERN	4.38	4.25	4.84	4.56	5.05	5.06
KINGS	1.99	2.01	2.29	2.33	2.40	2.41
LAKE	0.17	0.16	0.18	0.19	0.19	0.20
LASSEN	0.19	0.18	0.21	0.21	0.22	0.22
LOS ANGELES	0.64	0.62	0.54	0.53	0.60	0.58
MADERA	1.18	1.14	1.30	1.32	1.38	1.38
MARIN	0.16	0.16	0.18	0.18	0.19	0.19
MARIPOSA	0.06	0.06	0.07	0.07	0.07	0.07
MENDOCINO	0.25	0.24	0.28	0.28	0.29	0.30
MERCED	2.53	2.48	2.81	2.85	2.98	2.99
MODOC	0.29	0.28	0.32	0.32	0.34	0.34
MONO	0.06	0.05	0.06	0.06	0.07	0.07
MONTEREY	3.10	3.02	3.47	3.48	3.64	3.66
NAPA	0.31	0.34	0.34	0.44	0.39	0.40
NEVADA	0.04	0.04	0.03	0.03	0.04	0.04
ORANGE	0.73	0.71	0.81	0.82	0.85	0.86
PLACER	0.22	0.22	0.25	0.25	0.26	0.26
PLUMAS	0.07	0.07	0.08	0.08	0.09	0.09
RIVERSIDE	1.93	1.83	2.08	2.06	2.20	2.21
SACRAMENTO	0.89	0.87	0.98	1.00	1.04	1.05
SAN BENITO	0.44	0.43	0.48	0.49	0.51	0.52
SAN BERNARDINO	0.90	0.87	0.99	1.01	1.05	1.05
SAN DIEGO	2.04	1.98	2.36	2.48	2.45	2.47
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	2.82	2.74	3.11	3.16	3.30	3.31
SAN LUIS OBISPO	0.82	0.79	0.90	0.91	0.95	0.96
SAN MATEO	0.61	0.59	0.67	0.68	0.71	0.72
SANTA BARBARA	1.08	1.05	1.19	1.21	1.26	1.27
SANTA CLARA	0.66	0.63	0.62	0.63	0.73	0.72
SANTA CRUZ	0.94	0.92	1.04	1.06	1.10	1.11
SHASTA	0.18	0.18	0.20	0.21	0.21	0.22
SIERRA	0.02	0.01	0.02	0.02	0.02	0.02
SISKIYOU	0.38	0.37	0.42	0.42	0.44	0.44
SOLANO	0.62	0.60	0.68	0.69	0.72	0.72
SONOMA	0.84	0.82	0.93	1.04	1.01	1.01
STANISLAUS	2.38	2.26	2.64	2.71	2.78	2.79
SUTTER	1.29	1.30	1.29	1.52	1.51	1.51
TEHAMA	0.42	0.41	0.47	0.47	0.49	0.49
TRINITY	0.02	0.02	0.02	0.02	0.02	0.02
TULARE	4.01	3.76	4.51	4.50	4.68	4.70
TUOLUMNE	0.05	0.05	0.05	0.05	0.06	0.06
VENTURA	1.69	1.64	1.81	1.88	1.94	1.96
YOLO	1.21	1.17	1.33	1.35	1.41	1.42
YUBA	0.33	0.32	0.32	0.39	0.38	0.38

Table 2 - Farm Equipment, Diesel (Millions in 1977$)

	1994	1995	1996	1997	1998	1999
CALIFORNIA	66.86	68.16	70.18	72.37	74.51	76.44
ALAMEDA	0.45	0.46	0.47	0.48	0.50	0.51
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.10	0.10	0.10	0.11	0.11	0.11
BUTTE	1.08	1.10	1.14	1.17	1.21	1.24
CALAVERAS	0.09	0.10	0.10	0.10	0.11	0.11
COLUSA	1.40	1.39	1.43	1.48	1.53	1.57
CONTRA COSTA	0.43	0.44	0.45	0.47	0.48	0.49
DEL NORTE	0.05	0.05	0.05	0.05	0.05	0.05
EL DORADO	0.09	0.09	0.10	0.10	0.10	0.10
FRESNO	7.91	8.07	8.30	8.56	8.81	9.04
GLENN	0.97	0.99	1.02	1.05	1.08	1.11
HUMBOLDT	0.28	0.29	0.30	0.31	0.31	0.32
IMPERIAL	2.86	2.91	2.99	3.09	3.18	3.26
INYO	0.05	0.05	0.05	0.05	0.06	0.06
KERN	5.13	5.21	5.33	5.55	5.70	5.84
KINGS	2.47	2.52	2.59	2.67	2.75	2.82
LAKE	0.20	0.20	0.21	0.21	0.22	0.23
LASSEN	0.23	0.23	0.24	0.25	0.25	0.26
LOS ANGELES	0.59	0.61	0.62	0.64	0.66	0.68
MADERA	1.41	1.43	1.48	1.52	1.57	1.61
MARIN	0.20	0.20	0.21	0.21	0.22	0.22
MARIPOSA	0.07	0.08	0.08	0.08	0.08	0.08
MENDOCINO	0.30	0.31	0.32	0.33	0.34	0.34
MERCED	3.04	3.10	3.19	3.29	3.39	3.48
MODOC	0.34	0.35	0.36	0.37	0.38	0.39
MONO	0.07	0.07	0.07	0.07	0.07	0.08
MONTEREY	3.72	3.80	3.91	4.03	4.15	4.26
NAPA	0.41	0.42	0.44	0.44	0.46	0.47
NEVADA	0.04	0.04	0.04	0.04	0.04	0.05
ORANGE	0.87	0.89	0.92	0.95	0.97	1.00
PLACER	0.27	0.27	0.28	0.29	0.30	0.31
PLUMAS	0.09	0.09	0.09	0.09	0.10	0.10
RIVERSIDE	2.24	2.28	2.35	2.43	2.50	2.56
SACRAMENTO	1.07	1.09	1.12	1.15	1.19	1.22
SAN BENITO	0.52	0.53	0.55	0.57	0.58	0.60
SAN BERNARDINO	1.07	1.09	1.13	1.16	1.20	1.23
SAN DIEGO	2.53	2.60	2.67	2.74	2.82	2.90
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	3.37	3.44	3.54	3.65	3.76	3.85
SAN LUIS OBISPO	0.97	0.99	1.02	1.06	1.09	1.11
SAN MATEO	0.73	0.74	0.77	0.79	0.81	0.83
SANTA BARBARA	1.29	1.32	1.35	1.40	1.44	1.48
SANTA CLARA	0.72	0.72	0.75	0.78	0.80	0.82
SANTA CRUZ	1.13	1.15	1.18	1.22	1.26	1.29
SHASTA	0.22	0.22	0.23	0.24	0.24	0.25
SIERRA	0.02	0.02	0.02	0.02	0.02	0.02
SISKIYOU	0.45	0.46	0.47	0.49	0.50	0.51
SOLANO	0.74	0.75	0.77	0.80	0.82	0.84
SONOMA	1.04	1.06	1.10	1.12	1.16	1.19
STANISLAUS	2.84	2.91	3.00	3.08	3.18	3.26
SUTTER	1.54	1.56	1.63	1.67	1.72	1.76
TEHAMA	0.50	0.51	0.53	0.54	0.56	0.58
TRINITY	0.02	0.02	0.02	0.02	0.02	0.02
TULARE	4.77	4.90	5.03	5.18	5.33	5.47
TUOLUMNE	0.06	0.06	0.06	0.06	0.06	0.07
VENTURA	1.99	2.03	2.09	2.16	2.22	2.28
YOLO	1.44	1.47	1.51	1.56	1.61	1.65
YUBA	0.39	0.39	0.42	0.42	0.44	0.45

Table 2 - Farm Equipment, Diesel (Millions in 1977$)

	2000	2001	2002	2003	2004	2005
CALIFORNIA	78.28	80.10	82.01	84.00	86.07	88.19
ALAMEDA	0.52	0.53	0.55	0.56	0.57	0.59
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.12	0.12	0.12	0.12	0.13	0.13
BUTTE	1.27	1.30	1.33	1.36	1.39	1.43
CALAVERAS	0.11	0.11	0.12	0.12	0.12	0.12
COLUSA	1.60	1.64	1.68	1.72	1.76	1.80
CONTRA COSTA	0.51	0.52	0.53	0.54	0.56	0.57
DEL NORTE	0.05	0.06	0.06	0.06	0.06	0.06
EL DORADO	0.11	0.11	0.11	0.11	0.12	0.12
FRESNO	9.26	9.48	9.70	9.94	10.18	10.43
GLENN	1.13	1.16	1.19	1.21	1.24	1.28
HUMBOLDT	0.33	0.34	0.35	0.35	0.36	0.37
IMPERIAL	3.34	3.42	3.50	3.59	3.67	3.77
INYO	0.06	0.06	0.06	0.06	0.06	0.07
KERN	5.98	6.12	6.27	6.42	6.58	6.74
KINGS	2.89	2.95	3.02	3.10	3.17	3.25
LAKE	0.23	0.24	0.24	0.25	0.26	0.26
LASSEN	0.27	0.27	0.28	0.29	0.29	0.30
LOS ANGELES	0.70	0.71	0.73	0.75	0.77	0.79
MADERA	1.65	1.69	1.73	1.77	1.81	1.86
MARIN	0.23	0.23	0.24	0.25	0.25	0.26
MARIPOSA	0.09	0.09	0.09	0.09	0.10	0.10
MENDOCINO	0.35	0.36	0.37	0.38	0.39	0.40
MERCED	3.56	3.65	3.73	3.82	3.92	4.01
MODOC	0.40	0.41	0.42	0.43	0.44	0.45
MONO	0.08	0.08	0.08	0.08	0.09	0.09
MONTEREY	4.36	4.46	4.57	4.68	4.79	4.91
NAPA	0.48	0.49	0.50	0.52	0.53	0.54
NEVADA	0.05	0.05	0.05	0.05	0.05	0.05
ORANGE	1.02	1.05	1.07	1.10	1.13	1.15
PLACER	0.31	0.32	0.33	0.34	0.34	0.35
PLUMAS	0.10	0.10	0.11	0.11	0.11	0.11
RIVERSIDE	2.62	2.69	2.75	2.82	2.89	2.96
SACRAMENTO	1.25	1.28	1.31	1.34	1.37	1.41
SAN BENITO	0.61	0.63	0.64	0.66	0.68	0.69
SAN BERNARDINO	1.26	1.28	1.32	1.35	1.38	1.41
SAN DIEGO	2.97	3.04	3.11	3.19	3.27	3.35
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	3.95	4.04	4.13	4.23	4.34	4.45
SAN LUIS OBISPO	1.14	1.17	1.20	1.23	1.26	1.29
SAN MATEO	0.85	0.87	0.89	0.92	0.94	0.96
SANTA BARBARA	1.51	1.55	1.58	1.62	1.66	1.70
SANTA CLARA	0.84	0.86	0.88	0.90	0.92	0.94
SANTA CRUZ	1.32	1.35	1.38	1.42	1.45	1.49
SHASTA	0.26	0.26	0.27	0.28	0.28	0.29
SIERRA	0.02	0.02	0.02	0.02	0.02	0.02
SISKIYOU	0.53	0.54	0.55	0.57	0.58	0.59
SOLANO	0.86	0.88	0.90	0.93	0.95	0.97
SONOMA	1.22	1.25	1.28	1.31	1.34	1.37
STANISLAUS	3.34	3.42	3.50	3.58	3.67	3.76
SUTTER	1.80	1.85	1.89	1.94	1.98	2.03
TEHAMA	0.59	0.60	0.62	0.63	0.65	0.66
TRINITY	0.02	0.02	0.02	0.03	0.03	0.03
TULARE	5.61	5.73	5.87	6.01	6.16	6.31
TUOLUMNE	0.07	0.07	0.07	0.07	0.07	0.08
VENTURA	2.33	2.39	2.44	2.50	2.57	2.63
YOLO	1.69	1.73	1.77	1.81	1.86	1.90
YUBA	0.46	0.47	0.48	0.49	0.50	0.52

Table 2 - Farm Equipment, Diesel (Millions in 1977$)

