APPENDIX E

ECONOMIC ANALYSIS FOR THE RUSSIAN RIVER BIOLOGICAL ASSESSMENT

ECONOMIC ANALYSIS FOR THE RUSSIAN RIVER BIOLOGICAL ASSESSMENT

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Term	*Definition*
AF	acre feet
BA	Biological Assessment
CDFG	California Department of Fish and Game
cfs	cubic feet per second
D1610	Decision 1610
D1610-Current	Minimum instream flows set under SWRCB D1610
ESU	evolutionarily significant unit
FERC	Federal Energy Regulatory Commission
FP-75%	Flow proposal with no measures at 75% buildout
FP-Buildout	Flow proposal at future demand level with no additional water supply measure.
FP-Current	Flow proposal with no measures under current conditions
I-O	input-output model
IMPLAN	Economic impact analysis planning modeling software
M&I	municipal and industrial
MCRRFCD	Mendocino County Russian River Flood Control and Water Conservation District
MIG	Minnesota IMPLAN Group, Inc.
MW	megawatts
MW/day	megawatts per day
NEA	Northwest Economic Associates
N.E.C.	Not elsewhere classified
NMFS	National Marine Fisheries Service (now NOAA Fisheries)
NOAA Fisheries	the National Oceanic and Atmospheric Administration Fisheries (formerly, NMFS)

Term	*Definition*
PG&E	Pacific Gas & Electric Co.
PVID	Potter Valley Irrigation District
REIS	Regional Economic Information System (U.S. Department of Commerce)
RPC	Regional Purchase Coefficients
RVCWD	Redwood Valley County Water District
SCWA	Sonoma County Water Agency
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers

1.0
INTRODUCTION

1.1 PURPOSE AND SCOPE

The purpose of this economic analysis is to evaluate the economic implications of changes to project operations and potential flow scenarios evaluated in the ENTRIX, Inc. 2004 *Russian River Draft Biological Assessment* (BA).[1] Evaluation of economic effects of the proposed operations will assist the U.S. Army Corps of Engineers (USACE), Sonoma County Water Agency (SCWA), and NOAA Fisheries in selecting appropriate measures and evaluating the proposed alternative project operations.

The scope of the economic analysis includes Sonoma and Mendocino counties in California. The two counties contain nearly the entire Russian River basin. Economic effects were measured for reservoir (Lake Sonoma and Lake Mendocino) and river-based (Russian River) recreation, energy production at affected hydroelectric generating facilities, and regional impacts in both Sonoma and Mendocino counties. However, positive economic impacts such as those associated with construction of a pipeline from Warm Springs Dam to Dry Creek were not measured.

This report incorporates the results of an analysis by ENTRIX, Inc. of recreation on the Lower Russian River.[2] This report extends the analysis by examining impacts in the Upper Reach of the Russian River as well as in the two reservoirs.

1.2 REPORT ORGANIZATION

This report is contained in five sections. The section following this introduction provides the method and approach to measuring economic impacts. It begins with a description of the water system of the Russian River. The types of economic effects are described, including distinctions made for regional versus direct impacts. The definition of "current" and "full buildout" is provided as it applies to water demands, specifically for measuring impacts in Sonoma County. Finally, methods for measuring impacts on recreation and hydroelectric power generation are described.

The third section provides a baseline description of the current conditions in both Sonoma and Mendocino counties. The current economic base is provided for context to interpret impacts. Included in this section is an overview of primary water use and users, including agricultural irrigation and recreation. As will be noted later, impacts to agriculture of the proposed action is nonexistent, as the project considered in the BA does not change the water supply to irrigators. A description of recreational water use in

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1 ENTRIX, Inc., Russian River Draft Biological Assessment, prepared for USACE and SCWA, January 16, 2004.

2 ENTRIX, Inc., "Preliminary Recreation Assessment for the Flow Proposal," Appendix D, Russian River Draft Biological Assessment, January 16, 2004.

Sonoma County is provided. The section ends with discussion of the economic base, water use, and recreation in Mendocino County.

The fourth section presents the impacts of the proposed action in the categories of recreation, hydroelectric power generation, and regional impacts. Results are provided for the flow proposal with additional measures, as compared to the baseline. The final section of the report contains a summary and conclusions of the economic impacts, as well as implications.

2.1 DESCRIPTION OF THE WATER SYSTEM

2.1.1 HYDROLOGY

A detailed discussion of the hydrology of the Russian River is presented in the 2004 ENTRIX, Inc. *Russian River Draft Biological Assessment.*[3] The following brief discussion of the operation of the system is provided as background for measuring impacts on recreation, agriculture, and hydroelectric power production.[4]

Three major reservoir projects provide water supply storage for the Russian River watershed (see Figure 2-1): Lake Pillsbury, Lake Mendocino, and Lake Sonoma.[5] Lake Pillsbury is located on the Eel River and is formed by Scott Dam. Water is released from the lake to the Eel River and is diverted at Cape Horn Dam to Pacific Gas and Electric Company's (PG&E's) Potter Valley Power Plant through a diversion tunnel. The water flows through Potter Valley in the East Fork Russian River.

Lake Mendocino is part of the Coyote Valley Dam Project and is impounded by Coyote Valley Dam on the East Fork Russian River. The multipurpose facility provides hydroelectric power, flood protection, recreation, and irrigation and domestic water supplies. SCWA and Mendocino County Russian River Flood Control and Water Conservation District (MCRRFCD) share California water rights permits to store up to 122,500 acre feet (AF) in the reservoir. SCWA controls releases from the 69,000 AF water supply pool in the reservoir.

Lake Sonoma is impounded by Warm Springs Dam at the confluence of Dry Creek and Warm Springs Creek. The multipurpose facility provides flood protection, recreation, and a fish hatchery. SCWA, under contract with the federal government, uses 212,000 AF of water supply storage space in the lake. That contract gives SCWA the right to control the rate of release of water from the water supply pool.

Lakes Mendocino and Sonoma are collectively called the "Russian River Project" and releases from the reservoirs are determined by Decision 1610 (D1610). That decision established instream flow requirements for Dry Creek and the Russian River. The Russian River flow requirements between Lake Mendocino and Dry Creek were set according to the assumption that all water supply available from Lake Mendocino would

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[3] ENTRIX, Inc., Russian River Draft Biological Assessment, prepared for USACE and SCWA, January 16, 2004.

[4] Beach, Robert F., *The Russian River: An Assessment of Its Condition and Governmental Oversight*, prepared for Sonoma County Water Agency, August 1996.

[5] Sonoma County Water Agency, *Water Supply and Transmission System Project, Draft Environmental Impact Report, Volume I*, September 1996.

be available to satisfy instream flow needs between that lake and Dry Creek as well as expected diversions on that reach of the Russian River. The Russian River flow requirements downstream from the confluence with Dry Creek during *normal* water supply conditions were based primarily on a desire to maintain flows for recreational canoeing on the Russian River. Reduced flows for *dry* and *critical* water supply conditions were based on warmwater fish and wildlife needs. Instream flow requirements for Dry Creek were set to meet fish spawning, passage, and rearing needs determined by the California Department of Fish and Game (CDFG).

2.1.2 WATER MANAGEMENT

SCWA was created in 1949. SCWA's activities include producing and delivering potable water for municipal and industrial uses, managing flood and storm waters, providing sanitary sewage services, and providing recreational services associated with its flood control and water conservation activities. SCWA delivers water to customers through its water transmission system. The primary water users, known collectively as the water contractors, consist of the cities of Santa Rosa, Rohnert Part, Petaluma, Cotati, and Sonoma; and the North Marin, Valley of the Moon, and the Forestville Water Districts. SCWA also provides water to the Marin Municipal Water District, the Town of Windsor, and the Lawndale Mutual, Penngrove, and Kenwood water companies.[6]

2.2 DEFINING ECONOMIC IMPACTS

Regional economic impact analysis provides for the measurement of income, industry sales, and employment adjustments that occur as a result of changes in the demand for regionally produced goods and services. Measures of economic impacts are generally developed to provide an indication of modifications in the level of economic activity caused by resource changes within a region. Among the most common measures of economic impacts are jobs, employment earnings, total personal income, and industry outputs associated with the sale of goods and services. Depending on whether the resource adjustments include increases or decreases in the demand for local products, changes in the economic impact measures may be either positive or negative.

The impact measures are generally developed to provide an indication of the relative magnitude of changes to economic activity in a region. Increases or decreases in the sales of goods and services provide an overall indication of the impacts to regional economic activity. Economic impact models were developed for Mendocino and Sonoma counties so that the economic effects of changes in crop production, recreation activity, and hydropower production resulting from changes in river flows and reservoir levels could be quantified.

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[6] Sonoma County Water Agency, "Urban Water Management Plan 2000."

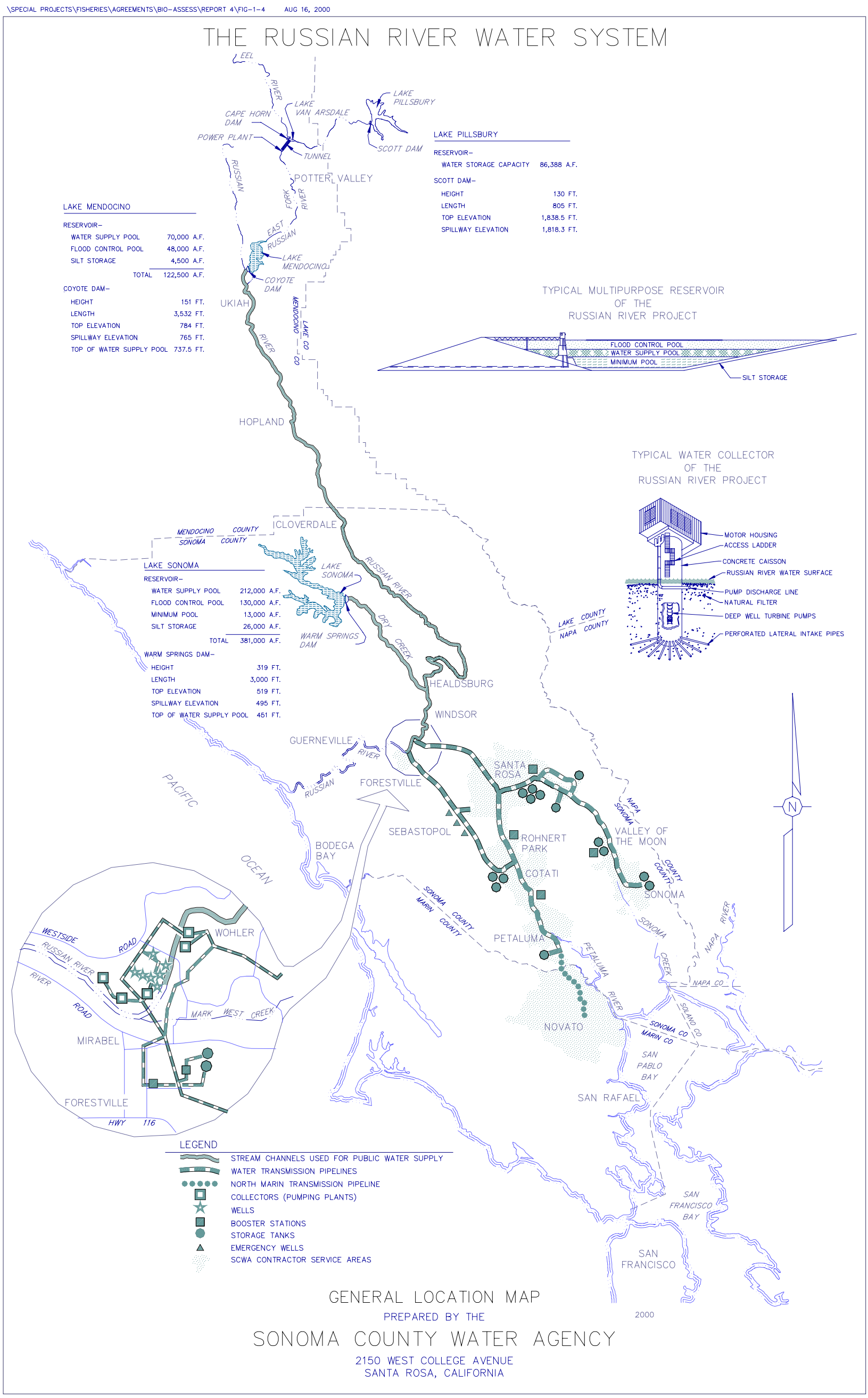

Figure 2-1 The Russian River Water System General Location Map

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One of the most commonly used methods of quantifying regional economic changes is through the use of an input-output (I-O) model. A business is linked to the regional economy through its purchase of inputs required to produce goods and services and through the sales of these goods to other businesses in the local area. The I-O model includes detailed information on the purchases of production inputs from local business, purchases of inputs from outside the region, purchases of labor inputs, and payments to management and ownership.

2.2.1 Direct Effects

Because the businesses within a local economy are linked together through the purchase and sales patterns of goods and services produced in the local area, an action which has a direct impact on one or more local industries is likely to have an indirect impact on many other businesses in the region. Direct impacts are the change in industry sales. These sales can be either for inputs to other industries in the region, or for final consumption by households and government in the region, or for exports from the region.

For example, a decline in the production of wheat (a direct impact) will lead to a reduction in spending in the local area as farms reduce production. Moreover, firms providing production inputs and support services to the farms would see a decline in their industry outputs as the demand for their products also declines. These additional effects are known as the indirect economic impacts. As household income is affected by the reductions in regional economic activity, additional impacts occur. The additional effects generated by reduced household spending are known as induced economic impacts.

Measuring impacts for recreation and tourism is different from the single-industry example given above. Expenditures for these activities occur in a number of industries. Typically, tourists pursuing recreation activities will spend money on food, other retail, gasoline, and possibly lodging.

Measuring the direct impacts is a key step in analyzing the impacts on a regional economy. Frequently, the impacts are measured in physical quantities, such as the change in the quantity of a crop that is produced or in the quantity of power generated. These physical quantities must be converted to a sales value for introduction to the I-O model. For recreation, an expenditure pattern needs to be identified that reflects how various categories of visitors, such as day users or those that stay overnight, spend money during their visit. It is important to identify only those expenditures related to the recreational activity of concern that actually occurs in the impact area, and exclude those expenditures that occur outside the impact area.

2.2.2 Regional Impacts

These I-O models are used to measure the direct, indirect, and induced linkages within a regional economy. The tool most often used to measure these interrelationships is known as a multiplier. An I-O model generates a variety of multipliers and each is associated with a specific industry. A multiplier is a single number that quantifies the total economic effects (for all businesses) which arise from direct changes in the economic activity of a single industry. Multipliers can be generated to measure the total output, income, and

employment effects associated with changes in the demand for regional goods and services. For example, an output multiplier of 2.5 for the fruit industry would indicate that a $100,000 decline in sales by this industry would lead to an overall decline of $250,000 in business sales throughout the economy, including the initial $100,000 loss to the fruit sector. An employment multiplier of 2.0 for the railroad industry would indicate that a loss of 10 jobs in this sector would lead to an additional loss of 10 jobs in other industries for a total loss of 20 jobs throughout the regional economy. In the case of recreation, the direct effects occur over a number of sectors and the aggregate of the multipliers is generally used as an indication of the overall effect of recreation.

2.3 DEFINING THE BASELINE

For the purposes of this economic analysis, the baseline against which impacts are measured reflects current economic conditions, industrial base, and water use. "Current conditions" are more precisely defined by the most recent available information, and for most socioeconomic elements is the year 2000. These data are articulated in the next section of this report, "Water in the Regional Economy."

2.3.1 FULL BUILDOUT

The California Water Code, Sections 10610 et seq., requires water agencies to prepare a regional Urban Water Management Plan, to quantify past and current use, and to quantify anticipated future water use to 20 years out.[7] The projection is used to demonstrate whether water supplies are adequate for the next 20-year planning period.

In Appendix A of the *Russian River Draft Biological Assessment*,[8] a "D1610 at buildout" (i.e., full buildout) alternative is considered whereby demand for water in the future is considered. The economic analysis also contains analysis of the full buildout alternative; however, no effort was made to attempt to project *economic conditions* into the future, including any growth that might ensue as a direct result of increased water supplies. That is, income and industrial output by economic sector remains unchanged from current conditions. Therefore, the analysis of economic effects is presented as if the future demand for water must be accounted for today. Operationally, the full buildout alternative considers water deliveries by SCWA for municipal and industrial purposes in the year 2020.

The full buildout scenario applies only to water demand and projections affecting SCWA. There is no equivalent future projection of water use that applies to Mendocino County or MCRRFCD.

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[7] California Water Code §10631, as cited in Sonoma County Water Agency, "Urban Water Management Plan 2000," p. 4-1.

[8] ENTRIX, Inc., "Alternative Actions," Appendix A to the Russian River Draft Biological Assessment, prepared for Sonoma County Water Agency, October 2003.