	2006	2007	2008	2009	2010	2011
CALIFORNIA	90.37	92.58	94.84	97.15	99.49	101.87
ALAMEDA	0.60	0.62	0.63	0.65	0.66	0.68
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.13	0.14	0.14	0.14	0.15	0.15
BUTTE	1.46	1.50	1.54	1.57	1.61	1.65
CALAVERAS	0.13	0.13	0.13	0.14	0.14	0.14
COLUSA	1.85	1.90	1.94	1.99	2.04	2.09
CONTRA COSTA	0.58	0.60	0.61	0.63	0.64	0.66
DEL NORTE	0.06	0.06	0.07	0.07	0.07	0.07
EL DORADO	0.12	0.13	0.13	0.13	0.14	0.14
FRESNO	10.69	10.95	11.22	11.49	11.77	12.05
GLENN	1.31	1.34	1.37	1.40	1.44	1.47
HUMBOLDT	0.38	0.39	0.40	0.41	0.42	0.43
IMPERIAL	3.86	3.95	4.05	4.15	4.25	4.35
INYO	0.07	0.07	0.07	0.07	0.07	0.08
KERN	6.91	7.08	7.25	7.42	7.60	7.79
KINGS	3.33	3.41	3.50	3.58	3.67	3.76
LAKE	0.27	0.28	0.28	0.29	0.30	0.30
LASSEN	0.31	0.31	0.32	0.33	0.34	0.35
LOS ANGELES	0.80	0.82	0.84	0.86	0.89	0.91
MADERA	1.90	1.95	2.00	2.04	2.09	2.14
MARIN	0.26	0.27	0.28	0.28	0.29	0.30
MARIPOSA	0.10	0.10	0.11	0.11	0.11	0.11
MENDOCINO	0.41	0.42	0.43	0.44	0.45	0.46
MERCED	4.11	4.21	4.32	4.42	4.53	4.64
MODOC	0.46	0.48	0.49	0.50	0.51	0.52
MONO	0.09	0.09	0.10	0.10	0.10	0.10
MONTEREY	5.03	5.16	5.28	5.41	5.54	5.67
NAPA	0.56	0.57	0.58	0.60	0.61	0.63
NEVADA	0.05	0.06	0.06	0.06	0.06	0.06
ORANGE	1.18	1.21	1.24	1.27	1.30	1.33
PLACER	0.36	0.37	0.38	0.39	0.40	0.41
PLUMAS	0.12	0.12	0.12	0.13	0.13	0.13
RIVERSIDE	3.03	3.10	3.18	3.26	3.34	3.42
SACRAMENTO	1.44	1.48	1.51	1.55	1.59	1.62
SAN BENITO	0.71	0.73	0.74	0.76	0.78	0.80
SAN BERNARDINO	1.45	1.49	1.52	1.56	1.60	1.63
SAN DIEGO	3.43	3.51	3.60	3.69	3.77	3.86
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	4.56	4.67	4.78	4.90	5.02	5.14
SAN LUIS OBISPO	1.32	1.35	1.38	1.42	1.45	1.49
SAN MATEO	0.99	1.01	1.04	1.06	1.09	1.11
SANTA BARBARA	1.74	1.79	1.83	1.88	1.92	1.97
SANTA CLARA	0.97	0.99	1.02	1.04	1.07	1.09
SANTA CRUZ	1.52	1.56	1.60	1.64	1.68	1.72
SHASTA	0.30	0.30	0.31	0.32	0.33	0.33
SIERRA	0.02	0.03	0.03	0.03	0.03	0.03
SISKIYOU	0.61	0.62	0.64	0.65	0.67	0.69
SOLANO	1.00	1.02	1.05	1.07	1.10	1.12
SONOMA	1.41	1.44	1.48	1.51	1.55	1.59
STANISLAUS	3.85	3.95	4.04	4.14	4.24	4.34
SUTTER	2.08	2.13	2.19	2.24	2.29	2.35
TEHAMA	0.68	0.70	0.71	0.73	0.75	0.77
TRINITY	0.03	0.03	0.03	0.03	0.03	0.03
TULARE	6.47	6.63	6.79	6.96	7.12	7.29
TUOLUMNE	0.08	0.08	0.08	0.08	0.09	0.09
VENTURA	2.69	2.76	2.83	2.90	2.97	3.04
YOLO	1.95	2.00	2.05	2.10	2.15	2.20
YUBA	0.53	0.54	0.55	0.57	0.58	0.60

Table 2 - Farm Equipment, Diesel (Millions in 1977$)

	2012	2013	2014	2015	2016	2017
CALIFORNIA	104.30	106.76	109.26	111.77	114.29	116.81
ALAMEDA	0.70	0.71	0.73	0.75	0.76	0.78
ALPINE	0.00	0.00	0.00	0.00	0.00	0.00
AMADOR	0.15	0.16	0.16	0.16	0.17	0.17
BUTTE	1.69	1.73	1.77	1.81	1.85	1.89
CALAVERAS	0.15	0.15	0.15	0.16	0.16	0.17
COLUSA	2.14	2.19	2.24	2.29	2.34	2.39
CONTRA COSTA	0.67	0.69	0.71	0.72	0.74	0.76
DEL NORTE	0.07	0.07	0.08	0.08	0.08	0.08
EL DORADO	0.14	0.15	0.15	0.15	0.16	0.16
FRESNO	12.34	12.63	12.93	13.22	13.52	13.82
GLENN	1.51	1.54	1.58	1.62	1.65	1.69
HUMBOLDT	0.44	0.45	0.46	0.47	0.48	0.49
IMPERIAL	4.45	4.56	4.66	4.77	4.88	4.99
INYO	0.08	0.08	0.08	0.08	0.08	0.09
KERN	7.97	8.16	8.35	8.54	8.74	8.93
KINGS	3.85	3.94	4.03	4.12	4.21	4.31
LAKE	0.31	0.32	0.32	0.33	0.34	0.35
LASSEN	0.35	0.36	0.37	0.38	0.39	0.40
LOS ANGELES	0.93	0.95	0.97	1.00	1.02	1.04
MADERA	2.19	2.25	2.30	2.35	2.41	2.46
MARIN	0.31	0.31	0.32	0.33	0.33	0.34
MARIPOSA	0.12	0.12	0.12	0.12	0.13	0.13
MENDOCINO	0.47	0.48	0.49	0.50	0.52	0.53
MERCED	4.75	4.86	4.97	5.09	5.20	5.32
MODOC	0.54	0.55	0.56	0.57	0.59	0.60
MONO	0.10	0.11	0.11	0.11	0.11	0.12
MONTEREY	5.81	5.95	6.09	6.23	6.37	6.51
NAPA	0.64	0.66	0.67	0.69	0.70	0.72
NEVADA	0.06	0.06	0.06	0.07	0.07	0.07
ORANGE	1.36	1.40	1.43	1.46	1.49	1.53
PLACER	0.42	0.43	0.44	0.45	0.46	0.47
PLUMAS	0.14	0.14	0.14	0.15	0.15	0.15
RIVERSIDE	3.50	3.58	3.66	3.75	3.83	3.92
SACRAMENTO	1.66	1.70	1.74	1.78	1.82	1.86
SAN BENITO	0.82	0.84	0.86	0.88	0.90	0.92
SAN BERNARDINO	1.67	1.71	1.75	1.79	1.83	1.87
SAN DIEGO	3.96	4.05	4.14	4.24	4.34	4.43
SAN FRANCISCO	0.00	0.00	0.00	0.00	0.00	0.00
SAN JOAQUIN	5.26	5.38	5.51	5.63	5.76	5.89
SAN LUIS OBISPO	1.52	1.56	1.59	1.63	1.67	1.70
SAN MATEO	1.14	1.17	1.19	1.22	1.25	1.27
SANTA BARBARA	2.01	2.06	2.11	2.16	2.21	2.25
SANTA CLARA	1.12	1.14	1.17	1.20	1.22	1.25
SANTA CRUZ	1.76	1.80	1.84	1.89	1.93	1.97
SHASTA	0.34	0.35	0.36	0.37	0.38	0.38
SIERRA	0.03	0.03	0.03	0.03	0.03	0.03
SISKIYOU	0.70	0.72	0.74	0.75	0.77	0.79
SOLANO	1.15	1.18	1.21	1.23	1.26	1.29
SONOMA	1.62	1.66	1.70	1.74	1.78	1.82
STANISLAUS	4.45	4.55	4.66	4.77	4.87	4.98
SUTTER	2.40	2.46	2.52	2.58	2.63	2.69
TEHAMA	0.79	0.80	0.82	0.84	0.86	0.88
TRINITY	0.03	0.03	0.03	0.03	0.03	0.03
TULARE	7.47	7.64	7.82	8.00	8.18	8.36
TUOLUMNE	0.09	0.09	0.09	0.10	0.10	0.10
VENTURA	3.11	3.18	3.26	3.33	3.41	3.48
YOLO	2.25	2.30	2.36	2.41	2.47	2.52
YUBA	0.61	0.62	0.64	0.65	0.67	0.68

Table 2 - Farm Equipment, Diesel (Millions in 1977$)

	2018	2019	2020
CALIFORNIA	119.33	121.82	124.28
ALAMEDA	0.80	0.81	0.83
ALPINE	0.00	0.00	0.00
AMADOR	0.18	0.18	0.18
BUTTE	1.93	1.97	2.01
CALAVERAS	0.17	0.17	0.18
COLUSA	2.44	2.49	2.54
CONTRA COSTA	0.77	0.79	0.80
DEL NORTE	0.08	0.08	0.09
EL DORADO	0.16	0.17	0.17
FRESNO	14.12	14.41	14.70
GLENN	1.73	1.76	1.80
HUMBOLDT	0.50	0.51	0.52
IMPERIAL	5.09	5.20	5.31
INYO	0.09	0.09	0.09
KERN	9.12	9.31	9.50
KINGS	4.40	4.49	4.58
LAKE	0.35	0.36	0.37
LASSEN	0.41	0.41	0.42
LOS ANGELES	1.06	1.08	1.11
MADERA	2.51	2.56	2.62
MARIN	0.35	0.36	0.36
MARIPOSA	0.13	0.14	0.14
MENDOCINO	0.54	0.55	0.56
MERCED	5.43	5.54	5.66
MODOC	0.61	0.63	0.64
MONO	0.12	0.12	0.12
MONTEREY	6.65	6.79	6.92
NAPA	0.73	0.75	0.76
NEVADA	0.07	0.07	0.07
ORANGE	1.56	1.59	1.63
PLACER	0.48	0.49	0.50
PLUMAS	0.16	0.16	0.16
RIVERSIDE	4.00	4.08	4.17
SACRAMENTO	1.90	1.94	1.98
SAN BENITO	0.94	0.96	0.97
SAN BERNARDINO	1.91	1.95	1.99
SAN DIEGO	4.53	4.62	4.71
SAN FRANCISCO	0.00	0.00	0.00
SAN JOAQUIN	6.02	6.14	6.26
SAN LUIS OBISPO	1.74	1.78	1.81
SAN MATEO	1.30	1.33	1.36
SANTA BARBARA	2.30	2.35	2.40
SANTA CLARA	1.28	1.30	1.33
SANTA CRUZ	2.01	2.06	2.10
SHASTA	0.39	0.40	0.41
SIERRA	0.03	0.03	0.03
SISKIYOU	0.80	0.82	0.84
SOLANO	1.32	1.34	1.37
SONOMA	1.86	1.90	1.94
STANISLAUS	5.09	5.19	5.30
SUTTER	2.75	2.81	2.86
TEHAMA	0.90	0.92	0.94
TRINITY	0.04	0.04	0.04
TULARE	8.54	8.72	8.90
TUOLUMNE	0.10	0.11	0.11
VENTURA	3.56	3.63	3.70
YOLO	2.58	2.63	2.68
YUBA	0.70	0.71	0.73

Table 3 - Civil Aircraft, Jet
(Flight Operations)