2.4 MEASURING IMPACTS

2.4.1 RECREATION

Recreation activities may be affected by the flow proposal through changes in water management methods that affect lake levels and river flows. Changes in lake levels affect recreation activities primarily by reducing access to boat ramps, swim beaches, marinas, campgrounds, etc. Access can be reduced by lake levels that are either too high or too low.

Storage volumes and related lake levels were projected by SCWA for the baseline and the flow proposal for both Lake Sonoma and Lake Mendocino. Thresholds for access were estimated through consultation with lake facilities managers.[9] For Lake Mendocino, the high threshold range was estimated at 749 to 755 feet above sea level and the low range at 725 to 726 feet above sea level. For Lake Sonoma, the high threshold range was 451 to 490 feet above sea level and the low range was 325 to 427 feet above sea level.

These values were then compared to projected lake elevations for the baseline and for the flow proposal for both lakes. This comparison was made at the low value of the high range and the high value of the low range for both lakes.

A similar process was followed for river flows. In this case, only low flows were of concern, particularly as they affected canoeing and other watercraft use. ENTRIX provided a threshold level for the Lower Russian River of 140 cubic feet per second (cfs).[10] Details about how the assumption was developed for a minimum boatable flow are found in Appendix D, Section D.3.3.1. Flow value projections for the baseline and the flow proposal were provided by SCWA for the river reach between Cloverdale and Healdsburg. A comparison was then made with this threshold and monthly average flow levels during the prime recreation season (May through September) to identify those months when average monthly flows fell below the 140-cfs threshold. The 140-cfs threshold level was also applied to recreation on the Upper Reach of the Russian River.

2.4.2 HYDROELECTRIC POWER GENERATION

Changes in water management as a result of the flow proposal can change the pattern of historic releases from Lake Sonoma and Lake Mendocino, which in turn could affect the amount of power generated compared to current conditions. Monthly flows were developed for the baseline and each phase of the flow proposal for each power facility. The methods below describe how the monthly flow data were used in conjunction with data on generator operation and capacity and power prices to estimate changes in the value of power produced for the baseline (i.e., D1610 current) and for each flow phase or scenarios as identified in the *Russian River Draft Biological Assessment* (Section 3.3,

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[9] Williams, Charles, dam operator and maintenance, Lake Mendocino, and Atchison, Mike, Park Manager, Lake Sonoma, personal communication, June 2, 2003 and May 2, 2003.

[10] ENTRIX, Inc. "Recreation Assessment for the Russian River Biological Assessment," Appendix D, Attachment 6, *Russian River Draft Biological Assessment*, October 2003.

Water Management)[11] and Appendix A[12] to the *Russian River Draft Biological Assessment*.

Average daily flows from January 1999 to May 2003 were provided by SCWA. From this record, daily flows were grouped into the categories shown in Table 2-1 in the cfs column. The average megawatts per day (MW/day) for each category were estimated and are shown in the MW/day column. The averages reflect days when flows were suitable for power generation but the generators were not operated or were operated for less than the full 24 hours.

Table 2-1 Operating Rules for Warm Springs Hydroelectric Facility, Lake Sonoma

Cubic Feet per Second (cfs)	MW/Day	No. of Days
<75	0	19
75-84	30.42	80
85-94	30.04	276
95-104	31.65	171
105-114	34.12	250
115-124	38.35	136
125-134	43.28	156
135-144	42.36	64
145-154	54.82	67
155-164	52.64	39
165-174	51.47	53
175-180	54.76	43
>180	55.68	232

The method used for estimating the value of power for Lake Sonoma begins with multiplying a value from the MW/day column of the table below that corresponds to a monthly flow value times the number of days in the month to determine the MW/month for that month. This was then multiplied by the summer or winter energy payment per hour, depending upon the month in question. To this value was added the summer or winter capacity payment to provide an estimate of the value of the power produced for the month.

The method for computing power generation from flow data was as follows:

For monthly flows below 75 cfs, the MW/day value is 0, and the value of power produced for such a month is the value of the capacity payment. This assumes that even though average flows during the month were estimated to be below 75 cfs, the variation in flows within the month would result in the minimum contract power requirement being

[11] ENTRIX, Inc., Russian River Draft Biological Assessment, prepared for USACE and SCWA, January 16, 2004.

[12] ENTRIX, Inc., "Alternative Actions," Appendix A to the *Russian River Draft Biological Assessment*, October 2003.

met. According to the data presented in Table 2-1, this was the case between January 1999 and May 2003. Although this assumption may not hold over a longer time period, it is valid for comparisons between the baseline and proposed flow phases.[13] For all other monthly flows, the value for MW/day is that presented in the table. The value above 180 cfs reflects the maximum historical operating capacity.

The method of computing power generation for Lake Mendocino from the flow data was similar to that used for Lake Sonoma and was as follows:

- If average monthly flows were below 125 cfs, no power was generated.
- Between 125 cfs and 400 cfs, the cfs was multiplied by the power generated per cfs per day (0.171) times the number of days in the month times the price ($65/ per megawatts [MW]).
- For flows over 400 cfs up to 2,000 cfs, the generators were considered to operate at maximum capacity (68.4 MW/day). The MW/day were multiplied by the days per month times the price.
- Above 2,000 cfs, releases were diverted around the penstocks and no power was generated.

2.4.3 Regional Impacts

Visitor day-impacts for paddlers were also estimated and the I-O model was used to estimate the economic impact on Sonoma County. Visitor expenditure profiles for commercial and private users, further divided into day use and overnight visits, were established. Multiplying the number of visits in these categories by the expenditure patterns provided an estimate of the direct effect of the change in number of visits from the baseline. The direct effect was then entered into the I-O model as a change in final demand and the indirect, induced, and total effects on the county economy were estimated.

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[13] In periods of extreme drought, it is possible that even the minimum contract generating requirement may not be met in a particular month. Such a circumstance would affect both the baseline and flow proposal phases. The relevant issue is whether the incidence would occur *more often* under any of the flow phases. Such an analysis was not done, but is not thought to be prevalent, if at all, and the measured economic impact would be relatively small.

3.1 ECONOMY OF SONOMA COUNTY

3.1.1 CURRENT ECONOMIC BASE

An I-O model was developed for each of the two impacted counties using IMPLAN data and software, discussed in more detail in Attachment 1. The base data for Sonoma County, which provides a "snapshot" of the local economy, are displayed in Table 3-1. Over $28.5 billion in goods and services are produced within Sonoma County, with local industry supporting nearly 272,000 jobs and earnings of nearly $11 billion. In terms of output, manufacturing is the largest industry, contributing over $7.4 billion, or over a quarter of the county's total industry output. The largest employer in Sonoma County, Agilent Technologies, Inc., manufactures measuring and controlling devices and most recently employed a total of 3,900 people at locations in Santa Rosa and Rohnert Park.[14]

Table 3-1 Sonoma County IMPLAN Model Base Data

Industry	Output *($millions)*	Income *($millions)*	Employment *(# of jobs)*
Agriculture, Forestry, and Fishing	$618.665	$310.644	14,414
Mining	$194.408	$40.115	502
Construction	$3,505.733	$1,397.892	23,996
Manufacturing	$7,407.369	$2,160.225	33,682
Transportation, Communication, and Public Utilities	$1,756.869	$396.841	7,869
Trade (Retail and Wholesale)	$3,295.213	$1,512.992	52,637
Finance, Insurance, and Real Estate	$4,583.628	$839.103	20,587
Services	$5,498.612	$2,865.457	85,015
Government	$1,604.243	$1,273.254	28,576
Other[1]	$35.490	$36.356	3,501
Total	**$28,500.229**	**$10,832.879**	**270,780**

[1] For this model, "other" consists primarily of domestic services (such as cleaning and maid services), as well as an "inventory valuation adjustment," used to estimate the value of goods removed from inventory that were produced in a previous time period at a different value.

Source: 2000 IMPLAN data from Minnesota IMPLAN Group, Inc., with modifications by Northwest Economic Associates.

Other significant manufacturing firms located in Sonoma County include Medtronic, Inc., which employs 1,700 and produces medical instruments and supplies, and JDS Uniphase

[14] Sonoma County Economic Development Board, in partnership with Sonoma County Workforce Investment Board, *Economic Development Board: Local Economic Report Series*, Vol. 2, Issue 1, Spring 2003.

Corporation, which designs and manufactures communications equipment and employs 990.[15]

The services sector is the largest in the county in terms of employment, with over 85,000 jobs, accounting for more than 30 percent of total employment. Services include a wide variety of businesses providing services to other businesses, individuals, government, and other organizations, such as lodging, health, or legal service providers. IMPLAN does not include an explicit recreation industry; expenditures from recreation are made in a number of sectors. Top employers in the services sector in Sonoma County include St. Joseph Health System, with 1,400 employees, Sutter Medical Center, with over 700 employees, and the Sonoma Mission Inn and Spa, a resort hotel with 700 employees.[16] Trade, which includes both retail and wholesale, is also a significant employer, with more than 52,000 jobs in the county. Long's Drug Stores, a retail chain, employs over 700 people in Sonoma County.[17] Agriculture, discussed in more detail below, is an important element of the county economy, as Sonoma County is a key producer of wine and other farm products.

3.1.1.1 Population

Age, race, and ethnic characteristics of the Sonoma County population, as recorded by the 2000 Census, are presented in Table 3-2. A total of 458,614 people lived within the county in 2000. The distribution among age groups is fairly typical of the state of California, except for a slightly larger percentage of county residents over the age of 65 (13 percent) compared to less than 11 percent for the state.[18]

The county population is predominantly white, with 82 percent of those counted by the 2000 Census identifying themselves as white. The next largest group, which accounts for 8 percent of the county population, includes those who selected "some other race." Because the 2000 Census allowed the selection of more than one race for each person, another 4 percent of the population selected "two or more races."

Hispanic origin is tallied separately from race, as a person of Hispanic origin can be of any race. Just 17 percent of the county's population identified themselves as being of Hispanic origin in the 2000 Census, as compared to 32 percent of the state population.[19]

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[15] Ibid.

[16] Ibid.

[17] Ibid.

[18] U.S. Census Bureau, Census 2000, *Table DP-1 Profile of General Demographic Characteristics: 2000*, Geographic Area: California.

[19] Ibid.

Table 3-2 Age, Race, and Ethnicity Characteristics of Sonoma County Population (2000)

Age, Race, and Ethnicity Characteristics	Number of People	Percentage of County Total
Age Group (Years)		
0 to 19 years	124,835	27%
20 to 34 years	86,212	19%
35 to 44 years	75,615	16%
45 to 54 years	73,837	16%
55 to 64 years	40,138	9%
65 years and over	57,977	13%
Race		
White	374,209	82%
Black or African American	6,522	1%
American Indian and Alaska Native	5,389	1%
Asian	14,098	3%
Native Hawaiian and Other Pacific Islander	934	<1%
Some Other Race	38,717	8%
Two or More Races	18,745	4%
Hispanic Origin		
Hispanic	79,511	17%
Non-Hispanic	379,103	83%
Total Population	**458,614**	**100%**

Note: Percentages may not appear to add to 100 due to rounding.

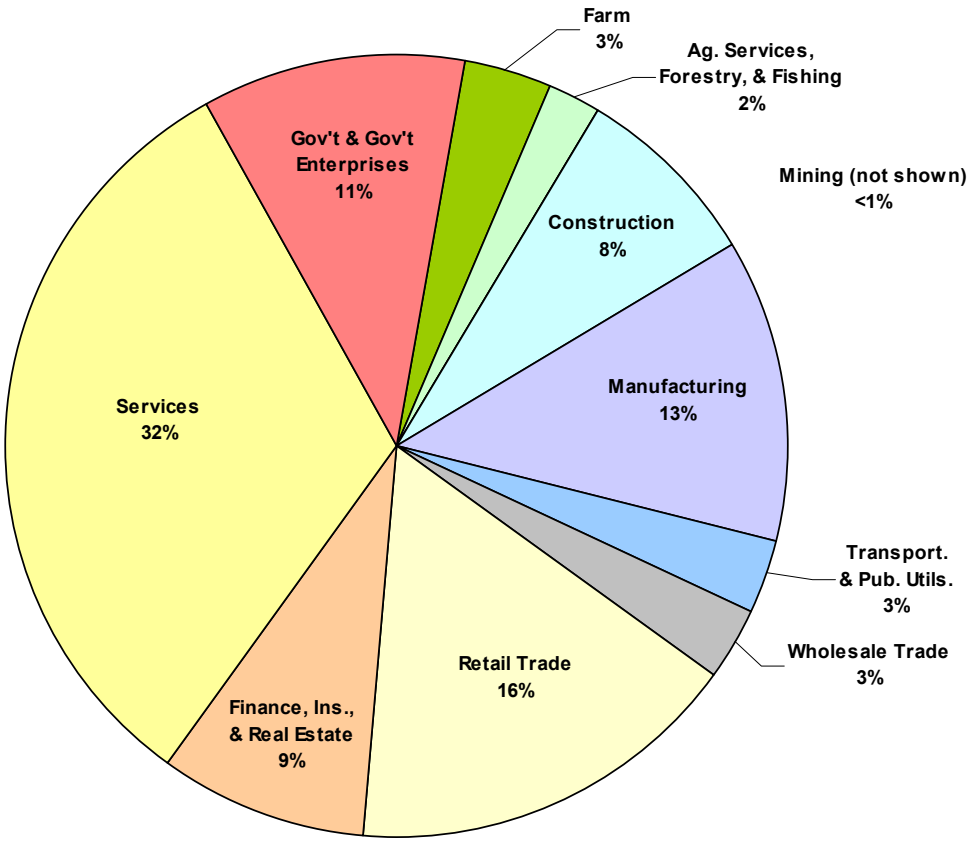
Source: U.S. Census Bureau, Census 2000, *Table DP-1 Profile of General Demographic Characteristics: 2000,* Geographic Area: Sonoma County, California.

Most of the residents of Sonoma County live within one of its several cities, as shown in Table 3-3. Santa Rosa is the largest city in the county, with a population of 147,595, or 32 percent of the county's residents.

Table 3-3 Sonoma County Cities and Population (2000)

City	Number of People	Percentage of County Total
Cloverdale	6,831	1%
Cotati	6,471	1%
Healdsburg	10,722	2%
Petaluma	54,548	12%
Rohnert Park	42,236	9%
Santa Rosa	147,595	32%
Sebastopol	7,774	2%
Sonoma	9,128	2%
Windsor	22,744	5%
Incorporated	**308,049**	**67%**
Unincorporated	**150,565**	**33%**

Source: California Department of Finance, Revised Historical City, County, and State Population Estimates, 1991 to 2000, with 1990 and 2000 Census Counts, March 2002.



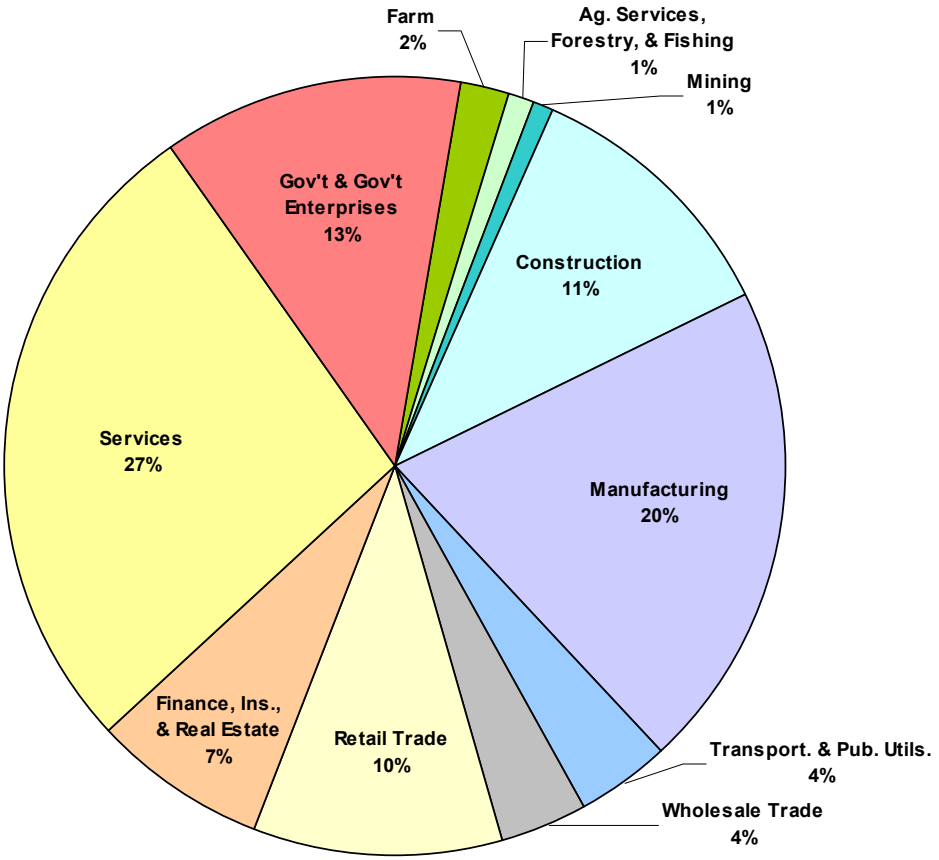
Source: U.S. Department of Commerce, Economics and Statistics Administration, Bureau of Economic Analysis, *Regional Economic Information System (REIS), 1969 to 2000*, CD-ROM, May 2002.

Figure 3-1 Sonoma County Employment by Industry (2000)

3.1.1.2 Employment and Earnings

Employment and earnings by industry are presented in Figures 3-1 and 3-2. These employment numbers from the Department of Commerce's Regional Economic Information System (REIS) count all jobs, including nonagricultural wage and salary employment, agricultural employment, and nonagricultural jobs that are not covered by state unemployment insurance, such as the self-employed. These numbers may differ slightly from the IMPLAN model data, which are compiled from a number of sources.

Employment in the services sector accounts for nearly one-third of all employment in Sonoma County. Other significant employers include retail trade, with 16 percent of the jobs, manufacturing, with 13 percent, and government and government enterprises, with 11 percent. Agricultural employment on farms and in agricultural services, forestry, and fishing contributes approximately 5 percent of the county's total employment.



Source: U.S. Department of Commerce, Economics and Statistics Administration, Bureau of Economic Analysis, Regional Economic Information System (REIS), 1969 to 2000, CD-ROM, May 2002.

Figure 3-2 Sonoma County Earnings by Industry (2000)

Earnings represent the sum of three components of personal income: wage and salary disbursements, other labor income (includes employer contribution to pension and profit-sharing, health and life insurance, and other non-cash compensation), and proprietors' income. Earnings reflect the amount of income that is derived directly from work and work-related factors. Earnings can be used as a proxy for the income that is generated within a geographical area by industry sectors, and can be used to identify the significant income-producing industries of a region or to show trends in industry growth or decline.

The services sector is also Sonoma County's largest in terms of earnings, but with a smaller share than for employment, at just 27 percent. Earnings for retail trade also decreased compared to the share of employment, as 16 percent of the jobs contribute only 10 percent of the earnings. The preponderance of part-time workers in the services and trade sectors, as well as the tendency for wages in these industries to be lower than others, likely affects the earnings figures. While manufacturing accounted for just 13 percent of the jobs, earnings in this industry contribute 20 percent of the county's total, due to the greater pay these jobs usually garner.

The labor force is made up of all persons 16 years of age or older within a specific geographic area who are either working or actively looking for work. The unemployment rate is the percentage of people within this labor force who are not employed, but still actively seeking work. The unemployment rate for the past several years has been lower for Sonoma County than for the state of California, suggesting greater opportunities for employment have existed in the county than for the entire state. In 2002, the annual average unemployment rate was 4.5 percent in Sonoma County,[20] compared to 6.7 percent for the state of California.[21] The lowest unemployment rate in recent years for the county was 2.6 percent in 2000.[22]

3.1.1.3 Economic Well-Being

Personal income is another indicator of a region's economic vitality. Personal income encompasses not only earnings, such as wages and salaries and other work-related compensation as discussed previously, but also transfer payments and investment income. Transfer payments are comprised of payments such as income maintenance, unemployment insurance, retirement benefits, and medical payments. Investment income includes interest, dividends, and rent from investments.

Per capita income is calculated by dividing the total personal income by the total population for a particular area. This figure can be used to compare regions or time periods, and is a useful indicator of the character of consumer markets and the overall economic "well-being" of area residents. Per capita income provides a good measure of how personal income is growing relative to a population, but does not necessarily indicate how that income is distributed among the population.

Sonoma County's per capita income in 2000 was $35,193, which was somewhat greater than that of the state of California, at $32,363.[23] Sonoma County ranked 10th of California's 58 counties in terms of per capita income, with Marin County reporting the highest, at $62,927.[24]

Another measure used to indicate economic well-being in a region is the percentage of people who are estimated to live below the poverty level. These data are based on national levels set for minimum income requirements for various different sizes of households. There is no correction for the variation in costs of living among areas. For example, if housing prices and food prices in a county were lower than national levels, then a family in that county with an income at the national poverty level might be better

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[20] California Employment Development Department, Labor Market Information Division, "Civilian Labor Force, Employment, and Unemployment — Updated 5/7/2003," for Sonoma County.

[21] California Employment Development Department, Labor Market Information Division, "Civilian Labor Force, Employment, and Unemployment — Updated 5/7/2003," for California State.

[22] California Employment Development Department, Labor Market Information Division, "Civilian Labor Force, Employment, and Unemployment — Updated 5/7/2003," for Sonoma County.

[23] U.S. Department of Commerce, Economics and Statistics Administration, Bureau of Economic Analysis, *Regional Economic Information System (REIS), 1969-2000*, CD-ROM, May 2002.

[24] Ibid.

off than a family with the same income living elsewhere in the nation. However, poverty figures can be useful to permit comparison between geographic areas and time periods.

The most recent available poverty data are from the 2000 Census, and are based on income levels reported for 1999. In 1999, 5,340 families in Sonoma County were found to have incomes below the poverty level, representing 4.7 percent of all families in the county for which poverty status was determined.[25] This is much lower than the 10.6 percent of families living in poverty that was reported for the state of California.[26] When individual people are counted, 36,349, or 8.1 percent, of the Sonoma County residents for which poverty status was determined lived below the poverty level in 1999.[27] This is also a far lower rate than that of the state, which reported that 14.2 percent of individuals for which poverty status was determined had incomes below the poverty level in 1999.[28]

3.1.2 Municipal and Industrial Water Use and Needs

SCWA is the purveyor of wholesale water to municipal and industrial (M&I) water users in Sonoma County and parts of Marin County. Water distributed in the recent past, and projections of future needs, are presented in Table 3-4. In 2000, SCWA delivered 60,692 AF to water contractors and other users. The largest single customer is the City of Santa Rosa, at approximately 23,000 AF in 2000.[29]

Table 3-4 Wholesale Water Distribution, Sonoma County Water Agency (AF)

Distribution	1990	1995	2000	2005	2010	2015	2020
Water Contractors	46,366	47,974	51,751	56,692	68,502	70,094	70,824
Other Users	5,073	5,670	8,941	10,378	11,458	12,650	13,967
Total	51,439	53,644	60,692	70,070	79,960	82,744	84,791

Source: Sonoma County Water Agency, "Urban Water Management Plan 2000," p. 4-1.

Future needs for M&I purposes are expected to increase nearly 40 percent over the next 20 years, to 84,791 AF. A large share of this can be attributed to growth in residential deliveries in the City of Santa Rosa, which anticipates an overall increase of approximately 50 percent over that time period.[30]

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[25] U.S. Census Bureau, Census 2000, *Table DP-3, Profile of Selected Economic Characteristics: 2000*, Geographic Area: Sonoma County, California.

[26] U.S. Census Bureau, Census 2000, *Table DP-3, Profile of Selected Economic Characteristics: 2000*, Geographic Area: California.

[27] U.S. Census Bureau, Census 2000, *Table DP-3, Profile of Selected Economic Characteristics: 2000*, Geographic Area: Sonoma County, California.

[28] U.S. Census Bureau, Census 2000, *Table DP-3, Profile of Selected Economic Characteristics: 2000*, Geographic Area: California.

[29] Sonoma County Water Agency, "Urban Water Management Plan 2000," pp. 4-1 to 4-2.

[30] Sonoma County Water Agency, "Urban Water Management Plan 2000," Table 4-2, p. 4-2.

3.1.3 AGRICULTURE AND WATER USE

The Central Coast region within which Sonoma County lies is home to some very fertile soils, allowing a wide range of agricultural products to be produced. The county's crop mix includes wine grapes, orchard crops, strawberries, and vegetables. The region also includes some of the highest value of farm products sold per farm.[31]

In 2001, Sonoma County ranked 16th among the 58 California counties for gross value of agricultural production. Approximately 54 percent of the county's total acreage is devoted to agricultural production.[32] Commodity groups grown include field crops, vegetable crops, fruit and nut crops, nursery, flowers and foliage crops, apiary, and livestock and livestock products. Sonoma County ranks second in the state for production of all types of grapes, producing 11.6 percent of California's total gross production value of the crop.[33] Shares of production value by commodity group for Sonoma County in 2001 are shown in Table 3-5.

Table 3-5 2001 Sonoma County Agricultural Production Value Shares

Fruit and Nut Crops	65.2%
Livestock and Poultry Products	17.1%
Livestock and Poultry	9.5%
Nursery Products	5.1%
Vegetable Crops	1.7%
Field Crops	1.3%

Source: California Agricultural Statistics Service, August 2002. Summary of County Agricultural Commissioners' Reports, 2001.

The most recent statistics available from the Sonoma County Wineries Association are for 1999. The data show the following economic influence of the various segments of the wine industry in Sonoma County.

- 4,263 individuals employed by wineries with a gross payroll of $142 million.
- 3,004 individuals employed by vineyards, with gross payroll of $54 million.
- 2 million tourists to wineries, with an estimated $201 million in expenditures.

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[31] California Farm Bureau Federation, "Facts and Stats about California Agriculture," 2003, http://www.cfbf.com/info/agfacts.aspx, accessed May 1, 2003.

[32] Pesconi, Tim, "County's ag goods known for quality," *Press Democrat,* June 9, 1996, www.pressdemo.com/outlook/.

[33] California Agricultural Statistics Service, August 2002, *Summary of County Agricultural Commissioners' Reports, 2001*.

In 1997, there were 570,804 total acres of land in farms, with an average size of 208 acres per farm. Of that acreage, 80,771 acres were harvested cropland and 49,261 of those acres, or 61 percent, were irrigated.[34] The market value of all agricultural products sold was $463.6 million, $320.3 million of which came from crops (including nursery and greenhouse crops). Hay and alfalfa comprised 26,565 acres, producing 65,715 dry tons. There were 2,001 acres of harvested vegetables, and 50,301 acres in orchards.[35]

Table 3-6 shows the acreage, irrigated acreage, and production value (in dollars) of Sonoma County by crop for years 2000 and 2001. Total irrigated acreage is currently slightly greater than 63,000 acres, with total production value just under $400 million. Wine grapes continues to be the largest crop in the county by all three of these measures, followed by field crops, and apples. Further, despite the reduction in total production value from 2000 to 2001, the total and irrigated acreage has increased, with irrigated acreage staying at approximately 73 percent of total harvested acreage.[36]

The Russian River basin includes several hydrologic basins or subunits. Each subunit is a relatively distinct geographic area of uniform hydrologic condition. Several irrigation districts and water agencies divert water from the Russian River system. In Sonoma County, SCWA serves the Middle Russian River subunit. The source of irrigation water for each of the irrigation districts and water agencies varies. SCWA pumps from various individual diversion points along the Russian River in the Middle Russian River area.

3.1.4 Recreation

Sonoma County is well known for its vineyards, the Middle and Lower Russian River recreation areas, and large tracts of coastal redwoods. The Russian River flows slowly in the summer through the redwoods in the Middle and Lower reaches, close to well-known vineyards, making this a popular tourist destination. Recreation and tourism generate significant economic activity within the Russian River basin in Sonoma County. The California Department of Tourism estimated 2001 visitor spending at $952.7 million in Sonoma County. Of this, it was estimated that $194.6 million was spent directly on recreation-related activities.[37]

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[34] U. S. Department of Agriculture, National Agricultural Statistics Service, *1997 Census of Agriculture,* March 1999.

[35] Ibid.

[36] Sonoma County Agricultural Commissioners, *Sonoma County Agricultural Crop Report, 2001*.

[37] Dean Runyan Associates, "Travel Impacts for Selected Counties," from *California Travel Impacts by County, 1992-2001, 2002 Preliminary State Estimates*, February 26, 2003.

Table 3-6 Sonoma County Crop Acreage and Production Value

Crop	Year	Acreage	Irrigated Acreage 2/	Production Value
Fruit and Nuts				
Wine Grapes	2001	58,364	46,691	$ 374,389,700
	2000	55,877	44,702	$ 389,853,900
Apples	2001	2,952	2,324	$ 5,905,400
	2000	3,786	2,981	$ 2,764,500
Prunes	2001	227	179	$ 158,600
	2000	297	234	$ 229,100
Walnuts	2001	190	150	$ 50,700
	2000	211	166	$ 57,200
Miscellaneous and Other Fruits and Nuts 1/	2001	209	165	$ 434,100
	2000	175	138	$ 469,200
Vegetables	2001	438	438	$ 10,119,500
	2000	659	659	$ 12,140,600
Field Crops				
Oat Hay	2001	7,806	1,952	$ 1,305,800
	2000	5,986	1,497	$ 1,183,700
Oat Silage	2001	5,197	1,299	$ 1,912,700
	2000	4,251	1,063	$ 1,490,700
Other hay and silage	2001	2,295	574	$ 780,200
	2000	2,802	701	$ 805,600
Irrigated Pasture	2001	9,450	9,450	$ 945,000
	2000	9,550	9,550	$ 955,000
Total	**2001**	**87,128**	**63,221**	**$ 396,001,700**
	2000	**83,594**	**61,689**	**$ 409,949,500**

Source: Sonoma County Agricultural Commissioners, *Sonoma County Agricultural Crop Report, 2001.*

1 Includes bushberries, kiwi, black walnuts, plums, all pears, peaches, strawberries, figs, chestnuts, olives, etc.

2 Irrigated acreage was estimated based on the share of irrigated acreage to total harvested acreage by crop type in the 1997 Agricultural Census and applied to the total 2000 and 2001 harvested acreage by crop type in the annual agricultural crop reports put out by the Sonoma County Agricultural Commissioners Office. Recreation.

The Russian River in Sonoma County is well-developed for recreation. The river flows south from the border of Mendocino County, through the city of Cloverdale and then through a relatively undeveloped stretch until it reaches Healdsburg. Most recreation development on the river is from this point south of Healdsburg and then west at Mirabel Park near Forestville to the Pacific Ocean at Jenner.

Many businesses located on the Russian River offer kayaking, canoeing, other watercraft use, and tubing rentals for day and overnight use. Five regional parks provide public access to the Russian River for swimming, paddling, and floating the Russian, hiking trails, and day use facilities. Three state parks are located in Sonoma County in the Russian River area. Willow Creek State Environmental Learning Camp is the only state park located directly on the Russian River, and offers a small number of primitive camp sites and access to both the river and an ocean beach. The Armstrong Redwoods State Reserve and Austin Creek State Recreation Area complex is located approximately 3 miles from the Russian River and offers camping, hiking, and day use activities.[38] Private beaches and campgrounds round out the facilities with access to the river.

Recreational users include the local residents of Sonoma County and a large number of recreational users residing outside of these counties. Many of the visitors from outside the area reside in the San Francisco Bay and North Bay areas. People who utilize the Russian River and the lake regularly participate in other tourism-related activities, such as wine tasting, while visiting the area.

3.1.4.1 Lake Sonoma

USACE manages the natural and man-made resources surrounding Lake Sonoma. The Lake Sonoma recreation area is divided into six distinct areas:

- Warm Springs Dam Recreation Area: Located downstream of the dam, this area occupies the largest piece of relatively flat land within the project boundaries. The day use area includes 12 acres of lawn, individual and group picnic areas, parking, and a visitors center. Nearby are Dry Creek and the Don Clausen Fish Hatchery.

- Project Overlook Area: Located off Stewarts Point Road at the eastern edge of the lake, this area includes a parking lot and restrooms serving an arbor-covered viewing plaza and tower.

- Lake Sonoma Marina: Located south of the overlook, the concessionaire-operated marina is reached by an access road from Stewarts Point Road. The marina has individual and group picnic areas, restrooms, a boat ramp, boat slips, boat rentals, a fueling station, and store.

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[38] California State Parks Department, "California State Parks, Armstrong Redwoods State Preserve," 2000, website: http://www.parks.ca.gov/default.asp?page_id=450, accessed June 11, 2003.

- Public Boat Ramp: Located west of the Warm Springs bridge, this area consists of a large parking area and a multilane boat ramp.

- Liberty Glen Campground: Located south of Rockpile Road on the northeast fork of the lake, this area consists of restrooms, hot showers, a trailer dump station, 113 individual campsites, and two camp areas for recreational vehicles and tent campers.

- Yorty Creek Recreation Area: Located south of Rockpile Road on the northeast fork of the lake, this area consists of a car-top boat launch facility, parking lot, swimming beach, picnic area, and restrooms.

In addition to these recreation areas, Lake Sonoma has 40 miles of developed horseback and hiking trails and a number of boat-in campsites. There is also an 8,000-acre Wildlife Management area jointly managed by the USACE and CDFG.