	1970	1971	1972	1973	1974	1975
CALIFORNIA	1117154	1204846	1297805	1396288	1363121	1500060
ALAMEDA	67846	70540	77032	84105	85261	94503
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	2644	2699	3239	3862	4473	5220
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	12879	13107	13327	13548	14481	14449
DEL NORTE	0	0	0	0	0	0
EL DORADO	1740	1769	1797	1824	1946	1938
FRESNO	21583	22674	24003	25393	25098	26932
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	1571	4098	3671	3142	2473	1801
INYO	0	0	0	0	0	0
KERN	8864	8808	9625	10522	10861	11994
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	440615	477428	513638	551652	530551	585077
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	3189	3300	3416	3534	3620	3735
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	7717	7852	7982	8113	8669	8647
NAPA	8216	8361	8502	8644	9240	9220
NEVADA	0	0	0	0	0	0
ORANGE	51825	56043	58881	61838	62019	65650
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	19065	19766	21098	22557	23669	25327
SACRAMENTO	31846	37104	40002	43070	41912	46209
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	94892	103259	109475	115921	113019	121856
SAN FRANCISCO	200496	221190	245381	271201	255566	294059
SAN JOAQUIN	9940	10372	11001	11656	11406	12295
SAN LUIS OBISPO	3898	3987	4079	4176	4497	4528
SAN MATEO	8737	8882	9021	9157	9773	9733
SANTA BARBARA	15744	16025	17914	20020	21003	23677
SANTA CLARA	78922	81993	87726	93806	92958	101055
SANTA CRUZ	0	0	0	0	0	0
SHASTA	2127	2170	2938	3829	4596	5702
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	5545	5664	5784	5911	6351	6380
STANISLAUS	7843	8155	8482	8820	8968	9334
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	7599	7754	7910	8072	8661	8685
YOLO	0	0	0	0	0	0
YUBA	1813	1847	1881	1916	2052	2053

Table 3 - Civil Aircraft, Jet
(Flight Operations)

	1976	1977	1978	1979	1980	1981
CALIFORNIA	1424425	1409489	1436720	1395145	1312601	1206021
ALAMEDA	93159	86302	91512	90052	78527	74795
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	4997	5331	4885	3908	3481	3325
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	16111	14597	21161	15253	15401	14700
DEL NORTE	0	0	0	0	0	0
EL DORADO	2157	2295	2157	2608	2263	3216
FRESNO	26099	27506	27577	30297	26557	20626
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	2820	3620	4741	7060	10946	1864
INYO	0	0	0	0	0	0
KERN	10890	11264	9516	8587	7366	6591
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	545809	542070	542859	529136	527143	503246
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	3738	4226	3980	3721	3436	3025
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	10533	12820	15327	15994	19643	13436
NAPA	10282	8400	9089	10720	9987	7660
NEVADA	0	0	0	0	0	0
ORANGE	64742	63752	60318	59001	50521	49304
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	24753	24785	24219	23650	20748	18263
SACRAMENTO	43570	48472	52303	50319	44244	39049
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	117375	124617	127991	124595	102854	90399
SAN FRANCISCO	265832	249870	257197	252477	240301	226403
SAN JOAQUIN	11656	11958	11606	9161	8886	8722
SAN LUIS OBISPO	5095	3489	6656	0	0	0
SAN MATEO	10833	11889	12118	12270	11241	9057
SANTA BARBARA	21582	18307	16014	15022	14317	12638
SANTA CLARA	98305	99550	98313	94364	80256	70249
SANTA CRUZ	0	0	0	0	0	0
SHASTA	5706	5258	5075	7412	7624	8642
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	7161	7849	8721	9295	8294	7199
STANISLAUS	9194	9054	7365	7396	7030	5750
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	9731	9456	13541	10171	9009	5653
YOLO	0	0	0	0	0	0
YUBA	2295	2754	2479	2678	2526	2209

Table 3 - Civil Aircraft, Jet
(Flight Operations)

	1982	1983	1984	1985	1986	1987
CALIFORNIA	1080911	1152882	1358799	1462941	1572750	1663854
ALAMEDA	73069	80440	93142	101733	105062	113400
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	0	0	1964	3026	2807	2788
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	10568	9540	10991	11026	10689	10605
DEL NORTE	0	0	0	0	0	0
EL DORADO	2061	2577	3475	3629	3441	3836
FRESNO	16703	17918	23681	23527	20233	20308
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	6512	5798	5878	8795	9525	9269
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	447211	454359	534995	575857	603828	648014
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	0	0	0	0	2723	230
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	11563	10401	13947	13679	14583	16408
NAPA	5783	5796	5671	5838	5744	6206
NEVADA	0	0	0	0	0	0
ORANGE	47809	51949	56579	64228	80643	86418
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	15150	20507	26422	28456	28907	29057
SACRAMENTO	38113	42391	48060	52660	57935	60464
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	87270	101320	120375	135138	146716	159124
SAN FRANCISCO	213462	229352	271678	271670	302570	314221
SAN JOAQUIN	5616	5888	6250	8829	8353	6996
SAN LUIS OBISPO	0	0	0	0	0	1250
SAN MATEO	5945	6957	8021	7530	7505	8685
SANTA BARBARA	9854	13017	14341	13400	12516	13378
SANTA CLARA	62853	73021	90338	110584	125957	128384
SANTA CRUZ	0	0	0	0	0	0
SHASTA	7453	7153	7185	6548	5766	6848
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	5426	4849	5191	5538	5735	6511
STANISLAUS	4365	4092	4564	5301	5421	5351
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	4126	5558	6052	5951	6093	6103
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 3 - Civil Aircraft, Jet
(Flight Operations)

	1988	1989	1990	1991	1992	1993
CALIFORNIA	1676670	1612277	1618362	1608294	1540647	1601172
ALAMEDA	113324	105825	110652	128805	126163	129722
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	2620	2822	3153	3188	3087	3152
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	11742	12352	13123	12241	11825	11798
DEL NORTE	0	0	0	0	0	0
EL DORADO	3643	3467	3535	2324	1318	1374
FRESNO	18011	14599	12732	11919	9799	10115
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	7637	6024	5101	5058	4214	4376
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	667380	657984	679289	656575	624420	654636
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	244	238	177	216	203	202
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	14523	15156	14627	11988	10559	11072
NAPA	7878	8030	8060	7877	8243	8206
NEVADA	0	0	0	0	0	0
ORANGE	85453	82736	75990	80846	77932	79505
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	29554	28077	27026	28553	24850	25356
SACRAMENTO	62004	53605	47535	46627	52544	53770
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	164675	163028	159292	156011	154435	159509
SAN FRANCISCO	298984	280030	272350	269511	258135	268510
SAN JOAQUIN	6482	5542	5371	5241	4744	4768
SAN LUIS OBISPO	4820	5460	5500	5052	4462	6101
SAN MATEO	8738	8109	8408	7679	7132	7202
SANTA BARBARA	14126	13265	13890	13115	11275	11902
SANTA CLARA	130151	122314	120663	124504	118054	122264
SANTA CRUZ	0	0	0	0	0	0
SHASTA	5431	4602	5137	4598	4058	4121
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	6546	7060	7283	6687	6592	6586
STANISLAUS	6008	5570	4626	4158	3756	3838
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	6694	6382	14842	15524	12846	13091
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 3 - Civil Aircraft, Jet
(Flight Operations)

	1994	1995	1996	1997	1998	1999
CALIFORNIA	1694059	1759743	1817685	1900672	1956064	2014050
ALAMEDA	135020	136755	139642	144476	146979	149697
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	3432	3408	3447	3697	3705	3735
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	12571	12369	12294	12983	12815	12730
DEL NORTE	0	0	0	0	0	0
EL DORADO	1545	1599	1620	1772	1809	1857
FRESNO	10721	11050	11118	11849	12037	12275
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	4845	4882	4989	5450	5574	5728
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	692828	724791	746129	775611	797119	819388
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	215	210	208	230	237	245
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	12046	12150	12356	13223	13377	13596
NAPA	8799	8628	8602	9105	9008	8968
NEVADA	0	0	0	0	0	0
ORANGE	84972	88893	90689	94588	96421	98449
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	26902	26776	26711	28254	28294	28476
SACRAMENTO	56121	58276	61113	64287	66608	69005
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	169288	176212	183400	193237	200305	207631
SAN FRANCISCO	283404	297783	313136	328174	342828	357519
SAN JOAQUIN	5191	5175	5192	5567	5578	5623
SAN LUIS OBISPO	6607	6605	6645	7120	7129	7181
SAN MATEO	7648	7457	7365	7746	7616	7535
SANTA BARBARA	12913	13207	13397	14372	14550	14800
SANTA CLARA	129173	133730	139471	146824	152129	157628
SANTA CRUZ	0	0	0	0	0	0
SHASTA	4419	4460	4486	4692	4588	4514
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	7079	6984	6936	7394	7366	7384
STANISLAUS	4162	4207	4236	4594	4652	4738
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	14158	14136	14504	15428	15340	15347
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 3 - Civil Aircraft, Jet
(Flight Operations)

	2000	2001	2002	2003	2004	2005
CALIFORNIA	2096683	2162558	2254391	2316246	2409586	2477331
ALAMEDA	154533	163037	173803	181966	192904	201595
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	3985	4054	4358	4391	4713	4801
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	13388	13384	14146	14019	14805	14844
DEL NORTE	0	0	0	0	0	0
EL DORADO	2015	2054	2212	2233	2401	2450
FRESNO	13010	13276	14073	14259	15095	15405
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	6210	6361	6871	6971	7515	7701
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	848629	869555	897734	917513	946012	967399
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	269	268	282	279	294	294
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	14488	14843	15921	16168	17300	17716
NAPA	9452	9442	9972	9875	10421	10441
NEVADA	0	0	0	0	0	0
ORANGE	102308	105534	110701	113631	118932	122309
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	29997	30301	32009	32094	33877	34278
SACRAMENTO	72211	77056	82770	87484	93269	98187
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	217455	224482	234145	240765	250583	257803
SAN FRANCISCO	372547	386083	399976	413458	427373	440936
SAN JOAQUIN	6000	6071	6494	6512	6957	7055
SAN LUIS OBISPO	7657	7777	8348	8400	9005	9161
SAN MATEO	7893	7808	8165	8005	8363	8295
SANTA BARBARA	15793	16126	17261	17474	18679	19083
SANTA CLARA	164948	170726	178417	183896	191691	197602
SANTA CRUZ	0	0	0	0	0	0
SHASTA	4701	4777	5129	5163	5536	5634
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	7836	7893	8405	8391	8926	9014
STANISLAUS	5104	5196	5591	5637	6055	6173
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	16254	16455	17609	17665	18881	19156
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 3 - Civil Aircraft, Jet
(Flight Operations)

	2006	2007	2008	2009	2010	2011
CALIFORNIA	2533071	2590065	2648342	2707930	2768858	2817313
ALAMEDA	206131	210769	215511	220360	225318	229261
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	4909	5020	5133	5248	5366	5460
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	15178	15520	15869	16226	16591	16882
DEL NORTE	0	0	0	0	0	0
EL DORADO	2505	2561	2619	2678	2738	2786
FRESNO	15751	16106	16468	16839	17218	17519
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	7874	8051	8233	8418	8607	8758
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	989165	1011421	1034178	1057447	1081240	1100162
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	301	307	314	321	329	334
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	18114	18522	18939	19365	19800	20147
NAPA	10676	10916	11161	11412	11669	11873
NEVADA	0	0	0	0	0	0
ORANGE	125061	127875	130752	133694	136702	139095
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	35049	35837	36644	37468	38311	38982
SACRAMENTO	100397	102655	104965	107327	109742	111662
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	263603	269534	275599	281800	288140	293183
SAN FRANCISCO	450857	461002	471374	481980	492825	501449
SAN JOAQUIN	7213	7376	7542	7711	7885	8023
SAN LUIS OBISPO	9368	9578	9794	10014	10239	10419
SAN MATEO	8482	8673	8868	9067	9271	9433
SANTA BARBARA	19512	19951	20400	20859	21328	21702
SANTA CLARA	202048	206595	211243	215996	220856	224721
SANTA CRUZ	0	0	0	0	0	0
SHASTA	5761	5890	6023	6158	6297	6407
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	9217	9425	9637	9854	10075	10252
STANISLAUS	6312	6454	6599	6748	6899	7020
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	19587	20027	20478	20939	21410	21784
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 3 - Civil Aircraft, Jet
(Flight Operations)

	2012	2013	2014	2015	2016	2017
CALIFORNIA	2866616	2916782	2967825	3019762	3057509	3095728
ALAMEDA	233273	237356	241509	245736	248808	251918
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	5556	5653	5752	5852	5926	6000
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	17177	17478	17783	18095	18321	18550
DEL NORTE	0	0	0	0	0	0
EL DORADO	2834	2884	2935	2986	3023	3061
FRESNO	17825	18137	18455	18778	19012	19250
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	8911	9067	9226	9387	9505	9623
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	1119415	1139004	1158937	1179218	1193958	1208883
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	340	346	352	358	363	367
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	20499	20858	21223	21595	21865	22138
NAPA	12081	12293	12508	12727	12886	13047
NEVADA	0	0	0	0	0	0
ORANGE	141529	144006	146526	149090	150953	152840
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	39664	40358	41064	41783	42305	42834
SACRAMENTO	113616	115605	117628	119686	121182	122697
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	298314	303534	308846	314251	318179	322156
SAN FRANCISCO	510224	519153	528239	537483	544201	551004
SAN JOAQUIN	8163	8306	8452	8599	8707	8816
SAN LUIS OBISPO	10601	10787	10975	11167	11307	11448
SAN MATEO	9599	9767	9937	10111	10238	10366
SANTA BARBARA	22081	22468	22861	23261	23552	23846
SANTA CLARA	228653	232655	236726	240869	243880	246928
SANTA CRUZ	0	0	0	0	0	0
SHASTA	6519	6633	6749	6868	6953	7040
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	10431	10613	10799	10988	11126	11265
STANISLAUS	7143	7268	7395	7525	7619	7714
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	22166	22554	22948	23350	23642	23937
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 3 - Civil Aircraft, Jet
(Flight Operations)

	2018	2019	2020
CALIFORNIA	3134425	3173605	3213275
ALAMEDA	255067	258255	261483
ALPINE	0	0	0
AMADOR	0	0	0
BUTTE	6075	6151	6227
CALAVERAS	0	0	0
COLUSA	0	0	0
CONTRA COSTA	18782	19017	19254
DEL NORTE	0	0	0
EL DORADO	3099	3138	3177
FRESNO	19491	19734	19981
GLENN	0	0	0
HUMBOLDT	0	0	0
IMPERIAL	0	0	0
INYO	0	0	0
KERN	9744	9865	9989
KINGS	0	0	0
LAKE	0	0	0
LASSEN	0	0	0
LOS ANGELES	1223994	1239294	1254785
MADERA	0	0	0
MARIN	0	0	0
MARIPOSA	0	0	0
MENDOCINO	0	0	0
MERCED	372	377	381
MODOC	0	0	0
MONO	0	0	0
MONTEREY	22415	22695	22978
NAPA	13210	13375	13542
NEVADA	0	0	0
ORANGE	154751	156685	158644
PLACER	0	0	0
PLUMAS	0	0	0
RIVERSIDE	43370	43912	44461
SACRAMENTO	124231	125784	127356
SAN BENITO	0	0	0
SAN BERNARDINO	0	0	0
SAN DIEGO	326183	330260	334389
SAN FRANCISCO	557891	564865	571926
SAN JOAQUIN	8926	9038	9151
SAN LUIS OBISPO	11591	11736	11883
SAN MATEO	10495	10626	10759
SANTA BARBARA	24144	24446	24752
SANTA CLARA	250015	253140	256304
SANTA CRUZ	0	0	0
SHASTA	7128	7217	7308
SIERRA	0	0	0
SISKIYOU	0	0	0
SOLANO	0	0	0
SONOMA	11405	11548	11692
STANISLAUS	7810	7908	8007
SUTTER	0	0	0
TEHAMA	0	0	0
TRINITY	0	0	0
TULARE	0	0	0
TUOLUMNE	0	0	0
VENTURA	24237	24539	24846
YOLO	0	0	0
YUBA	0	0	0

Table 4 - Civil Aircraft, Piston (Flight Operations)

	1970	1971	1972	1973	1974	1975
CALIFORNIA	7072288	7197049	7312746	7427627	7921629	7900069
ALAMEDA	596916	610068	618356	626254	665846	661734
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	49601	50742	51419	52068	55258	54962
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	233657	237791	241791	245800	262718	262146
DEL NORTE	0	0	0	0	0	0
EL DORADO	35664	36550	36229	35712	36523	35168
FRESNO	184934	188728	192360	196112	210204	210533
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	28509	30174	30575	30960	32854	32678
INYO	0	0	0	0	0	0
KERN	89545	91757	93099	94403	100483	100024
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	2190908	2226489	2264389	2302487	2459186	2455466
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	42985	43701	44383	45054	48083	47888
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	140000	142453	144821	147187	157279	156888
NAPA	149055	151699	154259	156827	167632	167282
NEVADA	0	0	0	0	0	0
ORANGE	565378	574084	584096	594220	635547	634802
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	263484	268477	272780	277050	295471	294641
SACRAMENTO	206763	207621	210935	214223	228523	227843
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	717124	727013	739014	750986	802360	800234
SAN FRANCISCO	56366	57066	55626	53699	51916	49055
SAN JOAQUIN	76437	78012	79389	80761	85927	85898
SAN LUIS OBISPO	70726	72340	74001	75773	81583	82157
SAN MATEO	158506	161149	163663	166135	177306	176587
SANTA BARBARA	169052	173326	176080	178785	189632	189307
SANTA CLARA	636598	649408	659492	669381	713191	710561
SANTA CRUZ	0	0	0	0	0	0
SHASTA	41042	42018	42284	42464	44561	43904
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	100601	102754	104938	107237	115227	115747
STANISLAUS	97687	99435	101131	102837	109947	109748
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	137865	140679	143502	146443	157135	157567
YOLO	0	0	0	0	0	0
YUBA	32886	33514	34133	34768	37236	37249

Table 4 - Civil Aircraft, Piston (Flight Operations)

	1976	1977	1978	1979	1980	1981
CALIFORNIA	8845425	9394846	9675087	9473354	8815155	7768666
ALAMEDA	737855	836121	831957	843823	799873	775874
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	61626	74951	74118	66468	63154	60322
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	292308	264826	383915	276730	279417	266702
DEL NORTE	0	0	0	0	0	0
EL DORADO	40141	44039	45141	52729	46145	46634
FRESNO	236371	262976	253185	259185	238232	216038
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	36643	36643	42472	43999	43276	33780
INYO	0	0	0	0	0	0
KERN	112353	130764	124897	141238	138802	119508
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	2756192	2845617	2826565	2783939	2599636	2338454
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	53498	66190	65557	66078	64365	54883
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	175370	197615	215132	206250	192758	174273
NAPA	186544	152400	164892	194494	181196	138970
NEVADA	0	0	0	0	0	0
ORANGE	711021	737491	692838	706452	639206	559157
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	328650	359330	379184	396859	376420	302651
SACRAMENTO	254923	282997	282877	283548	271990	230795
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	894371	978855	1002128	996125	864153	756196
SAN FRANCISCO	58699	76724	79643	93962	111277	86916
SAN JOAQUIN	95757	122574	124683	126554	113155	107751
SAN LUIS OBISPO	92439	63292	120754	0	0	0
SAN MATEO	196538	215692	219856	222616	203952	164322
SANTA BARBARA	211863	227158	246671	254854	251841	226700
SANTA CLARA	792048	864513	875422	854347	782048	655001
SANTA CRUZ	0	0	0	0	0	0
SHASTA	49136	59129	55797	73484	68217	77856
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	129915	142407	158230	168634	150470	130607
STANISLAUS	122973	131022	118530	127879	125968	102628
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	176551	171554	245672	184527	163767	102567
YOLO	0	0	0	0	0	0
YUBA	41639	49967	44970	48580	45834	40082

Table 4 - Civil Aircraft, Piston (Flight Operations)

	1982	1983	1984	1985	1986	1987
CALIFORNIA	5934633	6299088	6940616	6723098	6619348	6886786
ALAMEDA	637566	608431	619235	589385	619059	660325
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	0	0	35624	54892	50934	50578
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	191730	173091	199411	200041	193921	192400
DEL NORTE	0	0	0	0	0	0
EL DORADO	28362	31254	32448	33545	29455	30609
FRESNO	140676	141139	151407	147141	148492	151639
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	118070	100829	106241	95553	86185	92901
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	1901162	1978113	2205863	2051259	1976815	2071951
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	0	0	0	0	49401	4164
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	121439	139072	153128	147948	145616	145164
NAPA	104915	105163	102882	105926	104214	112593
NEVADA	0	0	0	0	0	0
ORANGE	469967	491447	534054	538358	544905	537165
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	235275	318591	361420	356034	342577	346385
SACRAMENTO	164030	162215	184449	186577	196360	209465
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	571454	666180	681317	678100	651239	681598
SAN FRANCISCO	86063	101816	110711	106248	103748	119761
SAN JOAQUIN	84029	86998	87872	88571	95496	91220
SAN LUIS OBISPO	0	0	0	0	0	22685
SAN MATEO	107854	126216	145527	136620	136155	157577
SANTA BARBARA	176983	234331	259128	243110	221485	229271
SANTA CLARA	472934	496371	601799	576167	542020	560927
SANTA CRUZ	0	0	0	0	0	0
SHASTA	70285	74788	81317	83016	68373	92465
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	98443	87976	94178	100467	104014	118128
STANISLAUS	78543	74234	82797	96175	98347	97080
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	74853	100831	109808	107964	110536	110732
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 4 - Civil Aircraft, Piston
(Flight Operations)

	1988	1989	1990	1991	1992	1993
CALIFORNIA	6784425	6960066	7745049	7676663	7657559	7733129
ALAMEDA	628917	640833	658475	627124	624340	636586
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	43838	47780	59043	61557	63296	64606
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	196483	209162	245584	236337	242409	241859
DEL NORTE	0	0	0	0	0	0
EL DORADO	30209	27780	30541	28976	26652	28162
FRESNO	155951	154656	158270	151518	148333	151036
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	101066	93120	91192	91959	83812	86229
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	1954768	2136661	2347144	2313266	2330374	2303174
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	4088	4032	3306	4169	4169	4141
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	155601	147932	162964	162258	175989	181301
NAPA	131833	135969	150837	152087	168978	168213
NEVADA	0	0	0	0	0	0
ORANGE	514513	511644	510883	544516	575466	572824
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	356780	364406	395026	441359	414258	416474
SACRAMENTO	221570	234166	250867	229565	234718	240695
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	681618	695722	805723	769762	764600	772943
SAN FRANCISCO	141366	134136	146369	148324	148532	151680
SAN JOAQUIN	81455	83177	93817	99844	97041	97737
SAN LUIS OBISPO	80662	92456	102924	97533	91470	125071
SAN MATEO	146210	137315	157357	148265	146199	147638
SANTA BARBARA	219910	205212	225514	214517	200265	212114
SANTA CLARA	536835	504906	552862	555812	557939	564100
SANTA CRUZ	0	0	0	0	0	0
SHASTA	78664	77255	96308	88793	83245	84485
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	109541	119354	135711	129101	135138	135010
STANISLAUS	100532	94326	86577	80279	76991	78687
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	112017	108069	277755	299742	263342	268364
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 4 - Civil Aircraft, Piston (Flight Operations)

	1994	1995	1996	1997	1998	1999
CALIFORNIA	7794423	7788818	7833429	7793288	7802208	7827971
ALAMEDA	645978	647710	654532	654096	657718	662706
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	65743	65534	66559	66544	66948	67492
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	240782	237864	237367	233691	231592	230053
DEL NORTE	0	0	0	0	0	0
EL DORADO	29584	30744	31275	31894	32695	33553
FRESNO	153192	154855	156763	157380	158930	160790
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	89675	90741	93163	95260	97885	100669
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	2302814	2287879	2275527	2248894	2236827	2229875
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	4109	4045	4010	4134	4282	4435
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	188102	190865	195602	198005	201579	205527
NAPA	168538	165931	166086	163885	162781	162062
NEVADA	0	0	0	0	0	0
ORANGE	579031	579284	585133	580440	579460	579767
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	418994	418234	418633	415802	415649	416418
SACRAMENTO	247074	252744	259331	263546	269158	275215
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	775302	775786	781312	779696	782942	787838
SAN FRANCISCO	155004	155862	159197	160630	162756	165122
SAN JOAQUIN	99436	99515	100240	100209	100811	101624
SAN LUIS OBISPO	126554	127023	128307	128166	128835	129778
SAN MATEO	146485	143413	142192	139434	137633	136176
SANTA BARBARA	217885	220165	224687	226444	229543	233079
SANTA CLARA	569002	567807	571162	567192	566879	567825
SANTA CRUZ	0	0	0	0	0	0
SHASTA	84644	85761	86607	84459	82906	81569
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	135594	134304	133920	133088	133117	133442
STANISLAUS	79713	80906	81796	82688	84074	85619
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	271188	271845	280029	277712	277210	277336
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 4 - Civil Aircraft, Piston (Flight Operations)