Visitation records have been kept for Lake Sonoma since 1979 when the park was under construction. Until 1986, visitation at Lake Sonoma was recorded by vehicle estimation. In 1986, magnetic vehicle counters were installed and visitor use surveys conducted. Visitation has increased steadily since completion of Warm Springs Dam, but has remained relatively constant since 1992, with approximately 526,000 visits per year.[39] Visitation by year is shown in Table 3-7.

Most visits to Lake Sonoma occur between Memorial Day and Labor Day. The months of June, July, and August account for 45.0 percent of all visitation; September, October, and November account for 17.6 percent; December, January, and February account for 12.2 percent; and March, April, and May account for 28.4 percent (see Table 3-8). Approximately 47 percent of the visitors to Lake Sonoma live within 25 miles of Lake Sonoma; another 31 percent live within 26 and 100 miles of the project, and the remaining 22 percent live more than 100 miles from Lake Sonoma.[40]

Approximately 88 percent of the visits to Lake Sonoma are for day use, and the remaining 12 percent are overnight campers. Day use and camping visitors participate in picnicking (12 percent), boating (34 percent), water-skiing (21 percent), fishing (15 percent), swimming (21 percent), hunting (0.5 percent), and sightseeing (49 percent).[41]

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[39] U.S. Army Corps of Engineers, Operational Management Plan: Lake Sonoma, 1997.

[40] Ibid.

[41] Ibid.

Table 3-7 Lake Sonoma Visitation, by Month (1996 to 2002)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1986	23,116	24,850	34,096	53,745	76,283	86,685	97,087	76,861	41,609	26,007	20,804	16,759	577,902
1987	23,536	25,301	34,716	54,721	77,669	88,260	98,851	78,257	42,365	26,478	21,182	17,064	588,400
1988	21,240	22,833	31,329	49,383	70,092	79,650	89,208	70,623	38,232	23,895	19,116	15,399	531,000
1989	22,776	24,484	33,595	52,954	75,161	85,410	95,659	75,730	40,997	25,623	20,498	16,513	569,400
1990	22,340	24,016	32,952	51,941	73,722	83,775	93,828	74,281	40,212	25,133	20,106	16,197	558,503
1991	24,460	26,295	36,079	56,870	80,718	91,725	102,732	81,330	44,028	27,518	22,014	17,734	611,503
1992	20,560	22,102	30,326	47,802	67,848	77,100	86,352	68,362	37,008	23,130	18,504	14,906	514,000
1993	18,300	22,500	30,300	46,500	51,500	76,900	102,700	74,200	42,800	18,300	16,000	21,600	521,600
1994	18,200	23,200	34,700	42,100	59,700	73,500	95,964	59,100	44,200	27,500	23,800	22,800	524,764
1995	42,278	18,375	42,055	47,366	72,024	83,755	98,182	84,098	53,910	37,758	32,288	19,962	632,051
1996	32,023	32,417	40,264	51,139	67,546	81,991	95,021	34,623	43,536	34,244	30,091	23,836	566,731
1997*													482,000
1998*													446,900
1999*													362,162
2000*										22,421	29,388	14,782	
2001	12,633	12,125	32,749	33,478	59,432	51,444	48,653	48,798	42,783	30,319	21,428	14,615	408,457
2002	15,399	27,658	26,877	34,513	48,321	68,467	63,777	56,657	46,127				
Average	**22,835**	**23,550**	**33,849**	**47,886**	**67,694**	**79,128**	**89,847**	**67,917**	**42,908**	**26,794**	**22,709**	**17,859**	**526,358**

*Monthly data not available for 1997 through September 2000.

Sources: 1986 to 1996 data: U.S. Army Corps of Engineers. 1997. Operational Management Plan: Lake Sonoma.

2000 to 2001 data: Atchison, Michael, May 2, 2003, "Activity Distribution Reports, Lake Sonoma," and U.S. Army Corps of Engineers San Francisco District, Lake Sonoma/Warm Springs Dam, Geyserville, California.

Table 3-8 Lake Sonoma Average Visitation by Month and Monthly Percent of Total Average Yearly Visitation

Month	Average Visitation	Percentage of Yearly Average Total
January	22,835	4.34%
February	23,550	4.47%
March	33,849	6.43%
April	47,886	9.10%
May	67,694	12.86%
June	79,128	15.03%
July	89,847	17.07%
August	67,917	12.90%
September	42,908	8.15%
October	26,794	5.09%
November	22,709	4.31%
December	17,859	3.39%
Average Total Visitation	**526,358**	**100.00%**

Sources: 1986 to 1996 data: U.S. Army Corps of Engineers. 1997. Operational Management Plan: Lake Sonoma. 2000 to 2001 data: Atchison, Michael, May 2, 2003, "Activity Distribution Reports, Lake Sonoma," and U.S. Army Corps of Engineers San Francisco District, Lake Sonoma/Warm Springs Dam, Geyserville, California.

3.1.4.2 Canoeing and Other Paddle Sports

"Paddle sports" encompass canoeing, kayaking, and other watercraft use. Paddling, tubing, and swimming are popular on the Russian River, especially during the spring and summer. Paddling is most prominent in the area of the Russian River below Healdsburg.

3.1.4.3 Fishing

Fishing is common on the Russian River, Dry Creek, and in Lake Sonoma. The Russian River has runs of wild and hatchery-reared steelhead and this fishery is very popular from October through March when the fish return to spawn. Other summer fisheries on the river, Dry Creek, and in Lake Sonoma include shad, striped, largemouth, and smallmouth bass, and rainbow trout.

In 1997, California revised its steelhead sport fishing regulations to not allow any taking of wild steelhead.[42] Hatcheries marked fish by removing their adipose fins to enable fishermen to identify hatchery fish so that they could release the wild fish and keep the hatchery fish. Without the marking of hatchery fish, it is likely that steelhead fishing would be reduced. The hatchery-reared steelhead fishery on most of the mainstem of the

[42] Jackson, Terry A., manager of California Department of Fish and Game, Fish and Watershed Branch, Report-Restoration Card program, Sacramento, California, personal communication, May 16, 2003.

Russian River is technically open year-round with a bag limit of two fish.[43] However, most steelhead fishing takes place in October through March, when the adults return to spawn.

One fishing guide roughly estimated that approximately 95 percent of the fishing trips he led are for steelhead. Of his clients, approximately 80 percent were not from the local area and stayed overnight in local accommodations.[44]

Summer fishing on the Russian and its tributaries starts with the shad run in May and continues through July. The smallmouth bass fishery becomes popular as the river and lake warms up. Lake Sonoma is very popular for lake fishing.[45] On Lake Sonoma, the fishery includes largemouth bass, rainbow trout, red-eared sunfish, channel catfish, and smallmouth bass. [46]

3.1.4.4 Boating

Lake Sonoma is popular for motorized boating, waterskiing, and personal watercraft use. Estimated total trips for these activities for fiscal year 2000 to 2001 at the lake were over 218,000, and in fiscal year 2001 to 2002 were almost 335,000. Other motorized boating occurs in the wider and deeper parts of the Russian River, most likely in conjunction with fishing. However, no statistics on motorized boating on the river are currently available.

3.1.5 Hydroelectric Power Generation

The proposed alteration in flows in the Upper Russian River and Dry Creek will affect hydroelectric generation at Warm Springs Dam. The hydroelectric generation facility at Warm Springs Dam on Lake Sonoma is owned and operated by the SCWA.

The turbines at Warm Springs Dam operate at flows between 75 and 180 cfs. When flows are below this range, the turbines do not operate, and above this range, excess water above the 180 cfs is spilled. The turbines generate 3 MW of electricity at peak capacity (180 cfs). Between January 1999 and May 2003, the turbines operated 92.5 percent of the time and generated over 14,500 MW of electricity per year, on average.[47]

All the power produced is sold to PG&E at a fixed contract rate that differs between summer and winter months. This contract became effective August 1, 2001, and extends

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43 State of California Fish and Game Commission, *2003 Freshwater Sport Fishing Regulations Booklet*, March 1, 2003, p. 48.

44 Swaney, Mike, owner of Fishing Guide Service by Bernard, Sebastopol, California, personal communication, May 23, 2003.

45 Cox, Bill, fisheries biologist for the California Department of Fish and Game, Sonoma County, California, personal communication, May 16, 2003.

46 Ibid.

47 All information and data regarding generation at Warm Springs Dam was obtained from discussions and SCADA system data provided by Pam Jeane, SCWA Deputy Chief Engineer of Operations, May 9 and 12, 2003; and from Randy Cullen, SCWA Operations Manager, May 13, 2003.

at least five years. The price paid is a composite of a capacity payment and an energy payment. The energy payment is targeted to be $47.18/MW during the summer (May 1 through October 31) and $60.33/MW during the winter, and adjustments are made so that actual payments are as close as possible to the target.

In addition, the monthly capacity payment is due whenever SCWA meets its minimum contract power requirements. The capacity payment is currently $7,922 during the winter and $29,083 during the summer.[48] Table 3-9 summarizes payments made over the last 19 months and demonstrates how billing is computed.

Table 3-9 Warm Springs Power Payment Summary

Month	KWH Generated	Payments Energy	Payments Capacity	Service Charge	Total Payment	Average Energy Pymt
Sep-01	1,098,887	$42,927	$29,057	$75	$72,059	
Oct-01	960,459	$45,697	$29,057	$75	$74,829	
Nov-01	775,058	$46,863	$7,915	$75	$54,853	
Dec-01	1,474,312	$89,181	$7,915	$75	$97,171	
Jan-02	1,930,193	$115,917	$7,915	$75	$123,758	
Feb-02	1,186,368	$72,104	$7,915	$75	$79,945	
Mar-02	1,339,789	$80,847	$7,915	$75	$88,688	
Apr-02	1,226,390	$74,412	$7,915	$75	$82,252	$60.43
May-02	1,033,783	$49,541	$29,057	$75	$78,524	
Jun-02	1,053,749	$50,825	$29,057	$75	$79,808	
Jul-02	1,279,748	$61,739	$29,057	$75	$90,721	
Aug-02	1,512,376	$72,880	$29,057	$75	$101,863	
Sep-02	1,230,278	$59,588	$29,083	$75	$88,596	
Oct-02	1,191,116	$57,508	$29,083	$75	$86,516	$48.22
Nov-02	1,201,518	$73,297	$7,922	$75	$81,144	
Dec-02	1,417,264	$86,512	$7,922	$75	$94,359	
Jan-03	1,649,050	$101,931	$7,922	$75	$109,778	
Feb-03	1,583,844	$96,872	$7,922	$75	$104,719	
Mar-03	1,602,077	$97,580	$7,922	$75	$105,428	$61.20
Totals	**24,746,259**	**$1,376,221**	**$319,614**	**1,425**	**1,695,010**	

[48] "Long-Term Energy and Capacity Power Purchase Agreement between Sonoma County Water Agency and Pacific Gas and Electric Company," May 7, 1984; and "Amendment to the Purchase Power Agreement between the Sonoma County Water Agency and Pacific Gas and Electric Company," July 31, 2001.

3.2 ECONOMY OF MENDOCINO COUNTY

3.2.1 CURRENT ECONOMIC BASE

The base data for the IMPLAN model developed for Mendocino County are displayed in Table 3-10. Just under $4.1 billion in goods and services are produced within Mendocino County, and these local industries support nearly 50,000 jobs and earnings of over $1.4 billion. As in Sonoma County, manufacturing is the largest industry in terms of output, contributing just over $1 billion, or more than a quarter of the county's total industry output. The lumber and wood products area of manufacturing has experienced declines in recent years, but still plays an important role in the Mendocino County economy. The two largest manufacturing employers in the county are the Building Products Group of the Masonite Corporation, a paperboard mill in Ukiah with 400 employees, and Georgia Pacific West, a sawmill in Fort Bragg with 400 employees.[49]

Table 3-10 Mendocino County IMPLAN Model Base Data

Industry	Output *($millions)*	Income *($millions)*	Employment *(# of jobs)*
Agriculture, Forestry, and Fishing	$212.576	$106.156	5,213
Mining	$10.761	$2.203	39
Construction	$431.805	$139.050	3,635
Manufacturing	$1,040.709	$222.700	5,780
Transportation, Communication, and Public Utilities	$288.107	$60.390	1,367
Trade (Retail and Wholesale)	$483.497	$225.631	9,878
Finance, Insurance, and Real Estate	$559.167	$73.337	2,663
Services	$719.560	$345.148	14,027
Government	$301.973	$241.209	6,332
Other[1]	$6.660	$6.738	735
Total	**$4,054.814**	**$1,422.562**	**49,669**

[1] For this model, "other" consists primarily of domestic services (such as cleaning and maid services), as well as an "inventory valuation adjustment," used to estimate the value of goods removed from inventory that were produced in a previous time period at a different value.

Source: 2000 IMPLAN data from Minnesota IMPLAN Group, Inc., with modifications by NEA.

[49] Upstate California Economic Development Council, *Mendocino County, California, Statistical Profile*, http://www.upstatecalifornia.com/NorCal/Pdf/Mendocino.pdf, downloaded June 3, 2003.

The services sector dominates employment in the county, contributing a little over 28 percent of the total jobs in the county, or over 14,000 jobs. The largest county employer in the services sector is Productive People Employment Services, a labor resource service located in Ukiah and with nearly 300 employees.[50] Several area hospitals are also significant employers in the services sector, such as the Mendocino Coast Hospital in Fort Bragg with 224 employees, the Howard Frank R Memorial Hospital in Willits with 160 employees, and the Ukiah Adventist Hospital in Ukiah with 150 employees.[51] Trade, which includes retail and wholesale, is the second largest employer, with nearly 9,900 jobs or nearly 20 percent of the county total employment. Agriculture is also an important contributor to the county economy, providing more than 10 percent of the total county jobs, and is discussed in greater detail later in this section of the report.

3.2.1.1 Population

Age, race, and ethnic characteristics of the Mendocino County population from the 2000 Census are presented in Table 3-11. A total of 86,265 people lived within the county in 2000. The distribution among age groups shows some differences between the county and the state. Nearly 41 percent of the Mendocino County population is at least 45 years old compared to just 31 percent of the state population.[52]

The population is predominantly white, with nearly 81 percent of Mendocino County residents identified as white in the 2000 Census. The next largest group, accounting for nearly 9 percent of the county population, includes those who selected "some other race." Several Indian rancherias and reservations have lands within Mendocino County, which likely explains the near 5 percent of the population identified as American Indian or Alaska Native. Because the 2000 Census allowed the selection of more than one race for each person, another 4 percent of the population selected "two or more races."

Hispanic origin is tallied separately from race, as a person of Hispanic origin can be of any race. Just under 17 percent of the county's population identified themselves as being of Hispanic origin in the 2000 Census, as compared to 32 percent of the state population.[53]

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[50] Ibid.

[51] Ibid.

[52] U.S. Census Bureau, Census 2000, *Table DP-1 Profile of General Demographic Characteristics: 2000,* Geographic Area: California.

[53] Ibid.

Table 3-11 Age, Race, and Ethnicity Characteristics of Mendocino County Population (2000)

Age, Race, and Ethnicity Characteristics	Number of People	Percentage of County Total
Age Group (Years)		
0 to 19 years	24,381	28.3%
20 to 34 years	14,315	16.6%
35 to 44 years	12,451	14.4%
45 to 54 years	14,600	16.9%
55 to 64 years	8,809	10.2%
65 years and over	11,709	13.6%
Race		
White	69,671	80.8
Black or African American	536	0.6
American Indian and Alaska Native	4,103	4.8
Asian	1,038	1.2
Native Hawaiian and Other Pacific Islander	126	0.1
Some Other Race	7,427	8.6
Two or More Races	3,364	3.9
Hispanic Origin		
Hispanic	14,213	16.5
Non-Hispanic	72,052	83.5
Total Population	**86,265**	**100%**

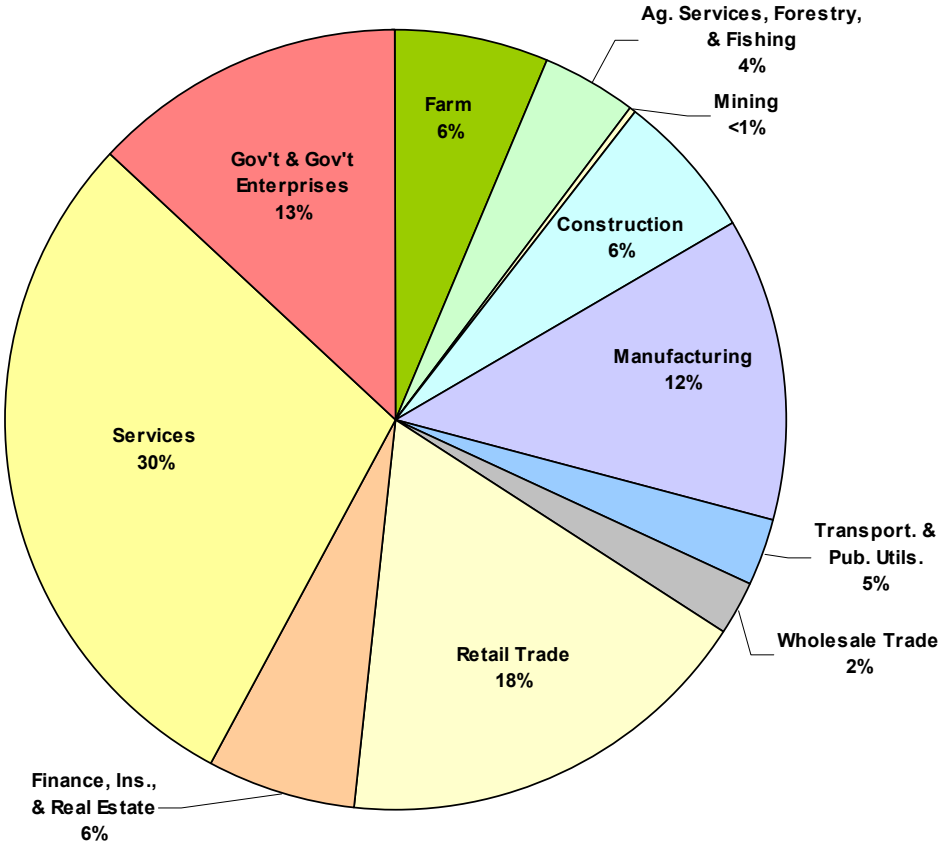
Note: Percentages may not appear to add to 100 due to rounding.
Source: U.S. Census Bureau, Census 2000, Table DP-1 Profile of General Demographic Characteristics: 2000, Geographic Area: Mendocino County, California.