	2000	2001	2002	2003	2004	2005
CALIFORNIA	7822032	7904877	7919214	7963460	7999770	8102490
ALAMEDA	664908	676654	682398	690664	698162	711490
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	67746	68911	69450	70251	70972	72300
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	227597	227527	225450	224298	222949	223539
DEL NORTE	0	0	0	0	0	0
EL DORADO	34254	34911	35250	35721	36150	36888
FRESNO	161989	164694	165992	167884	169597	172677
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	102983	105566	107195	109205	111079	113883
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	2214232	2225389	2217480	2218142	2216779	2233868
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	4567	4554	4500	4465	4427	4427
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	208542	212071	213684	216102	218274	222307
NAPA	160689	160516	158929	157996	156927	157224
NEVADA	0	0	0	0	0	0
ORANGE	577746	586119	589351	594777	599570	609353
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	415470	418736	418299	419495	420274	424642
SACRAMENTO	280147	287141	291824	297469	302812	310401
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	789477	798048	799662	804306	808137	818714
SAN FRANCISCO	167062	170607	173209	176218	179115	182925
SAN JOAQUIN	102000	103214	103500	104186	104761	106236
SAN LUIS OBISPO	130164	132205	133050	134400	135599	137960
SAN MATEO	134189	132732	130125	128079	125943	124914
SANTA BARBARA	235604	240530	243323	246991	250372	255828
SANTA CLARA	566440	571289	571093	573118	574570	580911
SANTA CRUZ	0	0	0	0	0	0
SHASTA	79925	81205	81750	82605	83366	84841
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	133209	134179	133950	134251	134418	135746
STANISLAUS	86776	88339	89100	90195	91186	92957
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	276313	279741	280650	282642	284330	288461
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 4 - Civil Aircraft, Piston (Flight Operations)

	2006	2007	2008	2009	2010	2011
CALIFORNIA	8143002	8183717	8224636	8265759	8307088	8344470
ALAMEDA	715047	718623	722216	725827	729456	732739
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	72661	73025	73390	73757	74125	74459
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	224657	225780	226909	228043	229184	230215
DEL NORTE	0	0	0	0	0	0
EL DORADO	37072	37257	37444	37631	37819	37989
FRESNO	173541	174408	175281	176157	177038	177834
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	114452	115025	115600	116178	116759	117284
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	2245038	2256263	2267544	2278882	2290276	2300582
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	4449	4471	4493	4516	4538	4559
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	223418	224535	225658	226786	227920	228946
NAPA	158010	158800	159594	160392	161194	161919
NEVADA	0	0	0	0	0	0
ORANGE	612400	615462	618539	621632	624740	627551
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	426765	428899	431043	433198	435364	437324
SACRAMENTO	311953	313512	315080	316655	318239	319671
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	822807	826921	831056	835211	839387	843164
SAN FRANCISCO	183840	184759	185683	186611	187544	188388
SAN JOAQUIN	106767	107301	107838	108377	108919	109409
SAN LUIS OBISPO	138649	139343	140039	140740	141443	142080
SAN MATEO	125539	126167	126797	127431	128069	128645
SANTA BARBARA	257107	258392	259684	260983	262287	263468
SANTA CLARA	583815	586734	589668	592616	595579	598259
SANTA CRUZ	0	0	0	0	0	0
SHASTA	85266	85692	86120	86551	86984	87375
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	136425	137107	137793	138482	139174	139800
STANISLAUS	93422	93889	94358	94830	95304	95733
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	289903	291353	292810	294274	295745	297076
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 4 - Civil Aircraft, Piston (Flight Operations)

	2012	2013	2014	2015	2016	2017
CALIFORNIA	8382020	8419739	8457628	8495687	8529670	8563788
ALAMEDA	736036	739348	742675	746017	749001	751997
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	74794	75131	75469	75808	76112	76416
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	231251	232291	233337	234387	235324	236266
DEL NORTE	0	0	0	0	0	0
EL DORADO	38160	38332	38504	38678	38832	38988
FRESNO	178635	179438	180246	181057	181781	182508
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	117812	118342	118875	119409	119887	120367
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	2310935	2321334	2331780	2342273	2351642	2361049
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	4579	4600	4621	4641	4660	4679
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	229976	231011	232051	233095	234027	234963
NAPA	162648	163380	164115	164853	165513	166175
NEVADA	0	0	0	0	0	0
ORANGE	630375	633212	636061	638924	641479	644045
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	439292	441268	443254	445249	447030	448818
SACRAMENTO	321109	322554	324006	325464	326766	328073
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	846959	850770	854598	858444	861878	865325
SAN FRANCISCO	189236	190088	190943	191802	192570	193340
SAN JOAQUIN	109901	110396	110893	111392	111837	112285
SAN LUIS OBISPO	142719	143361	144007	144655	145233	145814
SAN MATEO	129224	129805	130389	130976	131500	132026
SANTA BARBARA	264653	265844	267041	268242	269315	270393
SANTA CLARA	600952	603656	606372	609101	611537	613983
SANTA CRUZ	0	0	0	0	0	0
SHASTA	87768	88163	88560	88959	89315	89672
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	140430	141061	141696	142334	142903	143475
STANISLAUS	96164	96596	97031	97468	97858	98249
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	298413	299756	301105	302460	303669	304884
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 4 - Civil Aircraft, Piston (Flight Operations)

	2018	2019	2020
CALIFORNIA	8598044	8632436	8666966
ALAMEDA	755005	758025	761057
ALPINE	0	0	0
AMADOR	0	0	0
BUTTE	76722	77028	77337
CALAVERAS	0	0	0
COLUSA	0	0	0
CONTRA COSTA	237211	238160	239112
DEL NORTE	0	0	0
EL DORADO	39144	39300	39457
FRESNO	183238	183971	184707
GLENN	0	0	0
HUMBOLDT	0	0	0
IMPERIAL	0	0	0
INYO	0	0	0
KERN	120848	121331	121817
KINGS	0	0	0
LAKE	0	0	0
LASSEN	0	0	0
LOS ANGELES	2370493	2379975	2389495
MADERA	0	0	0
MARIN	0	0	0
MARIPOSA	0	0	0
MENDOCINO	0	0	0
MERCED	4697	4716	4735
MODOC	0	0	0
MONO	0	0	0
MONTEREY	235903	236847	237794
NAPA	166839	167507	168177
NEVADA	0	0	0
ORANGE	646621	649208	651805
PLACER	0	0	0
PLUMAS	0	0	0
RIVERSIDE	450613	452416	454225
SACRAMENTO	329385	330702	332025
SAN BENITO	0	0	0
SAN BERNARDINO	0	0	0
SAN DIEGO	868787	872262	875751
SAN FRANCISCO	194113	194890	195669
SAN JOAQUIN	112734	113185	113637
SAN LUIS OBISPO	146397	146983	147571
SAN MATEO	132554	133084	133617
SANTA BARBARA	271474	272560	273650
SANTA CLARA	616439	618905	621381
SANTA CRUZ	0	0	0
SHASTA	90030	90391	90752
SIERRA	0	0	0
SISKIYOU	0	0	0
SOLANO	0	0	0
SONOMA	144049	144625	145203
STANISLAUS	98642	99037	99433
SUTTER	0	0	0
TEHAMA	0	0	0
TRINITY	0	0	0
TULARE	0	0	0
TUOLUMNE	0	0	0
VENTURA	306104	307328	308557
YOLO	0	0	0
YUBA	0	0	0

Table 5 - Civil Aircraft, Turboprop (Flight Operations)

	1970	1971	1972	1973	1974	1975
CALIFORNIA	1101607	1116452	1124638	1130500	1184089	1168341
ALAMEDA	92987	97229	96896	96156	99271	96401
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	8626	8915	8732	8482	8463	8006
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	34037	34639	35222	35806	38270	38187
DEL NORTE	0	0	0	0	0	0
EL DORADO	8696	9132	8383	7446	6355	5123
FRESNO (S)	27006	27660	28158	28668	30668	30671
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	4153	5310	5200	5049	5035	4760
INYO	0	0	0	0	0	0
KERN	13844	14659	14632	14549	15037	14643
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	336862	338076	342299	346181	365674	363273
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	6262	6366	6465	6563	7004	6976
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	20394	20751	21096	21441	22911	22854
NAPA	21713	22098	22471	22845	24419	24368
NEVADA	0	0	0	0	0	0
ORANGE	84207	84077	85452	86825	92702	92471
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	40676	41582	41890	42113	44126	43542
SACRAMENTO	34131	31840	32082	32261	33881	33429
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	106746	105982	107716	109442	116901	116570
SAN FRANCISCO	26478	25901	23024	19435	14072	9748
SAN JOAQUIN	12469	12943	13263	13586	14180	14371
SAN LUIS OBISPO	10303	10538	10780	11038	11884	11968
SAN MATEO	23089	23474	23841	24201	25828	25723
SANTA BARBARA	30039	31555	31560	31422	31638	31040
SANTA CLARA	97053	100494	101559	102463	107542	106594
SANTA CRUZ	0	0	0	0	0	0
SHASTA	8079	8404	8022	7532	7113	6398
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	14655	14968	15286	15621	16785	16861
STANISLAUS	14230	14485	14732	14980	16016	15987
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	20083	20493	20904	21332	22890	22953
YOLO	0	0	0	0	0	0
YUBA	4791	4882	4972	5065	5424	5426

Table 5 - Civil Aircraft, Turboprop (Flight Operations)

	1976	1977	1978	1979	1980	1981
CALIFORNIA	1329399	1434432	1505215	1498853	1435659	1235177
ALAMEDA	107488	121800	121193	122920	116517	113021
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	8977	10918	10797	9682	9200	8787
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	42580	38577	55925	40311	40703	38850
DEL NORTE	0	0	0	0	0	0
EL DORADO	6702	8466	11702	12304	11071	9624
FRESNO (S)	35024	39573	39031	41426	38931	33469
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	5338	5338	6187	6409	6304	4921
INYO	0	0	0	0	0	0
KERN	17015	20485	20310	22431	24797	17417
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	419707	446522	459487	468484	461722	402030
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	7964	9984	10062	9971	11109	7995
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	25960	29707	32995	32253	32385	26590
NAPA	27174	22200	24020	28332	26395	20244
NEVADA	0	0	0	0	0	0
ORANGE	105555	111393	107294	111643	102725	89499
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	48329	52684	55463	57932	54833	44087
SACRAMENTO	37923	42802	43821	44655	43261	36113
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	132381	147140	153338	154966	136154	117048
SAN FRANCISCO	13165	17672	20590	24796	28982	22389
SAN JOAQUIN	16072	20121	20807	19984	18856	17329
SAN LUIS OBISPO	13466	9220	17590	0	0	0
SAN MATEO	28630	31420	32026	32428	29710	23937
SANTA BARBARA	34705	36483	38209	38843	39176	33841
SANTA CLARA	118992	130270	132642	130238	119274	99147
SANTA CRUZ	0	0	0	0	0	0
SHASTA	7159	8614	8128	10705	9937	11341
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	18925	20744	23049	24565	21919	19025
STANISLAUS	18386	20031	18212	19616	20889	17693
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	25718	24990	35787	26882	24134	14941
YOLO	0	0	0	0	0	0
YUBA	6066	7279	6551	7077	6677	5839

Table 5 - Civil Aircraft, Turboprop (Flight Operations)