In sharp contrast to Sonoma County, two-thirds of the residents of Mendocino County live in the unincorporated areas of the county, as shown in Table 3-12. The largest city in the county is Ukiah, with a population of 15,497, or 18 percent of the county's residents.

Table 3-12 Mendocino County Cities and Population (2000)

City	Number of People	Percentage of County Total
Fort Bragg	7,026	8%
Point Arena	474	1%
Ukiah	15,497	18%
Willits	5,073	6%
Incorporated	28,070	33%
Unincorporated	58,195	67%

Source: California Department of Finance, Revised Historical City, County, and State Population Estimates, 1991 to 2000, with 1990 and 2000 Census Counts, March 2002.



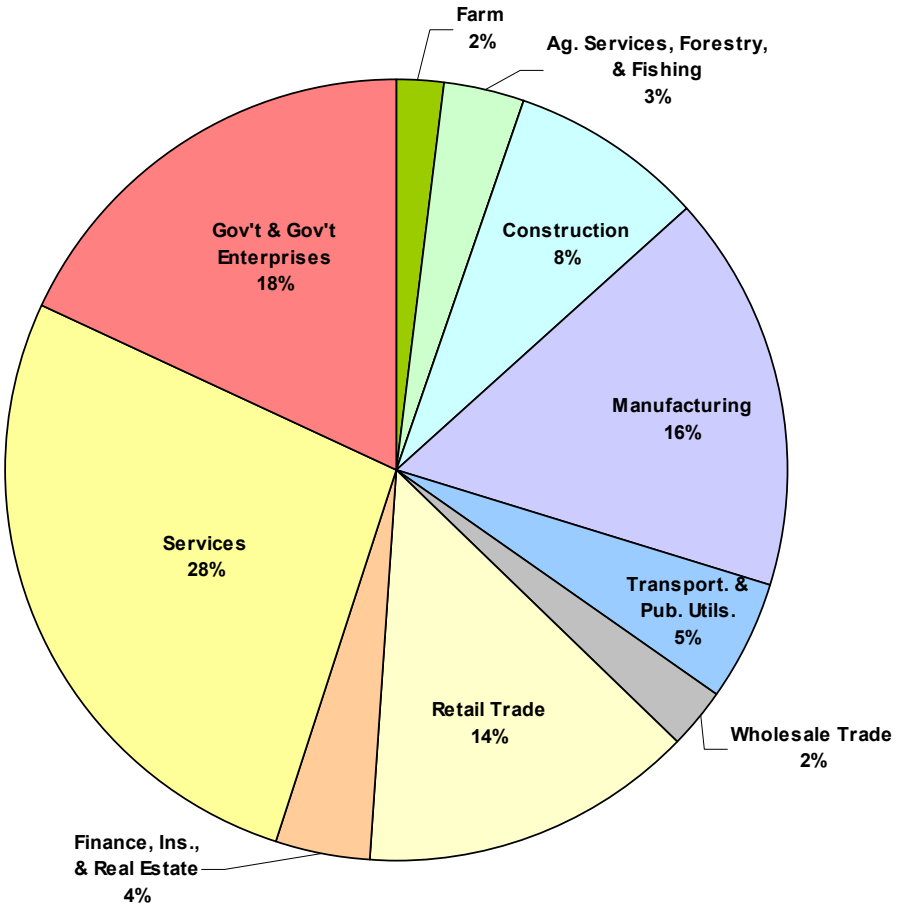
Source: U.S. Department of Commerce, Economics and Statistics Administration, Bureau of Economic Analysis, *Regional Economic Information System (REIS), 1969 to 2000*, CD-ROM, May 2002.

Figure 3-3 Mendocino County Employment by Industry (2000)

3.2.1.2 Employment and Earnings

REIS employment and earnings by industry data for Mendocino County are presented in Figures 3-3 and 3-4. The largest employer in Mendocino County is the services sector, which accounts for 30 percent of total employment. Other significant employers include retail trade with 18 percent of the jobs, government with 13 percent, and manufacturing with 12 percent. Agricultural employment in Mendocino County is also somewhat significant, with jobs on farms and in agricultural services, forestry, and fishing contributing approximately 10 percent of the county's total employment.

In terms of earnings, the services sector is also Mendocino County's largest, contributing 28 percent of total earnings, slightly less than its 30 percent share of total employment in the county. Retail trade contributes 14 percent of the total county earnings, somewhat less than its 18 percent share of total jobs. As in Sonoma County and elsewhere, the preponderance of part-time workers in the services and trade sectors, as well as the tendency for wages in these industries to be lower than others, likely affects the earnings figures. This is also true in the agricultural sectors, where even though farm and agricultural services jobs make up 10 percent of the county's total employment, earnings for these jobs only contribute 5 percent of total county earnings. Others sectors show greater earning power. While government accounted for just 13 percent of the jobs,



Source: U.S. Department of Commerce, Economics and Statistics Administration, Bureau of Economic Analysis, *Regional Economic Information System (REIS), 1969 to 2000*, CD-ROM, May 2002.

Figure 3-4 Mendocino County Earnings by Industry (2000)

earnings in this industry contribute 18 percent of the county's total. Manufacturing shows a similar pattern, as 12 percent of the total jobs contribute 16 percent of total earnings.

The unemployment rate for the past several years has been somewhat greater in Mendocino County than for the total state of California, suggesting less opportunity for employment available in the county than for the entire state. In 2002, the annual average unemployment rate was 7.2 percent in Mendocino County,[54] compared to 6.7 percent for the state of California.[55] Unemployment in Mendocino County exhibits some seasonal characteristics, as it appears to reach its highest points in the winter months and lowest points in the summer months. For instance, in 2002, while the average unemployment rate for the year was 7.2 percent, the highest monthly rates were in January (9.8 percent) and February (9.2 percent) and the lowest monthly rates were in August and September

[54] California Employment Development Department, Labor Market Information Division, "Civilian Labor Force, Employment, and Unemployment — Updated 5/7/2003," for Mendocino County.

[55] Ibid.

(5.5 percent for both).[56] Jobs in agricultural and timber-related industries are typically prone to this seasonality.

3.2.1.3 Economic Well-Being

The per capita income for Mendocino County in 2000 was $25,301, which was considerably lower than that of the state of California, at $32,363.[57] While Sonoma County ranked 10th of California's 58 counties in terms of per capita income, Mendocino County is ranked 24th.[58]

The most recent available poverty data are from the 2000 Census, and are based on income levels reported for 1999. In 1999, 2,402 families in Mendocino County were found to have incomes below the poverty level, representing 10.9 percent of all families in the county for which poverty status was determined.[59] This is a similar rate to that reported for the state of California, 10.6 percent.[60] When individual people are counted, 13,505, or 15.9 percent, of the Mendocino County residents for which poverty status was determined lived below the poverty level in 1999.[61] This is somewhat greater than the 14.2 percent of individuals living below the poverty level that was reported for the state in 1999.[62]

3.2.2 AGRICULTURE AND WATER USE

Mendocino County is within the North Coast region, in which farms are generally larger in size per acre and smaller in number than other California regions. Hay, irrigated pasture, and rangeland covers privately owned land and leased public land. Wine grapes and pears are the principal crops produced in Mendocino County.[63] The agricultural areas of Mendocino County include Redwood Valley, Potter Valley, Ukiah Valley, Sanel Valley, McDowell Valley, Anderson Valley, Cole Ranch, Mendocino Ridge, and Yorkville Highlands.[64]

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56 Ibid.

57 U.S. Department of Commerce, Economics and Statistics Administration, Bureau of Economic Analysis, *Regional Economic Information System (REIS), 1969-2000*, CD-ROM, May 2002.

58 Ibid.

59 U.S. Census Bureau, Census 2000, *Table DP-3, Profile of Selected Economic Characteristics: 2000*, Geographic Area: Mendocino County, California.

60 U.S. Census Bureau, Census 2000, *Table DP-3, Profile of Selected Economic Characteristics: 2000*, Geographic Area: California.

61 U.S. Census Bureau, Census 2000, *Table DP-3, Profile of Selected Economic Characteristics: 2000*, Geographic Area: Mendocino County, California.

62 U.S. Census Bureau, Census 2000, *Table DP-3, Profile of Selected Economic Characteristics: 2000*, Geographic Area: California.

63 California Farm Bureau Federation, "Facts and Stats about California Agriculture," 2003, http://www.cfbf.com/info/agfacts.aspx, accessed May 1, 2003.

64 Mendocino Wine Growers Alliance, "Quick Facts on Mendocino Wine Country," www.mendowine.com/wineries/facts.html, accessed May 23, 2003.

Mendocino County is second in California in timber production volume, with 117,596 million board feet in 2001. Timber was 28.5 percent of Mendocino County's total agricultural value. In 2001, Mendocino County ranked 32nd of the 58 California counties for gross value of agricultural production. Commodity groups grown include field crops, vegetable crops, fruit and nut crops, nursery, flowers, and foliage crops, and livestock and livestock products. The county ranks third in the state for pear production, based on gross production value.[65]

Table 3-13 shows the acreage, irrigated acreage, and production value (in dollars) of Mendocino County by crop for the year 2001. Total irrigated acreage is currently just under 25,000 acres, with total production value approximately $111 million. Wine grape production continues to be the dominant crop in the county by all three of these measures, followed most closely by pears in production value and by irrigated pasture in total and irrigated acres. Irrigated acreage comprises over 95 percent of the total harvested acreage, for which data are available.[66] It should be noted, however, that this percentage would decline with the addition of the miscellaneous field crop acreage, as the estimated percent irrigated is only 38 percentage. The magnitude of the percent decline depends on the actual total acreage of those crops.

Table 3-13 2001 Mendocino County Crop Acreage and Production Value

Crop	Total Acres	Irrigated Acres[6]	Production Value ($)
Apples	421	384	870,000
Wine Grapes	16,446	15,493	87,678,400
Pears	2,427	2,212	14,527,000
Walnuts	75	68	[4]
Miscellaneous Fruit/Nuts[1]	122	111	1,157,000
Vegetable Crops	360	360	1,111,500
Miscellaneous Field Crops[2]	N/A	N/A[3]	4,350,000
Irrigated Pasture	6,000	6,000	999,000
Total[5]	**25,851**	**24,628**	**$110,692,900**

1 Includes berries, cherries, chestnuts, guava, peaches, persimmons, pistachios, plumbs, olives, and table grapes.
2 Includes alfalfa, barley, beans, corn, oats, and hay.
3 Irrigated acres of miscellaneous field crops are assumed to equal approximately 38 percent of total acreage.
4 Production value is included in "Miscellaneous Fruit/Nuts" category.
5 Does not include acreage for miscellaneous field crops, as data are not available.
6 Irrigated acreage was estimated based on the share of irrigated acreage to total harvested acreage by crop type in the 1997 Agricultural Census and applied to the total 2001 harvested acreage by crop type in the annual agricultural crop report put out by the Mendocino County Agricultural Commissioners Office.

Source: County of Mendocino, Department of Agriculture, Mendocino County Crop Report, 2001.

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65 California Agricultural Statistics Service, *Summary of County Agricultural Commissioners' Reports, 2001*, August 2002.

66 County of Mendocino, Department of Agriculture, *Mendocino County Crop Report, 2001*.

In 1997, there were 638,566 total acres of land in farms, with an average size of 585 acres per farm.[67] Of that acreage, 30,425 acres were harvested cropland and 22,219 of those acres, or 73 percent, were irrigated. The market value of all agricultural products sold was $116.9 million, $102.5 million of which came from crops (including nursery and greenhouse crops). Hay and alfalfa comprised 10,062 acres, producing 21,914 dry tons. There were 556 acres of harvested vegetables, and 19,272 acres in orchards.[68]

Several irrigation districts and water agencies divert water from the Russian River system. In Mendocino County, these include the Potter Valley Irrigation District (PVID) located in the Coyote subunit, the Redwood Valley County Water District (RVCWD) located in the West Fork subunit, and the MCRRFCD located in the Upper Russian River subunit. The source of irrigation water for each of the irrigation districts and water agencies varies. PVID pumps water directly from the project tailrace. RVCWD pumps water from Lake Mendocino, and MCRRFCD has various individual diversion points along the Russian River in the Upper Russian River area.

3.2.3 RECREATION

Recreation and tourism generate significant economic activity within the Russian River Basin in Mendocino County. The California Department of Tourism estimated 2001 visitor spending at $333.0 million in Mendocino County. Of this, it was estimated that $62.8 million in Mendocino County was spent directly on recreation related activities.[69]

3.2.3.1 Lake Mendocino

Lake Mendocino is located 2 miles northeast of Ukiah, off U.S. Highway 101 where the redwood forests meet the wine country. Created in 1958 by the construction of Coyote Valley Dam on the East Fork Russian River, the lake has a surface area of 1,822 acres.[70] In addition to providing flood protection, water storage, and hydroelectric power, the dam and lake provide many recreation opportunities.

The USACE manages the natural and man-made resources surrounding Lake Mendocino. Activities include fishing for striped bass, largemouth and smallmouth bass, bluegill, and several varieties of catfish. Sailing, boating, waterskiing, swimming, and picnicking are also popular. Facilities at the lake include campgrounds, RV pads, boat ramps, day use areas, and a marina. The Lake Mendocino recreation area is divided into six distinct recreation areas or management units:

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67 U.S. Department of Agriculture, National Agricultural Statistics Service, *1997 Census of Agriculture*, March 1999.

68 County of Mendocino, Department of Agriculture, *Mendocino County Crop Report, 2001*.

69 Dean Runyan Associates, "Travel Impacts for Selected Counties," from *California Travel Impacts by County, 1992-2001, 2002 Preliminary State Estimates*, February 26, 2003.

70 U.S. Army Corps of Engineers, Lake Mendocino, http://www.spn.usace.army.mil/projects/ormlakemendocino.html, accessed June 2003.

- Sho-da-kai: An island located near the dam, the site is primitive and contains no recreational development. It is used primarily for fishing and day use.

- Che-ka-ka: An area that contains the Park Office, Coyote Valley Dam, the City of Ukiah's hydroelectric power plant, a steelhead trout taking and imprint facility, a 24-unit campground, boat launching facilities, a day use area, and an overlook.

- Pomo: A day-use area located at the northwest corner of the lake consisting of approximately 4 acres of irrigated lawn, a visitor's center, seven group picnic sites, and a swimming beach.

- Kyen: An area located at the northern end of the lake that contains a 103-unit campground, marina, boat launching facilities, amphitheater, and day use area.

- Bu-shay: An area located at the northeast end of the lake that area is the most remote of the intensive use areas. It contains a 176-unit campground with three group use camping areas, an amphitheater, and a day use area.

- Miti: An area located on the eastern edge of the lake, Miti is the designated wildlife area that contains no major improvements except an 18-unit primitive campground accessible only by boat or foot.

Visitation records have been kept for Lake Mendocino since 1964, when 550,000 recreation days were reported.[71] Visitation, as measured by "visits," is defined as the entry of one person onto a Corps' project to engage in one or more recreation activities, and has averaged approximately 581,000 visits per year, ranging from a low of 513,000 to a high of 685,000 (see Table 3-14).

Most visits occur between Memorial Day and Labor Day, with the months of June, July, and August accounting for 40.3 percent of all visits (see Table 3-15). September, October, and November account for 18.9 percent; December, January, and February account for 13.0 percent; and, March, April, and May account for 27.9 percent.

Approximately 53 percent of the visitors to Lake Mendocino live within 25 miles of Lake Mendocino (i.e., within Mendocino County). Another 21 percent live within 26 and 100 miles of the project, while the remaining 26 percent live more than 100 miles from Lake Mendocino.[72] Approximately 83 percent of the visits to Lake Mendocino are for day use, and approximately 17 percent are for camping. Day use and camping visitors participate

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[71] U.S. Army Corps of Engineers, Operational Management Plan: Lake Mendocino, 1997.

[72] U.S. Army Corps of Engineers, Operational Management Plan: Lake Mendocino, 1997.

Table 3-14 Monthly Visitation to Lake Mendocino 1986 to 2002*

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total
1986	23,116	24,850	34,096	53,745	76,283	86,685	97,087	76,861	41,609	26,478	21,182	17,064	**579,056**
1987	23,536	25,301	34,716	54,721	77,669	88,260	98,851	78,257	42,365	23,895	19,116	15,399	**582,086**
1988	21,240	22,833	31,329	49,383	70,092	79,650	89,208	70,623	38,232	25,623	20,498	16,513	**535,224**
1989	22,776	24,484	33,595	52,954	75,161	85,410	95,659	75,730	40,997	25,133	20,106	16,197	**568,202**
1990	22,340	24,016	32,952	51,941	73,722	83,775	93,828	74,281	40,212	27,518	22,014	17,734	**564,333**
1991	24,460	26,295	36,079	56,870	80,718	91,725	102,732	81,330	44,028	23,130	18,504	14,906	**600,777**
1992	20,560	22,102	30,326	47,802	67,848	77,100	86,352	68,362	37,008	18,300	16,000	21,600	**513,360**
1993	18,300	22,500	30,300	46,500	51,500	76,900	102,700	74,200	42,800	27,500	23,800	22,800	**539,800**
1994	18,200	23,200	34,700	42,100	59,700	73,500	95,964	59,100	44,200	37,758	32,288	19,962	**540,672**
1995	42,278	18,375	42,055	47,366	72,024	83,755	98,182	84,098	53,910	34,244	30,091	23,836	**630,214**
1996	32,023	32,417	40,264	51,139	67,546	81,991	95,021	34,623	43,536	34,947	26,403	26,113	**566,023**
1997	38,102	34,773	42,763	50,565	51,723	74,261	87,953	57,434	103,303	93,094	22,967	28,471	**685,409**
1998	28,119	36,971	37,453	99,254	38,449	71,300	76,630	51,487	51,850	18,727	51,507	19,060	**580,807**
1999	29,227	37,053	37,987	101,063	39,117	72,309	77,842	51,991	52,362	19,648	52,416	19,355	**590,370**
2000	29,551	37,452	38,355	101,327	40,289	72,986	78,549	52,657	52,994	19,983	52,987	19,998	**597,128**
2001	29,481	37,598	39,485	101,994	40,857	73,564	79,457	54,108	53,518	20,650	53,106	20,384	**604,202**
2002	29,998	38,092	40,973	103,139	41,693	74,871	78,115	53,841	52,468	18,119	47,582	18,183	**597,074**

*Note: "Visit" defined as the entry of one person onto a Corps project to engage in one or more recreation activities.

Source: Leonard, Steve, June 1, 1998, and May 19, 2003, personal communications, Park Manager, U.S. Army Corps of Engineers Lake Mendocino, Ukiah, California.

Table 3-15 Average Monthly Visits to Lake Mendocino 1986 to 2002, and Percent of Average Total Yearly Visits

Month	Average Visits	Percent of Total
January	26,665	4.59%
February	28,724	4.95%
March	36,319	6.25%
April	65,404	11.26%
May	60,258	10.37%
June	79,297	13.65%
July	90,243	15.54%
August	64,646	11.13%
September	49,141	8.46%
October	29,103	5.01%
November	31,210	5.37%
December	19,857	3.42%
Yearly Total	**580,867**	**100.00%**

Source: Leonard, Steve, June 1, 1998, and May 19, 2003, personal communications, Park Manager, U.S. Army Corps of Engineers Lake Mendocino, Ukiah, California.

in picnicking (18 percent), boating (22 percent), water-skiing (13 percent), fishing from a boat (4 percent), fishing from shore (8 percent), swimming (35 percent), hunting (3 percent), and sightseeing (29 percent).[73]

3.2.3.2 Upper Russian River

On the Upper Russian River, from Ukiah to the Mendocino/Sonoma County line, there are limited developed public access facilities, although some canoeing occurs in the lower part of this area. No estimates are available for the number of recreationists using the Russian River in Mendocino County, so this reach was not considered further in this analysis.

3.2.4 HYDROELECTRIC POWER GENERATION

The City of Ukiah owns and operates the Lake Mendocino Hydroelectric Power Plant at Coyote Valley Dam. The power plant at Coyote Valley Dam was added onto the existing dam structure and completed in May 1986. The peak capacity is 3 MW at a flow of 400 cfs, and its minimum operating range is 125 cfs. The City of Ukiah was issued a 50-year license by the Federal Energy Regulatory Commission (FERC) in April 1982 to operate the facility through 2032. The turbine produced between 11,000 and 18,000 MW

[73] U.S. Army Corps of Engineers, Operational Management Plan: Lake Mendocino, 1997.

annually from 1987 to 1993, but from 1994 to 1996 the generator produced only 6,700 to 9,000 MW annually, and the generator shut down completely in 1997, due to a broken diversion gate on the penstock.[74]

The gate was recently repaired, but the City of Ukiah is awaiting a Biological Opinion by NOAA Fisheries of the hazard to fish populations before the generator can begin operations again. The diversion gate is not easily opened and closed, and the penstocks are only designed to handle flows of less than 2,000 cfs, so in the future when the dam is being operated for flood control during the winter months (October through March), releases will be diverted around the penstocks entirely. From April through September, the penstocks can handle the entire release flow.

Under normal circumstances, Coyote Valley Dam releases are determined by factors such as flood control, minimum streamflow requirements, and water supply, rather than by power generation. The power that is generated is not sold on the market, but instead offsets power obtained by the city from other sources. Out of a total baseload power demand of 32 MW for the City of Ukiah, the Coyote Valley Dam power plant could provide approximately 10 percent.

The City of Ukiah can meet all power demands in ordinary circumstances from its own generation at a blended (weighted average) cost of $65/MW. The city also has a firm contract for supplemental power with Calpine Energy for a blended rate of $65/MW. For the purposes of this analysis, a value of $65 for each MW produced was assumed, and total production between the various scenarios then compared. On average, the generator at Coyote Valley Dam produces 0.0075 MW of power for each cfs of flow and the generator operates 95 percent of the time.[75]

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[74] All information and assumptions regarding Coyote Valley Dam operations and power generation was obtained from discussions with Daryll Barnes, Director of Public Utilities for City of Ukiah, May 14 and 21, 2003.

[75] All information and assumptions regarding Coyote Valley Dam operations and power generation was obtained from discussions with Daryll Barnes, Director of Public Utilities for City of Ukiah, May 14 and 21, 2003

4.1 RECREATION

4.1.1 IMPACTS OF FLOWS AND LAKE LEVELS ON RECREATION

Recreational activities relying on Lake Sonoma are partially dependent on reservoir levels, and paddling activities on the Russian River and Dry Creek are partially dependent on flow conditions. Consequently, alterations in storage levels of and releases from Lake Mendocino and Lake Sonoma may impact the recreational opportunities provided by the lakes, the Russian River, and Dry Creek.

Impacts on recreation activities were measured for Lake Sonoma, Lake Mendocino, the Cloverdale to Healdsburg reach of the Russian River, and the Healdsburg to ocean reach of the Russian River (reported elsewhere) for the prime recreational season of May through September.

For Lake Sonoma, Lake Mendocino, and the Cloverdale to Healdsburg river reach, four flow phases or scenarios were analyzed in the *Russian River Draft Biological Assessment* (Section 5.3, Water and Estruary Management)[76]; the D1610-Current, FP-Current, FP-75% and FP- Buildout. Each of these phases were analyzed under the *all* water supply condition and this condition was examined at three exceedance levels; 10 percent, 50 percent, and 90 percent. The *all* water supply condition includes all of the types of water years of record experienced in the basin. The *all* water supply condition at 50 percent exceedance can be considered to be the "average" condition.

4.1.2 LAKE SONOMA

At the 50 percent exceedance level, no low-water thresholds were violated for any of the four scenarios. Under both the baseline and flow scenario projections of lake levels, there would always be enough water in the reservoir to provide lake levels high enough for those activities that would be affected by low lake levels. This conclusion also holds at the 90 percent exceedance level reflecting drier than average conditions.

The high water-level threshold was exceeded in May at the 50 percent exceedance level for the baseline and all three phases of the flow proposal. Because the lake was at essentially the same level for the baseline and the scenarios, this reflects no change from the baseline and thus is not an impact resulting from the scenarios.

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[76] Ibid.

4.1.3 LAKE MENDOCINO

At the 50 percent exceedance level, no high- or low-water threshold was violated, reflecting no change from the baseline for the flow proposal and thus no impact from the flow proposal.

4.1.4 RUSSIAN RIVER

4.1.4.1 Cloverdale to Healdsburg Reach

Table 4-1 shows the flows by month for the *all* water supply condition at 50 percent exceedance. The shaded cells in the table indicate in which months the flows fell below the 140 cfs threshold. None of the flows fell below the threshold for the baseline D1610 Current. Two of the scenarios had monthly values that fell below the threshold, indicating that conditions for canoeing and other watercraft use will be less favorable under the flow scenarios than they are in the baseline.

Table 4-1 Flow Levels by Month, and Thresholds that Affect Canoeing

***All* Water Supply Condition**
50% Exceedance
Daily average flow exceedance (cfs)

Flow Scenario	May	June	July	August	September
D1610-Current	365	232	234	209	167
FP-Current	361	183	171	111	94
FP-75%	353	193	207	156	135
FP- Buildout	357	211	210	157	149

4.1.4.2 Healdsburg to Ocean Reach

Changes in river flows have a substantial effect on the recreation boating for this reach. With a baseline of 14,732 canoe days for the peak recreation season (May through October), under the scenarios this would be reduced by 10,035 visits.[77] Details about how reductions in canoeing use were estimated are found in Appendix D, Section D.3.3.1.

4.1.4.3 Direct Impacts to River Recreation

For purposes of determining direct economic impacts, paddler visits for river recreation were segmented into groups. Through the course of the peak recreation season, it was assumed that half the paddlers were associated with commercial enterprises, either through canoe rentals or guide services or both, and half were private parties that did not involve canoe rentals. In addition, it was further assumed that 20 percent of paddlers were

[77] ENTRIX, Inc., "Preliminary Recreation Assessment for the Flow Proposal," Appendix D, Russian River Draft Biological Assessment, January 16, 2004.

considered day-use visitors, and the remaining 80 percent were overnight visitors.[78] Finally, a worst-case assumption was applied in estimating the impacts by assuming that watercraft users would not continue to use the river and that all expenditures from these activities would be lost. In other words, watercraft users' sole purpose in coming to the area is for watercraft use.

Expenditure pattern data for recreation visitors were examined from the literature. However, expenditure pattern data for paddlers are very limited or not applicable. Information was used from study on river recreation on the Rogue River in Oregon.[79] This information was formulated into expenditure patterns by visitor type (commercial or private, day-use or overnight) and per visit into sectors of the IMPLAN model. These expenditures are provided in Table 4-2. Per-visit expenditures are greatest at nearly $75 for overnight visitors using commercial canoeing services. Private day-use visitors still account for approximately $12 per day in expenditures.

Table 4-2 Assumed Expenditure Patterns per Visitor, by Type and Associated IMPLAN Sector (in 2000 dollars)

	IMPLAN Sector	Commercial Overnight	Commercial Day Use	Private Overnight	Private Day Use
433	Railroads	$0.04	$0.01	$0.04	$0.01
435	Motor Freight	$0.12	$0.05	$0.12	$0.05
447	Wholesale Trade	$1.72	$0.77	$1.72	$0.77
450	Food Stores	$0.74	$0.20	$0.74	$0.20
451	Service Stations	$1.30	$0.55	$1.30	$0.55
454	Eating & Drinking	$13.33	$6.84	$13.33	$6.84
455	Misc. Retail	$1.78	$1.22	$1.78	$1.22
463	Lodging	$18.75	$0.00	$18.75	$0.00
488	Amusement & Rec. Services	$36.82	$36.82	$2.45	$2.45
	Total	**$74.59**	**$46.46**	**$40.23**	**$12.09**

4.2 AGRICULTURE

Under current conditions, it is assumed that there will be no impacts to agricultural water users in Sonoma and Mendocino counties under the flow proposal. The analysis assumes that all current agricultural water users who divert water from the Russian River will continue to do so, so neither crop yield nor harvested acreage is impacted. The same

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[78] ENTRIX, Inc., "Preliminary Recreation Assessment for the Flow Proposal," Appendix D, Attachment 6, Russian River Draft Biological Assessment, January 16, 2004.

[79] Economic Strategies Northwest, "Economic Effects Study: Hellgate Recreation Area Management Plan, Report 1," prepared for the Bureau of Land Management, Medford District, Oregon, March 3, 1993.

holds true for the "full buildout" scenario: no impact to agricultural water users in Sonoma or Mendocino counties is assumed in this analysis.

4.3 HYDROELECTRIC POWER GENERATION

4.3.1 LAKE SONOMA RESULTS

Existing and proposed water management scenarios were analyzed: the baseline D1610 under current conditions (D1610-Current), the three phases of the flow proposal, flow proposal with no measures under current conditions (FP-Current), the flow proposal with no measures at 75 percent buildout (FP-75%) and the flow proposal with measures at buildout (FP-Buildout). Each of these scenarios were analyzed under *dry* supply conditions and *all* water supply conditions, and each condition was examined at three exceedance levels; 10 percent, 50 percent, and 90 percent. The *all* water supply condition includes all of the types of water years of record experienced in the basin. The *dry* water supply condition reflects those years when the January water levels in Lake Mendocino were such that special water management rules were used. In this sense, the *all* water supply condition at 50 percent exceedance can be considered average conditions. The results of the analysis for the *all* water supply condition at 50 percent exceedance are displayed in Table 4-3.

Table 4-3 Annual Revenue for the *All* Water Supply Condition at 50 Percent Exceedance — Lake Sonoma

Flow Scenario	Total Annual Revenue ($)	Percent Base (%)
D1610-Current	$951,000	
FP-Current	$664,000	69.8%
FP-75%	$752,000	79.1%
FP- Buildout	$664,000	69.8%

Under these conditions, power revenues can be expected to decline from 20 to 30 percent for the scenarios compared to what might be expected under the current conditions baseline.

The impacts of these reduced hydroelectric power revenues will be felt by SCWA, which relies upon these revenues along with charges to water contractors to pay for water delivery services. The total budget for water delivery services is approximately $22 million per year. If power revenues are reduced, a policy decision is required from the Board of Directors as to whether to absorb the decrease in terms of reduced services, or to increase rates to the water contractors to offset the loss.[80]

[80] Pam Jeane, Deputy Chief Engineer, Sonoma County Water Agency, personal communication, May 12, 2003.

4.3.2 LAKE MENDOCINO RESULTS

As mentioned above, four scenarios were analyzed. Each of these scenarios were analyzed under *dry* supply conditions and *all* water supply conditions, and each condition was examined at three exceedance levels: 10 percent, 50 percent, and 90 percent. The *all* water supply condition includes all of the types of water years of record experienced in the basin. The *dry* water supply condition reflects those years when the January water levels in Lake Mendocino were such that special water management rules were used. In this sense, the *all* water supply condition at 50 percent exceedance can be considered average conditions. The results of the analysis for the *all* water supply condition at 50 percent exceedance are displayed in Table 4-4.

Table 4-4 Annual Revenue for the *All* Water Supply Condition at 50 Percent Exceedance — Lake Mendocino

Flow Scenario	Total Annual Revenue ($)	Percent Base (%)
D1610-Current	$1,181,000	
FP-Current	$1,064,000	90.1%
FP-75%	$1,081,000	91.6%
FP-Buildout	$1,087,000	92.1%

Under these conditions, power revenues can be expected to decline approximately 10 percent for the scenarios compared to what might be expected under the current baseline conditions.

4.4 REGIONAL IMPACTS

Changes in river flows have a substantial effect on the recreational boating for the Lower Reach of the Russian River. When this is translated into economic effects, this results in an estimated loss of 18 jobs, over $340 thousand dollars in total income, and over $830 thousand dollars in total output to the economy. Although this represents only a small portion of the totals for these factors in the total county economy, this may represent a substantial reduction for those businesses directly involved in providing services to these recreationists. This analysis did not consider potential positive impacts associated with increased water supply. Table 4-5 presents the analysis results for Sonoma County under the *all* water supply condition.