	1982	1983	1984	1985	1986	1987
CALIFORNIA	933363	963312	1037946	980496	995809	1071537
ALAMEDA	92874	88630	90203	85855	91481	99084
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	0	0	5189	7996	7420	7372
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	27929	25214	29048	29140	28248	28027
DEL NORTE	0	0	0	0	0	0
EL DORADO	4827	5058	5092	4887	4291	4459
FRESNO (S)	21904	21544	22747	21434	23297	26077
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	17203	14769	15479	13919	13427	15491
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	316959	313780	335974	298807	296296	320184
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	0	0	0	0	7196	607
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	18665	20576	22589	21551	21502	21932
NAPA	15283	15319	14987	15430	15181	16401
NEVADA	0	0	0	0	0	0
ORANGE	74764	75853	79900	78422	81043	82151
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	34272	46409	52648	51863	50691	52194
SACRAMENTO	25863	25073	27651	27179	31611	37293
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	88884	101203	101800	98778	97036	104166
SAN FRANCISCO	19542	20096	19787	16622	23938	34915
SAN JOAQUIN	12607	12908	12934	12902	14385	14032
SAN LUIS OBISPO	0	0	0	0	0	3305
SAN MATEO	15711	18386	21199	19901	19834	22954
SANTA BARBARA	26345	34713	38082	35414	33136	35495
SANTA CLARA	71761	74569	89017	83930	79787	83414
SANTA CRUZ	0	0	0	0	0	0
SHASTA	10238	10894	11845	12093	10392	14505
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	14340	12815	13719	14635	15190	17208
STANISLAUS	12488	10815	12061	14010	14326	14142
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	10904	14688	15996	15727	16102	16130
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 5 - Civil Aircraft, Turboprop (Flight Operations)

	1988	1989	1990	1991	1992	1993
CALIFORNIA	1207035	1381763	1374272	1294914	1305041	1385026
ALAMEDA	107015	121197	110573	102156	103516	110736
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	7161	8654	9276	9076	9524	10242
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	32095	37880	38431	34839	36460	38343
DEL NORTE	0	0	0	0	0	0
EL DORADO	4935	5031	4779	4271	4009	4465
FRESNO (S)	30858	33988	33951	31139	27792	29763
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	18080	18015	16354	16230	13709	15139
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	347745	423609	417555	390217	397155	414196
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	668	730	517	615	627	657
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	26179	28093	27154	24929	27024	29362
NAPA	21534	24624	23604	22419	25415	26668
NEVADA	0	0	0	0	0	0
ORANGE	89812	100223	89404	90597	96297	100793
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	60643	68791	65570	68706	65262	69204
SACRAMENTO	47064	55180	54954	49973	54290	57392
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	118835	135872	138524	126029	127617	135534
SAN FRANCISCO	47473	54696	61956	60921	59614	62468
SAN JOAQUIN	14481	15927	15792	14936	14628	15495
SAN LUIS OBISPO	13176	16744	16106	14377	13758	19828
SAN MATEO	23883	24868	24625	21856	21989	23406
SANTA BARBARA	38692	40313	40400	37221	34273	37872
SANTA CLARA	90237	94609	90581	86247	87998	93645
SANTA CRUZ	0	0	0	0	0	0
SHASTA	13856	14161	15211	13103	12570	13394
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	17893	21902	21941	19037	20326	21404
STANISLAUS	16422	17083	13548	11834	11580	12475
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	18298	19571	43465	44185	39608	42545
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 5 - Civil Aircraft, Turboprop (Flight Operations)

	1994	1995	1996	1997	1998	1999
CALIFORNIA	1448562	1603288	1703753	1847192	1969164	2071700
ALAMEDA	116372	129125	137840	150215	160864	169930
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	10825	12058	12994	14259	15348	16273
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	39647	43767	46339	50077	53092	55467
DEL NORTE	0	0	0	0	0	0
EL DORADO	4871	5657	6105	6834	7495	8090
FRESNO (S)	31000	34700	36724	39972	42830	45327
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	16223	18120	19591	21784	23785	25596
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	430622	474137	498604	536911	568626	594464
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	677	744	783	886	982	1069
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	31587	35720	38777	43008	46779	50112
NAPA	27751	30531	32423	35118	37317	39074
NEVADA	0	0	0	0	0	0
ORANGE	105868	117626	125414	135663	144266	151387
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	72145	80036	84764	92149	98359	103505
SACRAMENTO	60355	66569	71529	77766	83458	88630
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	141307	156806	167116	182024	194840	205748
SAN FRANCISCO	65763	70037	74009	78337	82356	86098
SAN JOAQUIN	16373	18311	19569	21473	23111	24502
SAN LUIS OBISPO	20838	23372	25048	27464	29535	31290
SAN MATEO	24120	26388	27759	29879	31552	32833
SANTA BARBARA	40090	45214	48502	53194	57343	60981
SANTA CLARA	98084	108973	116178	126333	134879	141972
SANTA CRUZ	0	0	0	0	0	0
SHASTA	13937	15780	16907	18098	19006	19667
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	22327	24712	26144	28519	30517	32174
STANISLAUS	13125	14887	15968	17719	19274	20643
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	44653	50019	54667	59510	63550	66868
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 5 - Civil Aircraft, Turboprop (Flight Operations)

	2000	2001	2002	2003	2004	2005
CALIFORNIA	2181291	2239957	2341172	2442457	2520192	2557113
ALAMEDA	179664	185944	195961	206061	214153	218663
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	17269	17836	18792	19758	20515	20899
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	58015	58889	61004	63084	64446	64617
DEL NORTE	0	0	0	0	0	0
EL DORADO	8731	9036	9538	10047	10450	10663
FRESNO (S)	47989	49494	51876	54275	56201	57288
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	27551	28616	30278	31968	33349	34160
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	622021	634906	659603	684129	701959	708450
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	1164	1179	1218	1256	1280	1280
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	53706	55471	58429	61413	63757	64958
NAPA	40960	41545	43004	44436	45362	45447
NEVADA	0	0	0	0	0	0
ORANGE	159004	163842	171879	179960	186302	189578
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	109030	111550	116369	121179	124707	126029
SACRAMENTO	94117	98703	104730	110795	116092	120009
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	217414	223257	233421	243599	251390	255036
SAN FRANCISCO	89928	92982	96621	100265	103588	106349
SAN JOAQUIN	26000	26714	28006	29302	30282	30709
SAN LUIS OBISPO	33179	34218	36002	37800	39197	39879
SAN MATEO	34205	34354	35210	36022	36405	36108
SANTA BARBARA	64888	67168	70780	74438	77393	79072
SANTA CLARA	149574	153239	160033	166820	171863	173902
SANTA CRUZ	0	0	0	0	0	0
SHASTA	20373	21018	22121	23233	24098	24524
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	33955	34729	36245	37758	38855	39239
STANISLAUS	22119	22864	24109	25367	26359	26870
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	70433	72404	75941	79493	82189	83383
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 5 - Civil Aircraft, Turboprop (Flight Operations)

	2006	2007	2008	2009	2010	2011
CALIFORNIA	2591210	2625876	2661123	2696965	2733412	2770480
ALAMEDA	221366	224110	226896	229724	232596	235512
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	21137	21378	21621	21868	22118	22370
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	65267	65923	66587	67256	67933	68617
DEL NORTE	0	0	0	0	0	0
EL DORADO	10789	10916	11045	11176	11308	11443
FRESNO (S)	58216	59163	60128	61112	62116	63140
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	34599	35046	35499	35959	36426	36901
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	717991	727693	737560	747595	757803	768187
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	1304	1329	1354	1380	1406	1433
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	65725	66502	67290	68088	68896	69715
NAPA	45902	46361	46825	47294	47767	48245
NEVADA	0	0	0	0	0	0
ORANGE	191922	194301	196718	199172	201664	204196
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	127455	128900	130363	131845	133347	134868
SACRAMENTO	122195	124431	126719	129059	131454	133903
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	258308	261632	265010	268442	271929	275472
SAN FRANCISCO	109145	112019	114972	118007	121126	124333
SAN JOAQUIN	31035	31365	31699	32036	32377	32722
SAN LUIS OBISPO	40328	40782	41241	41707	42178	42654
SAN MATEO	36470	36835	37204	37577	37953	38333
SANTA BARBARA	80203	81353	82523	83713	84923	86154
SANTA CLARA	175924	177974	180052	182158	184294	186458
SANTA CRUZ	0	0	0	0	0	0
SHASTA	24814	25107	25404	25705	26009	26318
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	39657	40079	40505	40937	41373	41814
STANISLAUS	27175	27484	27797	28114	28434	28759
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	84282	85192	86111	87042	87982	88934
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 5 - Civil Aircraft, Turboprop (Flight Operations)

	2012	2013	2014	2015	2016	2017
CALIFORNIA	2808180	2846526	2885533	2925214	2954466	2984011
ALAMEDA	238472	241479	244532	247633	250110	252611
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	22626	22886	23148	23413	23648	23884
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	69307	70005	70709	71421	72135	72856
DEL NORTE	0	0	0	0	0	0
EL DORADO	11578	11716	11856	11997	12117	12238
FRESNO (S)	64185	65250	66337	67447	68121	68802
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	37382	37871	38368	38872	39261	39653
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	778750	789496	800431	811556	819672	827869
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	1460	1487	1516	1545	1560	1576
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	70546	71387	72239	73103	73834	74573
NAPA	48727	49215	49707	50205	50707	51214
NEVADA	0	0	0	0	0	0
ORANGE	206767	209379	212033	214729	216876	219045
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	136409	137971	139553	141156	142568	143993
SACRAMENTO	136410	138975	141600	144287	145730	147187
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	279073	282734	286454	290236	293138	296069
SAN FRANCISCO	127628	131015	134496	138074	139455	140849
SAN JOAQUIN	33071	33423	33780	34140	34482	34827
SAN LUIS OBISPO	43137	43625	44119	44619	45066	45516
SAN MATEO	38717	39105	39497	39893	40292	40695
SANTA BARBARA	87407	88682	89979	91298	92211	93133
SANTA CLARA	188653	190878	193133	195421	197375	199349
SANTA CRUZ	0	0	0	0	0	0
SHASTA	26630	26947	27268	27593	27869	28148
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	42260	42711	43167	43629	44065	44506
STANISLAUS	29087	29419	29756	30097	30398	30702
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	89896	90870	91854	92850	93779	94716
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 5 - Civil Aircraft, Turboprop (Flight Operations)

	2018	2019	2020
CALIFORNIA	3013851	3043989	3074429
ALAMEDA	255137	257688	260265
ALPINE	0	0	0
AMADOR	0	0	0
BUTTE	24123	24364	24608
CALAVERAS	0	0	0
COLUSA	0	0	0
CONTRA COSTA	73585	74321	75064
DEL NORTE	0	0	0
EL DORADO	12360	12484	12609
FRESNO (S)	69490	70185	70887
GLENN	0	0	0
HUMBOLDT	0	0	0
IMPERIAL	0	0	0
INYO	0	0	0
KERN	40050	40450	40855
KINGS	0	0	0
LAKE	0	0	0
LASSEN	0	0	0
LOS ANGELES	836147	844509	852954
MADERA	0	0	0
MARIN	0	0	0
MARIPOSA	0	0	0
MENDOCINO	0	0	0
MERCED	1591	1607	1623
MODOC	0	0	0
MONO	0	0	0
MONTEREY	75318	76072	76832
NAPA	51726	52243	52766
NEVADA	0	0	0
ORANGE	221236	223448	225682
PLACER	0	0	0
PLUMAS	0	0	0
RIVERSIDE	145433	146888	148357
SACRAMENTO	148659	150146	151647
SAN BENITO	0	0	0
SAN BERNARDINO	0	0	0
SAN DIEGO	299030	302020	305041
SAN FRANCISCO	142258	143680	145117
SAN JOAQUIN	35175	35527	35882
SAN LUIS OBISPO	45971	46431	46895
SAN MATEO	41101	41512	41928
SANTA BARBARA	94065	95005	95955
SANTA CLARA	201342	203356	205389
SANTA CRUZ	0	0	0
SHASTA	28429	28713	29000
SIERRA	0	0	0
SISKIYOU	0	0	0
SOLANO	0	0	0
SONOMA	44951	45400	45854
STANISLAUS	31009	31319	31632
SUTTER	0	0	0
TEHAMA	0	0	0
TRINITY	0	0	0
TULARE	0	0	0
TUOLUMNE	0	0	0
VENTURA	95663	96620	97586
YOLO	0	0	0
YUBA	0	0	0

Table 6 - Military Aircraft, Jet (Flight Operations)

	1970	1971	1972	1973	1974	1975
CALIFORNIA	30397	34879	40339	47074	57124	65713
ALAMEDA	1398	1604	1855	2164	2626	3021
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	0	0	0	0	0	0
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	0	0	0	0	0	0
DEL NORTE	0	0	0	0	0	0
EL DORADO	175	200	232	271	328	378
FRESNO	3669	4209	4868	5681	6894	7931
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	699	802	927	1082	1313	1511
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	9259	10624	12287	14339	17400	20016
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	524	601	695	812	985	1133
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	1398	1604	1855	2164	2626	3021
NAPA	175	200	232	271	328	378
NEVADA	0	0	0	0	0	0
ORANGE	175	200	232	271	328	378
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	349	401	464	541	657	755
SACRAMENTO	3145	3608	4173	4870	5909	6798
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	5590	6414	7419	8657	10505	12085
SAN FRANCISCO	873	1002	1159	1353	1641	1888
SAN JOAQUIN	1922	2205	2550	2976	3611	4154
SAN LUIS OBISPO	0	0	0	0	0	0
SAN MATEO	0	0	0	0	0	0
SANTA BARBARA	349	401	464	541	657	755
SANTA CLARA	0	0	0	0	0	0
SANTA CRUZ	0	0	0	0	0	0
SHASTA	175	200	232	271	328	378
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	175	200	232	271	328	378
STANISLAUS	349	401	464	541	657	755
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	0	0	0	0	0	0
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 6 - Military Aircraft, Jet (Flight Operations)

	1976	1977	1978	1979	1980	1981
CALIFORNIA	83285	79934	77541	87320	79143	76714
ALAMEDA	3829	3829	2872	3003	1440	1301
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	0	0	0	250	410	387
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	0	0	0	232	321	262
DEL NORTE	0	0	0	0	0	0
EL DORADO	479	479	0	414	334	295
FRESNO	10052	9094	9094	7910	7525	8852
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	479	0	113	116	101
INYO	0	0	0	0	0	0
KERN	1915	1915	2393	1871	1539	1395
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	25368	24411	25368	37938	34860	36330
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	1436	0	479	486	455	761
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	3829	2393	2393	2870	2606	2212
NAPA	479	1915	957	714	813	465
NEVADA	0	0	0	0	0	0
ORANGE	479	479	479	640	998	630
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	957	957	479	797	704	609
SACRAMENTO	8616	7180	7658	6797	6240	4498
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	15317	15317	16274	12976	11114	9424
SAN FRANCISCO	2393	2393	1915	1337	1098	1109
SAN JOAQUIN	5265	4786	3829	3562	3392	3820
SAN LUIS OBISPO	0	0	0	0	0	0
SAN MATEO	0	0	0	53	52	32
SANTA BARBARA	957	957	479	897	865	1075
SANTA CLARA	0	479	479	860	997	517
SANTA CRUZ	0	0	0	0	0	0
SHASTA	479	957	0	374	513	522
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	479	479	479	653	569	502
STANISLAUS	957	957	957	673	573	405
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	0	479	479	704	329	218
YOLO	0	0	0	0	0	0
YUBA	0	0	479	1197	1279	992

Table 6 - Military Aircraft, Jet (Flight Operations)

	1982	1983	1984	1985	1986	1987
CALIFORNIA	60968	65276	71044	89960	103828	95241
ALAMEDA	955	1115	1130	916	1134	1200
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	0	0	151	221	325	334
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	253	320	550	381	361	317
DEL NORTE	0	0	0	0	0	0
EL DORADO	181	273	359	426	628	435
FRESNO	8808	8634	6025	6082	5221	5083
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	1189	1409	1228	1408	2096	1541
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	28033	27981	30137	41061	43049	36585
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	0	0	0	0	645	0
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	2395	1866	1962	2403	7560	4061
NAPA	309	262	228	572	1289	1208
NEVADA	0	0	0	0	0	0
ORANGE	765	962	1004	822	704	1298
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	528	628	740	936	1219	1584
SACRAMENTO	4779	6138	6666	6075	7654	6195
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	5486	7339	10896	18284	21088	22993
SAN FRANCISCO	1155	1306	1304	1417	1310	1284
SAN JOAQUIN	3370	3577	4858	5061	5197	5759
SAN LUIS OBISPO	0	0	0	0	0	144
SAN MATEO	41	90	38	101	85	14
SANTA BARBARA	877	746	916	1134	1163	1143
SANTA CLARA	472	651	359	373	416	940
SANTA CRUZ	0	0	0	0	0	0
SHASTA	328	463	791	878	1177	1146
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	397	325	312	239	355	324
STANISLAUS	327	602	546	479	637	622
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	320	591	845	690	514	1031
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 6 - Military Aircraft, Jet (Flight Operations)

	1988	1989	1990	1991	1992	1993
CALIFORNIA	92720	88850	85081	95558	92455	101777
ALAMEDA	1072	989	1748	886	1213	951
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	1671	1795	1596	1041	1159	951
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	450	484	519	383	463	476
DEL NORTE	0	0	0	0	0	0
EL DORADO	361	385	411	357	461	476
FRESNO	5319	5079	6818	6173	6561	6183
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	1680	1901	2367	1778	1408	951
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	36054	33986	30270	30256	32882	36621
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	0	0	0	0	0	476
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	4758	6555	6571	6736	6604	6183
NAPA	691	731	800	514	536	476
NEVADA	0	0	0	0	0	0
ORANGE	2398	2666	751	305	333	476
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	1598	1858	1615	1730	2339	1902
SACRAMENTO	6712	5337	2275	2997	2942	2378
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	17133	14408	14410	18861	22879	21402
SAN FRANCISCO	1199	1267	1332	1209	1218	951
SAN JOAQUIN	6632	6380	7205	6653	5367	4756
SAN LUIS OBISPO	473	537	596	506	477	476
SAN MATEO	8	22	141	10276	175	9512
SANTA BARBARA	1303	1097	1030	981	1221	951
SANTA CLARA	544	444	417	324	528	476
SANTA CRUZ	0	0	0	0	0	0
SHASTA	856	1179	1683	1277	821	951
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	397	366	445	472	458	476
STANISLAUS	570	443	489	356	420	476
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	840	942	1590	1485	1989	2378
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	476

Table 6 - Military Aircraft, Jet (Flight Operations)

	1994	1995	1996	1997	1998	1999
CALIFORNIA	102422	103373	103987	103547	103137	102970
ALAMEDA	957	966	972	971	971	973
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	957	966	972	971	971	973
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	479	483	486	364	243	122
DEL NORTE	0	0	0	0	0	0
EL DORADO	479	483	486	486	485	486
FRESNO	6222	6280	6317	6312	6310	6322
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	957	966	972	971	971	973
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	36853	37195	37416	37267	37129	37079
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	479	483	486	486	485	486
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	6222	6280	6317	6312	6310	6322
NAPA	479	483	486	486	485	486
NEVADA	0	0	0	0	0	0
ORANGE	479	483	486	486	485	486
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	1914	1932	1944	1821	1699	1580
SACRAMENTO	2393	2415	2430	2428	2427	2431
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	21537	21737	21866	21850	21841	21883
SAN FRANCISCO	957	966	972	971	971	973
SAN JOAQUIN	4786	4830	4859	4856	4854	4863
SAN LUIS OBISPO	479	483	486	486	485	486
SAN MATEO	9572	9661	9718	9711	9707	9726
SANTA BARBARA	957	966	972	971	971	973
SANTA CLARA	479	483	486	486	485	486
SANTA CRUZ	0	0	0	0	0	0
SHASTA	957	966	972	971	971	973
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	479	483	486	486	485	486
STANISLAUS	479	483	486	486	485	486
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	2393	2415	2430	2428	2427	2431
YOLO	0	0	0	0	0	0
YUBA	479	483	486	486	485	486

Table 6 - Military Aircraft, Jet (Flight Operations)

	2000	2001	2002	2003	2004	2005
CALIFORNIA	103053	103185	103008	102871	102615	102419
ALAMEDA	977	980	980	981	980	980
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	977	980	980	981	980	980
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	0	0	0	0	0	0
DEL NORTE	0	0	0	0	0	0
EL DORADO	488	490	490	490	490	490
FRESNO	6349	6369	6371	6374	6371	6371
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	977	980	980	981	980	980
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	37119	37041	36852	36677	36459	36263
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	488	490	490	490	490	490
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	6349	6369	6371	6374	6371	6371
NAPA	488	490	490	490	490	490
NEVADA	0	0	0	0	0	0
ORANGE	488	490	490	490	490	490
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	1465	1470	1470	1471	1470	1470
SACRAMENTO	2442	2450	2450	2452	2450	2450
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	21978	22048	22052	22065	22052	22052
SAN FRANCISCO	977	980	980	981	980	980
SAN JOAQUIN	4884	4900	4900	4903	4900	4900
SAN LUIS OBISPO	488	490	490	490	490	490
SAN MATEO	9768	9799	9801	9807	9801	9801
SANTA BARBARA	977	980	980	981	980	980
SANTA CLARA	488	490	490	490	490	490
SANTA CRUZ	0	0	0	0	0	0
SHASTA	977	980	980	981	980	980
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	488	490	490	490	490	490
STANISLAUS	488	490	490	490	490	490
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	2442	2450	2450	2452	2450	2450
YOLO	0	0	0	0	0	0
YUBA	488	490	490	490	490	490

Table 6 - Military Aircraft, Jet (Flight Operations)

	2006	2007	2008	2009	2010	2011
CALIFORNIA	102419	102419	102419	102419	102419	102419
ALAMEDA	980	980	980	980	980	980
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	980	980	980	980	980	980
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	0	0	0	0	0	0
DEL NORTE	0	0	0	0	0	0
EL DORADO	490	490	490	490	490	490
FRESNO	6371	6371	6371	6371	6371	6371
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	980	980	980	980	980	980
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	36263	36263	36263	36263	36263	36263
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	490	490	490	490	490	490
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	6371	6371	6371	6371	6371	6371
NAPA	490	490	490	490	490	490
NEVADA	0	0	0	0	0	0
ORANGE	490	490	490	490	490	490
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	1470	1470	1470	1470	1470	1470
SACRAMENTO	2450	2450	2450	2450	2450	2450
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	22052	22052	22052	22052	22052	22052
SAN FRANCISCO	980	980	980	980	980	980
SAN JOAQUIN	4900	4900	4900	4900	4900	4900
SAN LUIS OBISPO	490	490	490	490	490	490
SAN MATEO	9801	9801	9801	9801	9801	9801
SANTA BARBARA	980	980	980	980	980	980
SANTA CLARA	490	490	490	490	490	490
SANTA CRUZ	0	0	0	0	0	0
SHASTA	980	980	980	980	980	980
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	490	490	490	490	490	490
STANISLAUS	490	490	490	490	490	490
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	2450	2450	2450	2450	2450	2450
YOLO	0	0	0	0	0	0
YUBA	490	490	490	490	490	490

Table 6 - Military Aircraft, Jet (Flight Operations)

	2012	2013	2014	2015	2016	2017
CALIFORNIA	102419	102419	102419	102419	102419	102419
ALAMEDA	980	980	980	980	980	980
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	980	980	980	980	980	980
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	0	0	0	0	0	0
DEL NORTE	0	0	0	0	0	0
EL DORADO	490	490	490	490	490	490
FRESNO	6371	6371	6371	6371	6371	6371
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	980	980	980	980	980	980
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	36263	36263	36263	36263	36263	36263
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	490	490	490	490	490	490
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	6371	6371	6371	6371	6371	6371
NAPA	490	490	490	490	490	490
NEVADA	0	0	0	0	0	0
ORANGE	490	490	490	490	490	490
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	1470	1470	1470	1470	1470	1470
SACRAMENTO	2450	2450	2450	2450	2450	2450
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	22052	22052	22052	22052	22052	22052
SAN FRANCISCO	980	980	980	980	980	980
SAN JOAQUIN	4900	4900	4900	4900	4900	4900
SAN LUIS OBISPO	490	490	490	490	490	490
SAN MATEO	9801	9801	9801	9801	9801	9801
SANTA BARBARA	980	980	980	980	980	980
SANTA CLARA	490	490	490	490	490	490
SANTA CRUZ	0	0	0	0	0	0
SHASTA	980	980	980	980	980	980
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	490	490	490	490	490	490
STANISLAUS	490	490	490	490	490	490
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	2450	2450	2450	2450	2450	2450
YOLO	0	0	0	0	0	0
YUBA	490	490	490	490	490	490

Table 6 - Military Aircraft, Jet (Flight Operations)