Table 4-5 Sonoma County Impacts — *All* Water Year Analysis

Industry	Output		Income		Employment	
	Direct	Total	Direct	Total	Direct	Total
Agriculture, Forestry, & Fishing	$0	$3,613	$0	$1,684	0.0	0.1
Mining	$0	$1,023	$0	$188	0.0	0.0
Construction	$0	$10,795	$0	$6,732	0.0	0.1
Manufacturing	$0	$18,139	$0	$5,116	0.0	0.1
Transportation, Communication, & Public Utilities	$1,404	$31,182	$523	$9,246		0.2
Trade (Retail & Wholesale)	$170,660	$219,095	$71,314	$93,159	3.7	4.5
Finance, Insurance, & Real Estate	$0	$76,000	$0	$15,083	0.0	0.4
Services	$347,576	$466,371	$141,834	$205,505	10.6	12.5
Government	$0	$7,367	$0	$3,430	0.0	0.1
Other[1]	$0	$520	$0	$516	0.0	0.0
Total	**$519,640**	**$834,106**	**$213,672**	**$340,659**	**14.3**	**18.0**

[1] For this model, "other" consists primarily of domestic services (such as cleaning and maid services), as well as an "inventory valuation adjustment," used to estimate the value of goods removed from inventory that were produced in a previous time period at a different value.

Note: Totals may appear not to add precisely due to rounding.

5.0
CONCLUSIONS

This study provided an examination of the economic implications of changes to project operations and potential flow scenarios evaluated in the 2004 *Russian River Draft Biological Assessment*.[81] The scope of the analysis included Sonoma and Mendocino counties in California. Economic effects were measured for reservoir (Lake Sonoma and Lake Mendocino) and river-based (Russian River) recreation, energy production at affected hydroelectric generating facilities, and regional impacts in both Sonoma and Mendocino counties. It was confirmed that agricultural irrigation would not be affected by any of the flow scenarios.

The largest impacts stem from low flows during the recreation season in the Healdsburg-to-Ocean reach of the Russian River. Visits to the river for canoeing, other watercraft use, and kayaking would be reduced by over 10,000 visits, with the economic impact on Sonoma County of a reduction of approximately 18 jobs, an income reduction of over $340 thousand, and an output reduction of over $800 thousand. When viewed from the perspective of the total size of the Sonoma County economy, this is a small reduction in overall economic activity. When viewed from the perspective of those businesses depending upon adequate river flows for their float rental businesses, this may be considered a substantial reduction.

For the Cloverdale-to-Healdsburg reach of the Russian River, low flows can be expected to affect canoeing, other watercraft use, and kayaking during August and September under the FP-Current phase and during September for the FP-75% and FP-Buildout phases. Although the quantity of impact was not measured explicitly, some impact can be noted to the same or comparable businesses that are dependent upon river flows for their paddler rental services.

The impacts to reservoir recreation are expected to be negligible on both Lake Sonoma and Lake Mendocino. Reservoir levels would not be likely to change significantly, or could be slightly higher, under any water condition. The threshold high-water levels for facilities prompting temporary closure would rarely be violated at either lake under any of the scenarios. To the extent that higher water levels can be associated with greater recreation visitation, the scenarios could actually lead to increased recreation at these facilities. However, this link (water levels and recreation visits) has not been directly established in this study.

Under each of the phases of the flow proposal, hydroelectric energy production would be reduced. The value of power output from the project at Lake Sonoma could be reduced by 20 to 30 percent. This reduction in revenues would likely cause an increase in rates for water contractors.

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[81] ENTRIX, Inc., *Russian River Draft Biological Assessment*, prepared USACE and SCWA, January 16, 2004.

The reduction from Lake Mendocino is smaller, approximately 10 percent of that potential power generation under a D1610 regime. The difference in power generation is smaller at Lake Mendocino because the facility's structural limitations require that it be shut down when flows are above 2,000 cfs. Thus, its power generating capability is limited under any condition.

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ATTACHMENT 1

IMPLAN METHODOLOGY

METHODOLOGY FOR IMPACT ANALYSIS

To estimate the economic impacts resulting from wind-power development in the case study regions, I-O models were developed for each of the regions. These models are used to measure the indirect effects of project development on the regional economy, in terms of additional industry output, employment, and income. The model is based on IMPLAN ("IMpact analysis for PLANning"), a system of software and data used to perform economic impact analysis. Originally developed by the USDA Forest Service, the system is now maintained and marketed by the Minnesota IMPLAN Group, Inc. (MIG). The data are developed by MIG annually, using data collected at the national, state, and county level for all possible elements from a variety of state and federal sources. The models developed for this study were based on 2000 data, the most recently available at the outset of the study.

IMPLAN is a "nonsurvey" or secondary I-O system, as it does not require primary, survey-based data. It is based on national average technical relationships among industries to which information has been added on regional economic activity. The software allows for national-average conditions to be adjusted to account for unique regional conditions. IMPLAN is a popular tool to analyze regional impacts of policy changes because of the ease with which specific regional or local information can be incorporated into a model. While such information generally is from secondary sources, primary data, if available, can be incorporated as easily.

Changes to the data are commonly made in order to "fine-tune" the model, so that it accurately reflects the region's unique economy. The IMPLAN data were compared with published sources to identify any discrepancies and make corrections. Employment and earnings were compared to Regional Economic Information System (REIS, from the U.S. Department of Commerce) data, as well as individual state employment and earnings data. In most cases, the IMPLAN data were fairly consistent with the other data sources, so few adjustments were made.

The regional purchase coefficients (RPCs), which indicate the portion of locally produced goods and services used to meet local demand, were also evaluated. RPCs are by definition always positive and never larger than one. The supply/demand pool ratio, the ratio of local supply of a commodity to local demand, also serves as an upper limit for the RPCs. The appropriateness of the RPC for a commodity is evaluated based on a number of factors, including the size of the economy and number of economic linkages within the economy, as well as the nature of the commodity itself. Commodities are defined as bundles of goods, and in some cases, this bundle of goods is small (e.g., for Sector 1, dairy farm products, the primary commodity is raw milk, with some livestock sales), while for others the bundle of goods is large (e.g., for Sector 315, screw machine products and bolts, a large number of different commodities are produced). For commodities where the bundle of goods is large, it is more important to know specifically which good(s) are being produced locally, and how much is likely to be used to meet local demand. Adjustment to the RPCs were made based on local trading patterns, determined by identifying the manufacturers of certain goods within the county, knowledge of local conditions, and other data sources.

The IMPLAN models for each of the case-study regions were used to estimate the effects on the rest of the local economy of spending related to the construction and operation and maintenance of the wind-power developments. Because the businesses within a local economy are linked together through the purchase and sales patterns of goods and services produced in the local area, an action which has a direct impact on one or more local industries is likely to have an indirect impact on many other businesses in the region. For example, a decline in the production of wheat will lead to a reduction in spending in the local area as farms reduce production. Firms providing production inputs and support services to the farms would see a decline in their industry outputs as the demand for their products also declines. These additional effects are known as the indirect economic impacts. As household income is affected by the reductions in regional economic activity, additional impacts occur. The additional effects generated by reduced household spending are known as induced economic impacts.

A key element of an I-O model is the measurement of the direct, indirect, and induced linkages within a regional economy. The tool most often used to measure these interrelationships is known as a multiplier. A variety of multipliers are generated by an I-O model and each is associated with a specific industry. A multiplier is a single number which quantifies the total economic effects (for all businesses) which arise from direct changes in the economic activity of a single industry. Multipliers can be generated to measure the total output, income, and employment effects associated with changes in the demand for regional goods and services. For example, an output multiplier of 2.5 for the wheat industry would indicate that a $100,000 decline in sales by this industry would lead to an overall decline of $250,000 in business sales throughout the economy, including the initial $100,000 loss to the wheat sector. An employment multiplier of 2.0 for the railroad industry would indicate that a loss of ten jobs in this sector would lead to an additional loss of ten jobs in other industries for a total loss of 20 jobs throughout the regional economy.

The IMPLAN models are margined models. That is, the purchase of a commodity such as milk by a household in a grocery store is divided into components reflecting the retail, wholesale, transportation, and insurance margins, as well as the price to the producer, the milk processing industry. Separating out these margins is an important part of estimating the direct effect. For example, if only the grocery sector part of the total cost to the households is located in the impact area (the wholesale, transportation, insurance, and milk processing sectors are not present), then only the retail margin component of the total cost to the household can be counted as a direct effect.

For more information on IMPLAN software and databases, please see the User's Guide, Analysis Guide, and Data Guide, available from MIG, Inc. These three books are compiled into the manual, *IMPLAN Professional™ Version 2.0 Social Accounting and Impact Analysis Software.* This provides a good overview of the software, its applications, and database development and sources.

LIMITATIONS OF THE METHODOLOGY

IMPLAN analysis has some limitations which are attributable to the I-O methodology. One of the most important is that of fixed proportions: for any good or service, all inputs are combined in fixed proportions that are invariant with the level of output. Thus, there is no substitution among production inputs and no economies of scale are possible. Second, each production function incorporates fixed, invariant technology. Such an assumption may be questionable in the case of some sectors, such as agriculture, where technological changes occur regularly. This concern is offset in part by the slow, gradual technological changes that are typical in some other sectors. Third, I-O does not model any price effects that might be important to a region. Finally, I-O assumes that resources that become unemployed or employed due to a change in final demand have no alternative employment.

The IMPLAN database contains 528 sectors at the national level. While this is a large number of sectors, some sectors contain a wide range of products or services and the production functions reflect the average or aggregate production technology for the goods or services produced. The wind-power industry is contained in the electric services sector, which includes all methods for producing electricity. Because the wind industry is relatively small, the production technologies of other methods of producing electricity are predominate in the production function. However, the system does permit the introduction of additional production functions if the individual production technical relationships can be specified.

The IMPLAN database is developed from national, state, and county-level data sets, with the national level used as a control. A disaggregation procedure, which has proven quite reliable, is used to insure that the state data sets add up to the national totals, and that the county data sets add up to their respective state totals. There are occasional instances where apparent anomalies occur, particularly in counties with very small economies and particularly with very small sectors within these counties. Some of these anomalies are the result of the way ES202 and county business patterns data are collected and processed. Some may be attributed to the disaggregation procedure. Because counties with very small economies were included in this study, there were some instances where a sector was expected to be in the county data set, but was not present. A common reason for this occurrence is that the county activity is a part of a larger economic entity and the economic activity is reported in the county where its principal office is located.

IMPLAN MODEL OUTPUT

MODEL BASE DATA

Base data for the Mendocino and Sonoma county IMPLAN models used in this analysis are displayed in detail on the following pages. Table A displays the base data for the Mendocino County IMPLAN model developed for this study. Table B includes the model base data for Sonoma County. Because the model data is from 2000, the dollar amounts displayed here are all in year 2000 dollars.

The elements included in the tables and other definitions are described below:

Industry Output: Represents the total value of production by industry for the given year. MIG derives these data from a number of sources, including Bureau of Census economic censuses, Bureau of Economic Analysis output estimates, and the Bureau of Labor Statistics employment projections.

Employment: Represents the annual average number of jobs for each industry, and includes both full-time and part-time workers. These employment numbers also include the self-employed. These data come from ES202 employment security data, supplemented by county business patterns and REIS data.

Employee Compensation: Represents the total payroll costs of each industry, and includes the wages and salaries of workers who are paid by employers, as well as benefits, such as health and life insurance, retirement payments, and non-cash compensation. These data are derived from ES202 and REIS data.

Proprietor Income: Represents payments received by the self-employed as income, and includes income received by private business owners, doctors, lawyers, and others self-employed. These data are derived from self-employed income reported on federal tax forms.

Other Property Income: Represents payments to individuals in the form of rents received for property, royalties from contracts, and dividends paid by corporations, as well as profits earned by corporations. These data are derived from U.S. Bureau of Economic Analysis Gross State Product data.

Indirect Business Tax: Represents excise taxes, property taxes, fees, licenses, and sales taxes paid by businesses, or any taxes that occur during the normal operation of a business, except taxes on profit or income. These data are derived from U.S. Bureau of Economic Analysis Gross State Product data.

Total Value Added: Represents the sum of the four sub-components: 1) Employee Compensation, 2) Proprietor Income, 3) Other Property Type Income, and 4) Indirect Business Taxes.

Institutions: Institutions are households, governments, and capital. Together with exports they comprise final demand (consumption).

Personal Income: income from all sources, including employment income, capital income, and transfer payments.

Household Income: Income to households including employment income, capital income, and transfer payments, net of taxes and savings; disposable income.

Table A Mendocino County IMPLAN Model – Detailed Base Data

	Industry	Industry Output ($millions)	Employ -ment (jobs)	Employee Compen-sation ($millions)	Proprietor Income ($millions)	Other Property Income ($millions)	Indirect Business Tax ($millions)	Total Value Added ($millions)
1	Dairy Farm Products	8.279	83	1.170	5.278	0.930	0.078	7.455
2	Poultry and Eggs	16.388	122	1.807	3.172	1.762	0.158	6.900
3	Ranch Fed Cattle	3.588	99	0.378	1.413	0.294	0.224	2.309
4	Range Fed Cattle	3.099	94	0.327	1.345	0.239	0.183	2.094
5	Cattle Feedlots	0.206	2	0.022	0.123	0.023	0.018	0.186
6	Sheep, Lambs and Goats	0.603	75	0.064	0.334	0.057	0.044	0.498
7	Hogs, Pigs and Swine	0.397	8	0.042	0.076	0.028	0.021	0.167
8	Other Meat Animal Products	0.074	2	0.007	0.019	0.006	0.005	0.036
9	Miscellaneous Livestock	1.202	72	0.245	0.298	0.149	0.027	0.719
13	Hay and Pasture	2.404	140	0.099	1.153	0.820	0.290	2.362
16	Fruits	75.931	1,863	30.417	9.129	11.808	3.438	54.792
17	Tree Nuts	0.204	4	0.079	0.061	0.052	0.008	0.201
18	Vegetables	10.905	142	3.141	3.771	3.378	0.469	10.758
22	Forest Products	8.097	167	0.394	1.808	3.798	0.318	6.318
23	Greenhouse and Nursery Products	14.820	289	6.263	2.938	5.099	0.198	14.498
24	Forestry Products	6.298	71	1.606	1.339	2.139	0.667	5.752
25	Commercial Fishing	9.209	231	2.014	3.577	2.766	0.287	8.643
26	Agricultural, Forestry, Fishery Services	30.100	1,342	10.587	3.437	3.391	0.769	18.185
27	Landscape and Horticultural Services	20.771	406	5.506	2.718	4.394	0.543	13.160
38	Natural Gas & Crude Petroleum	9.155	24	0.900	0.667	2.311	0.456	4.335
40	Dimension Stone	0.486	5	0.106	0.072	0.120	0.015	0.313
41	Sand and Gravel	1.120	10	0.292	0.166	0.249	0.035	0.742
48	New Residential Structures	154.441	977	19.196	7.515	4.503	1.056	32.270
49	New Industrial and Commercial Buildings	72.231	598	17.364	7.404	2.004	0.555	27.326
50	New Utility Structures	15.751	146	4.327	1.840	0.601	0.088	6.856
51	New Highways and Streets	13.856	122	3.468	1.466	0.636	0.091	5.662
53	New Mineral Extraction Facilities	5.689	82	2.951	0.394	0.233	0.289	3.867
54	New Government Facilities	51.436	327	12.846	5.580	2.209	0.324	20.960
55	Maintenance and Repair, Residential	56.139	409	10.247	4.435	2.191	0.229	17.102
56	Maintenance and Repair Other Facilities	62.261	975	27.970	12.047	3.426	0.297	43.740
58	Meat Packing Plants	0.601	2	0.013	0.001	0.002	0.001	0.016
67	Canned Fruits and Vegetables	0.742	4	0.073	0.003	0.068	0.003	0.147
69	Pickles, Sauces, and Salad Dressings	2.369	10	0.146	0.007	0.419	0.011	0.583
75	Blended and Prepared Flour	0.238	1	0.008	0.000	0.002	0.001	0.011
78	Prepared Feeds, N.E.C	0.615	2	0.014	0.001	0.005	0.001	0.020
79	Bread, Cake, and Related Products	3.570	22	0.683	0.029	0.441	0.020	1.172
80	Cookies and Crackers	13.051	86	2.424	0.161	2.693	0.094	5.373
91	Malt Beverages	17.322	66	2.049	0.097	3.289	3.056	8.491
93	Wines, Brandy, and Brandy Spirits	189.895	870	26.209	0.562	17.628	28.478	72.878
95	Bottled and Canned Soft Drinks & Water	0.660	2	0.060	0.003	0.041	0.004	0.107
97	Canned and Cured Sea Foods	0.549	5	0.050	0.002	0.013	0.002	0.067
98	Prepared Fresh Or Frozen Fish Or Seafood	36.149	243	3.673	0.190	0.734	0.168	4.765
99	Roasted Coffee	1.946	4	0.058	0.002	0.151	0.007	0.219
101	Manufactured Ice	0.158	4	0.060	0.002	0.026	0.001	0.089
103	Food Preparations, N.E.C	0.604	4	0.058	0.003	0.045	0.002	0.108
108	Broadwoven Fabric Mills and Finishing	0.460	4	0.081	0.008	0.022	0.003	0.113
117	Carpets and Rugs	13.928	76	2.187	0.309	1.291	0.129	3.916
124	Apparel Made From Purchased Materials	3.213	31	0.540	0.046	0.107	0.011	0.704
128	Canvas Products	0.184	3	0.059	0.006	0.015	0.001	0.081