	2018	2019	2020
CALIFORNIA	102419	102419	102419
ALAMEDA	980	980	980
ALPINE	0	0	0
AMADOR	0	0	0
BUTTE	980	980	980
CALAVERAS	0	0	0
COLUSA	0	0	0
CONTRA COSTA	0	0	0
DEL NORTE	0	0	0
EL DORADO	490	490	490
FRESNO	6371	6371	6371
GLENN	0	0	0
HUMBOLDT	0	0	0
IMPERIAL	0	0	0
INYO	0	0	0
KERN	980	980	980
KINGS	0	0	0
LAKE	0	0	0
LASSEN	0	0	0
LOS ANGELES	36263	36263	36263
MADERA	0	0	0
MARIN	0	0	0
MARIPOSA	0	0	0
MENDOCINO	0	0	0
MERCED	490	490	490
MODOC	0	0	0
MONO	0	0	0
MONTEREY	6371	6371	6371
NAPA	490	490	490
NEVADA	0	0	0
ORANGE	490	490	490
PLACER	0	0	0
PLUMAS	0	0	0
RIVERSIDE	1470	1470	1470
SACRAMENTO	2450	2450	2450
SAN BENITO	0	0	0
SAN BERNARDINO	0	0	0
SAN DIEGO	22052	22052	22052
SAN FRANCISCO	980	980	980
SAN JOAQUIN	4900	4900	4900
SAN LUIS OBISPO	490	490	490
SAN MATEO	9801	9801	9801
SANTA BARBARA	980	980	980
SANTA CLARA	490	490	490
SANTA CRUZ	0	0	0
SHASTA	980	980	980
SIERRA	0	0	0
SISKIYOU	0	0	0
SOLANO	0	0	0
SONOMA	490	490	490
STANISLAUS	490	490	490
SUTTER	0	0	0
TEHAMA	0	0	0
TRINITY	0	0	0
TULARE	0	0	0
TUOLUMNE	0	0	0
VENTURA	2450	2450	2450
YOLO	0	0	0
YUBA	490	490	490

Table 7 - Military Aircraft, Piston (Flight Operations)

	1970	1971	1972	1973	1974	1975
CALIFORNIA	8628	9900	11450	13362	16215	18653
ALAMEDA	397	455	526	614	746	858
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	0	0	0	0	0	0
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	0	0	0	0	0	0
DEL NORTE	0	0	0	0	0	0
EL DORADO	50	57	66	77	93	107
FRESNO	1041	1195	1382	1613	1957	2251
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	198	228	263	307	373	429
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	2628	3016	3488	4070	4939	5682
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	149	171	197	230	280	322
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	397	455	526	614	746	858
NAPA	50	57	66	77	93	107
NEVADA	0	0	0	0	0	0
ORANGE	50	57	66	77	93	107
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	99	114	132	154	186	214
SACRAMENTO	893	1024	1185	1382	1677	1930
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	1587	1821	2106	2457	2982	3430
SAN FRANCISCO	248	284	329	384	466	536
SAN JOAQUIN	545	626	724	845	1025	1179
SAN LUIS OBISPO	0	0	0	0	0	0
SAN MATEO	0	0	0	0	0	0
SANTA BARBARA	99	114	132	154	186	214
SANTA CLARA	0	0	0	0	0	0
SANTA CRUZ	0	0	0	0	0	0
SHASTA	50	57	66	77	93	107
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	50	57	66	77	93	107
STANISLAUS	99	114	132	154	186	214
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	0	0	0	0	0	0
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 7 - Military Aircraft, Piston (Flight Operations)

	1976	1977	1978	1979	1980	1981
CALIFORNIA	23641	22690	22010	24786	22465	21775
ALAMEDA	1087	1087	815	852	409	369
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	0	0	0	71	116	110
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	0	0	0	66	91	74
DEL NORTE	0	0	0	0	0	0
EL DORADO	136	136	0	117	95	84
FRESNO	2853	2581	2581	2245	2136	2513
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	136	0	32	33	29
INYO	0	0	0	0	0	0
KERN	543	543	679	531	437	396
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	7201	6929	7201	10769	9895	10312
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	408	0	136	138	129	216
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	1087	679	679	815	740	628
NAPA	136	543	272	203	231	132
NEVADA	0	0	0	0	0	0
ORANGE	136	136	136	182	283	179
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	272	272	136	226	200	173
SACRAMENTO	2446	2038	2174	1929	1771	1277
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	4348	4348	4619	3683	3155	2675
SAN FRANCISCO	679	679	543	380	312	315
SAN JOAQUIN	1495	1359	1087	1011	963	1084
SAN LUIS OBISPO	0	0	0	0	0	0
SAN MATEO	0	0	0	15	15	9
SANTA BARBARA	272	272	136	254	246	305
SANTA CLARA	0	136	136	244	283	147
SANTA CRUZ	0	0	0	0	0	0
SHASTA	136	272	0	106	146	148
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	136	136	136	185	161	142
STANISLAUS	272	272	272	191	163	115
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	0	136	136	200	93	62
YOLO	0	0	0	0	0	0
YUBA	0	0	136	340	363	282

Table 7 - Military Aircraft, Piston (Flight Operations)

	1982	1983	1984	1985	1986	1987
CALIFORNIA	17306	18529	20166	25535	29472	27034
ALAMEDA	271	316	321	260	322	341
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	0	0	43	63	92	95
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	72	91	156	108	103	90
DEL NORTE	0	0	0	0	0	0
EL DORADO	51	77	102	121	178	123
FRESNO	2500	2451	1710	1726	1482	1443
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	338	400	348	400	595	437
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	7957	7942	8554	11655	12220	10385
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	0	0	0	0	183	0
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	680	530	557	682	2146	1153
NAPA	88	74	65	162	366	343
NEVADA	0	0	0	0	0	0
ORANGE	217	273	285	233	200	368
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	150	178	210	266	346	450
SACRAMENTO	1356	1742	1892	1725	2173	1759
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	1557	2083	3093	5190	5986	6527
SAN FRANCISCO	328	371	370	402	372	365
SAN JOAQUIN	957	1015	1379	1437	1475	1635
SAN LUIS OBISPO	0	0	0	0	0	41
SAN MATEO	12	26	11	29	24	4
SANTA BARBARA	249	212	260	322	330	325
SANTA CLARA	134	185	102	106	118	267
SANTA CRUZ	0	0	0	0	0	0
SHASTA	93	131	224	249	334	325
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	113	92	89	68	101	92
STANISLAUS	93	171	155	136	181	176
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	91	168	240	196	146	293
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	0

Table 7 - Military Aircraft, Piston (Flight Operations)

	1988	1989	1990	1991	1992	1993
CALIFORNIA	21908	20896	20115	18229	17089	19815
ALAMEDA	253	232	413	169	224	185
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	395	422	377	199	214	185
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	106	114	123	73	86	93
DEL NORTE	0	0	0	0	0	0
EL DORADO	85	90	97	68	85	93
FRESNO	1257	1194	1612	1178	1213	1204
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	397	447	560	339	260	185
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	8519	7993	7156	5772	6078	7130
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	0	0	0	0	0	93
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	1124	1542	1553	1285	1221	1204
NAPA	163	172	189	98	99	93
NEVADA	0	0	0	0	0	0
ORANGE	567	627	178	58	62	93
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	378	437	382	330	432	370
SACRAMENTO	1586	1255	538	572	544	463
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	4048	3388	3407	3598	4229	4167
SAN FRANCISCO	283	298	315	231	225	185
SAN JOAQUIN	1567	1500	1703	1269	992	926
SAN LUIS OBISPO	112	126	141	97	88	93
SAN MATEO	2	5	33	1960	32	1852
SANTA BARBARA	308	258	244	187	226	185
SANTA CLARA	129	104	99	62	98	93
SANTA CRUZ	0	0	0	0	0	0
SHASTA	202	277	398	244	152	185
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	94	86	105	90	85	93
STANISLAUS	135	104	116	68	78	93
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	198	222	376	283	368	463
YOLO	0	0	0	0	0	0
YUBA	0	0	0	0	0	93

Table 7 - Military Aircraft, Piston (Flight Operations)

	1994	1995	1996	1997	1998	1999
CALIFORNIA	18218	16258	16833	15507	14644	12365
ALAMEDA	170	152	157	145	138	117
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	170	152	157	145	138	117
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	85	76	79	55	34	15
DEL NORTE	0	0	0	0	0	0
EL DORADO	85	76	79	73	69	58
FRESNO	1107	988	1023	945	896	759
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	170	152	157	145	138	117
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	6555	5850	6057	5581	5272	4453
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	85	76	79	73	69	58
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	1107	988	1023	945	896	759
NAPA	85	76	79	73	69	58
NEVADA	0	0	0	0	0	0
ORANGE	85	76	79	73	69	58
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	341	304	315	273	241	190
SACRAMENTO	426	380	393	364	345	292
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	3831	3419	3540	3272	3101	2628
SAN FRANCISCO	170	152	157	145	138	117
SAN JOAQUIN	851	760	787	727	689	584
SAN LUIS OBISPO	85	76	79	73	69	58
SAN MATEO	1703	1519	1573	1454	1378	1168
SANTA BARBARA	170	152	157	145	138	117
SANTA CLARA	85	76	79	73	69	58
SANTA CRUZ	0	0	0	0	0	0
SHASTA	170	152	157	145	138	117
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	85	76	79	73	69	58
STANISLAUS	85	76	79	73	69	58
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	426	380	393	364	345	292
YOLO	0	0	0	0	0	0
YUBA	85	76	79	73	69	58

Table 7 - Military Aircraft, Piston (Flight Operations)

	2000	2001	2002	2003	2004	2005
CALIFORNIA	11670	10042	9732	9427	9162	9144
ALAMEDA	111	95	93	90	88	88
ALPINE	0	0	0	0	0	0
AMADOR	0	0	0	0	0	0
BUTTE	111	95	93	90	88	88
CALAVERAS	0	0	0	0	0	0
COLUSA	0	0	0	0	0	0
CONTRA COSTA	0	0	0	0	0	0
DEL NORTE	0	0	0	0	0	0
EL DORADO	55	48	46	45	44	44
FRESNO	719	620	602	584	569	569
GLENN	0	0	0	0	0	0
HUMBOLDT	0	0	0	0	0	0
IMPERIAL	0	0	0	0	0	0
INYO	0	0	0	0	0	0
KERN	111	95	93	90	88	88
KINGS	0	0	0	0	0	0
LAKE	0	0	0	0	0	0
LASSEN	0	0	0	0	0	0
LOS ANGELES	4203	3605	3482	3361	3255	3238
MADERA	0	0	0	0	0	0
MARIN	0	0	0	0	0	0
MARIPOSA	0	0	0	0	0	0
MENDOCINO	0	0	0	0	0	0
MERCED	55	48	46	45	44	44
MODOC	0	0	0	0	0	0
MONO	0	0	0	0	0	0
MONTEREY	719	620	602	584	569	569
NAPA	55	48	46	45	44	44
NEVADA	0	0	0	0	0	0
ORANGE	55	48	46	45	44	44
PLACER	0	0	0	0	0	0
PLUMAS	0	0	0	0	0	0
RIVERSIDE	166	143	139	135	131	131
SACRAMENTO	277	238	231	225	219	219
SAN BENITO	0	0	0	0	0	0
SAN BERNARDINO	0	0	0	0	0	0
SAN DIEGO	2489	2146	2083	2022	1969	1969
SAN FRANCISCO	111	95	93	90	88	88
SAN JOAQUIN	553	477	463	449	438	438
SAN LUIS OBISPO	55	48	46	45	44	44
SAN MATEO	1106	954	926	899	875	875
SANTA BARBARA	111	95	93	90	88	88
SANTA CLARA	55	48	46	45	44	44
SANTA CRUZ	0	0	0	0	0	0
SHASTA	111	95	93	90	88	88
SIERRA	0	0	0	0	0	0
SISKIYOU	0	0	0	0	0	0
SOLANO	0	0	0	0	0	0
SONOMA	55	48	46	45	44	44
STANISLAUS	55	48	46	45	44	44
SUTTER	0	0	0	0	0	0
TEHAMA	0	0	0	0	0	0
TRINITY	0	0	0	0	0	0
TULARE	0	0	0	0	0	0
TUOLUMNE	0	0	0	0	0	0
VENTURA	277	238	231	225	219	219
YOLO	0	0	0	0	0	0
YUBA	55	48	46	45	44	44