Table A Mendocino County IMPLAN Model – Detailed Base Data (Continued)

	Industry	Industry Output ($millions)	Employ -ment (jobs)	Employee Compen-sation ($millions)	Proprietor Income ($millions)	Other Property Income ($millions)	Indirect Business Tax ($millions)	Total Value Added ($millions)
130	Automotive and Apparel Trimmings	3.841	29	0.425	0.072	0.111	0.018	0.626
133	Logging Camps and Logging Contractors	95.740	615	20.831	2.741	18.427	1.205	43.204
134	Sawmills and Planing Mills, General	260.083	1,368	57.022	7.209	20.962	3.226	88.419
137	Millwork	18.283	206	4.421	0.562	0.447	0.134	5.565
138	Wood Kitchen Cabinets	10.251	112	3.953	0.467	0.795	0.105	5.319
140	Structural Wood Members, N.E.C	12.650	110	3.460	0.385	0.640	0.121	4.606
142	Wood Pallets and Skids	11.815	137	4.405	0.492	0.734	0.119	5.751
143	Mobile Homes	0.402	4	0.099	0.013	0.028	0.005	0.146
144	Prefabricated Wood Buildings	0.564	5	0.127	0.014	0.022	0.005	0.168
145	Wood Preserving	7.269	21	1.022	0.119	0.605	0.088	1.834
146	Reconstituted Wood Products	103.057	360	18.811	2.927	16.886	1.269	39.892
147	Wood Products, N.E.C	3.643	35	0.929	0.103	0.295	0.035	1.362
174	Newspapers	6.787	95	1.863	0.432	0.623	0.067	2.986
175	Periodicals	3.554	30	0.450	0.119	0.195	0.019	0.783
176	Book Publishing	1.696	9	0.181	0.049	0.140	0.013	0.382
178	Miscellaneous Publishing	0.382	3	0.090	0.025	0.070	0.004	0.189
179	Commercial Printing	5.893	59	1.094	0.289	0.249	0.049	1.680
191	Plastics Materials and Resins	1.283	2	0.051	0.005	0.038	0.004	0.098
199	Toilet Preparations	0.474	2	0.047	0.006	0.076	0.003	0.132
203	Fertilizers, Mixing Only	10.468	31	1.460	0.150	0.510	0.123	2.243
220	Miscellaneous Plastics Products	0.361	2	0.078	0.001	0.031	0.003	0.112
230	Glass and Glass Products, Exc Containers	0.681	6	0.166	0.038	0.091	0.007	0.302
235	Clay Refractories	0.315	4	0.071	0.014	0.018	0.003	0.106
243	Concrete Products, N.E.C	3.981	29	1.068	0.224	0.349	0.061	1.702
244	Ready-mixed Concrete	0.355	3	0.058	0.013	0.022	0.004	0.096
250	Minerals, Ground Or Treated	0.329	2	0.078	0.018	0.069	0.004	0.169
253	Nonmetallic Mineral Products, N.E.C.	0.299	3	0.076	0.016	0.034	0.003	0.129
282	Fabricated Structural Metal	42.163	248	9.818	0.836	5.991	0.429	17.075
286	Architectural Metal Work	0.626	8	0.188	0.016	0.125	0.006	0.334
288	Miscellaneous Metal Work	3.460	9	0.219	0.018	0.148	0.022	0.407
289	Screw Machine Products and Bolts, Etc.	0.351	3	0.071	0.007	0.047	0.003	0.127
294	Metal Stampings, N.E.C.	0.468	3	0.075	0.007	0.046	0.003	0.130
295	Plating and Polishing	0.143	3	0.070	0.006	0.038	0.001	0.116
296	Metal Coating and Allied Services	0.453	3	0.073	0.007	0.061	0.003	0.145
303	Pipe, Valves, and Pipe Fittings	7.663	62	2.402	0.210	0.573	0.062	3.247
304	Miscellaneous Fabricated Wire Products	2.054	20	0.679	0.067	0.134	0.016	0.898
305	Metal Foil and Leaf	41.963	55	1.527	0.180	2.718	0.237	4.662
321	Special Dies and Tools and Accessories	0.962	11	0.437	0.019	0.037	0.008	0.501
327	Woodworking Machinery	6.897	59	2.421	0.074	0.146	0.055	2.696
331	Special Industry Machinery N.E.C.	0.665	2	0.055	0.005	0.016	0.002	0.078
337	Industrial Furnaces and Ovens	35.551	249	12.657	0.449	1.094	0.301	14.501
347	Refrigeration and Heating Equipment	0.425	2	0.065	0.002	0.020	0.003	0.090
349	Service Industry Machines, N.E.C.	7.791	47	1.622	0.053	0.587	0.063	2.326
351	Fluid Power Cylinders & Actuators	9.112	46	2.052	0.063	0.296	0.075	2.486
354	Industrial Machines N.E.C.	4.069	41	1.416	0.061	0.163	0.032	1.673
355	Transformers	4.385	45	0.912	0.081	0.326	0.026	1.344
370	Radio and TV Receiving Sets	0.310	2	0.049	0.004	0.006	0.002	0.060
372	Telephone and Telegraph Apparatus	0.787	2	0.046	0.004	0.041	0.002	0.093
386	Motor Vehicle Parts and Accessories	2.629	12	0.453	0.079	0.154	0.009	0.696

Table A Mendocino County IMPLAN Model – Detailed Base Data (Continued)

	Industry	Industry Output ($millions)	Employ -ment (jobs)	Employee Compen-sation ($millions)	Proprietor Income ($millions)	Other Property Income ($millions)	Indirect Business Tax ($millions)	Total Value Added ($millions)
391	Aircraft and Missile Equipment,	0.506	3	0.206	0.017	0.040	0.005	0.268
393	Boat Building and Repairing	0.407	3	0.136	0.010	0.021	0.004	0.171
395	Motorcycles, Bicycles, and Parts	5.430	39	1.401	0.124	0.344	0.038	1.907
403	Mechanical Measuring Devices	5.853	49	1.572	0.034	0.082	0.047	1.735
409	Dental Equipment and Supplies	2.475	14	0.412	0.006	0.031	0.019	0.468
411	Electromedical Apparatus	1.498	6	0.292	0.007	0.027	0.012	0.338
415	Jewelry, Precious Metal	0.171	2	0.017	0.002	0.014	0.001	0.034
420	Games, Toys, and Children's Vehicles	0.064	1	0.014	0.002	0.008	0.001	0.025
429	Signs and Advertising Displays	0.673	9	0.161	0.015	0.056	0.005	0.237
433	Railroads and Related Services	2.838	36	0.051	0.000	0.015	0.003	0.069
434	Local, Interurban Passenger Transit	1.711	53	0.561	0.218	0.153	0.033	0.965
435	Motor Freight Transport and Warehousing	81.479	742	18.681	7.468	8.222	1.080	35.452
436	Water Transportation	0.342	2	0.017	0.002	0.007	0.002	0.028
437	Air Transportation	12.122	115	4.897	0.164	1.259	0.904	7.224
439	Arrangement Of Passenger Transportation	1.350	26	0.329	0.372	0.231	0.040	0.973
441	Communications, Except Radio and TV	52.442	177	8.772	4.157	14.022	2.869	29.820
442	Radio and TV Broadcasting	7.702	62	1.191	0.576	0.400	0.080	2.246
444	Gas Production and Distribution	124.034	127	8.575	3.210	12.173	6.624	30.582
445	Water Supply and Sewerage Systems	2.065	16	0.366	0.179	0.580	0.140	1.265
446	Sanitary Services and Steam Supply	2.021	11	0.397	0.208	0.240	0.370	1.215
447	Wholesale Trade	92.947	1,119	35.359	3.302	11.967	13.169	63.798
448	Building Materials & Gardening	26.072	561	12.004	2.431	4.166	4.290	22.891
449	General Merchandise Stores	25.360	811	11.730	0.287	3.930	4.047	19.995
450	Food Stores	85.364	1,580	42.013	8.731	13.250	13.643	77.637
451	Automotive Dealers & Service Stations	57.705	830	21.919	3.825	8.668	8.925	43.338
452	Apparel & Accessory Stores	5.186	152	1.693	0.370	0.804	0.828	3.694
453	Furniture & Home Furnishings Stores	10.039	236	4.508	0.476	1.530	1.575	8.089
454	Eating & Drinking	101.569	2,718	33.212	5.814	9.369	6.755	55.151
455	Miscellaneous Retail	79.255	1,872	25.259	12.696	11.758	12.107	61.820
456	Banking	123.955	638	22.308	1.618	56.155	2.004	82.085
457	Credit Agencies	12.963	401	4.040	2.306	-0.553	0.389	6.182
458	Security and Commodity Brokers	10.044	45	5.344	0.542	-1.222	0.414	5.077
459	Insurance Carriers	19.269	216	5.834	0.000	3.370	0.943	10.147
460	Insurance Agents and Brokers	10.663	259	4.054	2.614	1.607	0.114	8.389
461	Owner-occupied Dwellings	200.024	0	0.000	0.000	125.578	25.937	151.514
462	Real Estate	182.249	1,105	6.838	17.839	83.399	21.564	129.639
463	Hotels and Lodging Places	78.700	1,705	24.740	5.251	11.388	5.327	46.706
464	Laundry, Cleaning and Shoe Repair	10.623	555	2.409	4.799	0.609	0.272	8.089
466	Beauty and Barber Shops	6.054	218	1.121	2.358	0.237	0.073	3.789
467	Funeral Service and Crematories	13.727	181	2.592	5.441	1.058	0.391	9.483
468	Miscellaneous Personal Services	12.608	196	0.804	1.625	0.903	0.253	3.586
469	Advertising	1.937	15	0.724	0.230	0.137	0.020	1.110
470	Other Business Services	24.399	237	5.414	1.713	3.205	0.376	10.706
471	Photofinishing, Commercial Photography	4.434	56	0.631	0.203	0.325	0.071	1.231
472	Services To Buildings	13.501	409	3.338	1.011	1.068	0.215	5.632
473	Equipment Rental and Leasing	16.287	140	3.699	1.043	2.249	0.486	7.477
474	Personnel Supply Services	12.068	386	8.455	2.875	0.292	0.229	11.851
475	Computer and Data Processing Services	19.981	183	9.586	5.315	1.265	0.304	16.470
476	Detective and Protective Services	1.791	136	0.890	0.259	0.099	0.023	1.271

Table A Mendocino County IMPLAN Model – Detailed Base Data (Continued)

	Industry	Industry Output ($millions)	Employ -ment (jobs)	Employee Compen-sation ($millions)	Proprietor Income ($millions)	Other Property Income ($millions)	Indirect Business Tax ($millions)	Total Value Added ($millions)
477	Automobile Rental and Leasing	2.879	32	0.554	0.324	0.804	0.228	1.909
478	Automobile Parking and Car Wash	2.207	51	0.552	0.302	0.637	0.102	1.593
479	Automobile Repair and Services	52.898	593	11.914	6.528	9.336	2.518	30.296
480	Electrical Repair Service	21.569	272	3.590	3.949	1.359	0.768	9.666
481	Watch, Clock, Jewelry and Furniture Repair	0.347	7	0.039	0.043	0.023	0.014	0.119
482	Miscellaneous Repair Shops	12.082	208	2.073	2.189	1.044	0.332	5.637
483	Motion Pictures	11.400	157	1.394	1.573	0.510	0.122	3.598
484	Theatrical Producers, Bands Etc.	2.199	44	0.238	0.185	0.071	0.044	0.537
485	Bowling Alleys and Pool Halls	0.538	32	0.154	0.084	0.037	0.045	0.319
487	Racing and Track Operation	0.360	14	0.056	0.044	0.027	0.060	0.187
488	Amusement and Recreation Services, N.E.C.	35.361	1,155	9.840	5.167	5.464	1.984	22.455
489	Membership Sports and Recreation Clubs	0.156	9	0.033	0.017	0.002	0.004	0.055
490	Doctors and Dentists	95.968	1,301	40.713	12.197	6.863	1.148	60.921
491	Nursing and Protective Care	17.350	438	9.527	2.942	0.468	0.438	13.376
492	Hospitals	63.876	906	29.676	9.097	2.267	0.230	41.272
493	Other Medical and Health Services	15.011	300	5.346	1.623	1.344	0.260	8.573
494	Legal Services	17.343	219	5.423	7.320	0.607	0.156	13.505
495	Elementary and Secondary Schools	4.146	166	2.366	0.246	0.000	0.000	2.613
497	Other Educational Services	2.738	53	0.915	0.085	0.113	0.083	1.195
498	Job Trainings & Related Services	6.972	198	3.295	0.000	0.020	0.014	3.330
499	Child Day Care Services	4.742	112	1.573	0.000	0.134	0.049	1.757
500	Social Services, N.E.C.	42.847	852	15.161	0.000	0.287	0.047	15.494
501	Residential Care	9.833	363	5.991	0.000	0.077	0.085	6.154
502	Other Nonprofit Organizations	5.090	209	2.534	0.092	0.001	0.032	2.660
503	Business Associations	1.967	44	1.417	0.000	0.007	0.001	1.426
504	Labor and Civic Organizations	13.972	657	11.506	0.000	0.000	0.002	11.508
505	Religious Organizations	5.985	52	0.344	0.000	0.000	0.000	0.344
506	Engineering, Architectural Services	9.987	128	2.560	0.811	0.211	0.053	3.636
507	Accounting, Auditing and Bookkeeping	21.868	680	5.822	10.454	0.958	0.196	17.430
508	Management and Consulting Services	15.523	226	4.542	1.461	0.596	0.087	6.686
509	Research, Development & Testing Services	6.234	133	2.050	0.690	0.092	0.052	2.884
510	Local Government Passenger Transit	1.198	30	1.151	0.000	-5.084	0.000	-3.932
511	State and Local Electric Utilities	6.087	10	0.714	0.000	1.964	0.000	2.677
512	Other State and Local Govt. Enterprises	36.093	166	8.796	0.000	6.044	0.000	14.840
513	U.S. Postal Service	11.578	157	9.356	0.000	-0.972	0.000	8.384
519	Federal Government - Military	6.655	186	3.924	0.000	2.731	0.000	6.655
520	Federal Government - Non-Military	16.234	259	13.690	0.000	2.544	0.000	16.234
522	State & Local Government - Education	132.714	3,542	132.714	0.000	0.000	0.000	132.714
523	State & Local Government - Non-Education	91.414	1,981	70.864	0.000	20.550	0.000	91.414
525	Domestic Services	6.837	735	6.738	0.000	0.000	0.000	6.738
528	Inventory Valuation Adjustment	-0.177	0	0.000	0.000	-0.139	0.000	-0.139
	Totals	**4,054.814**	**49,669**	**1,139.638**	**282.924**	**617.378**	**197.401**	**2,237.340**

Table B Sonoma County IMPLAN Model – Detailed Base Data

	Industry	Industry Output ($millions)	Employ -ment (jobs)	Employee Compen-sation ($millions)	Proprietor Income ($millions)	Other Property Income ($millions)	Indirect Business Tax ($millions)	Total Value Added ($millions)
1	Dairy Farm Products	83.650	853	11.495	45.839	8.339	0.701	66.374
2	Poultry and Eggs	34.836	263	3.736	5.795	3.335	0.299	13.166
3	Ranch Fed Cattle	8.033	224	0.824	2.719	0.581	0.444	4.567
4	Range Fed Cattle	4.064	125	0.417	1.515	0.277	0.212	2.422
5	Cattle Feedlots	0.445	4	0.046	0.228	0.045	0.034	0.353
6	Sheep, Lambs and Goats	2.344	295	0.240	1.114	0.196	0.150	1.701
7	Hogs, Pigs and Swine	0.186	4	0.019	0.031	0.012	0.009	0.070
8	Other Meat Animal Products	0.130	4	0.012	0.029	0.009	0.007	0.057
9	Miscellaneous Livestock	7.089	429	1.406	1.509	0.788	0.143	3.846
11	Food Grains	0.110	4	0.006	0.038	0.042	0.011	0.098
12	Feed Grains	0.037	1	0.002	0.016	0.014	0.005	0.036
13	Hay and Pasture	7.006	473	0.322	3.321	2.396	0.846	6.885
16	Fruits	186.198	4,619	72.542	19.238	27.196	7.920	126.895
17	Tree Nuts	1.097	22	0.439	0.301	0.275	0.042	1.056
18	Vegetables	10.995	159	3.381	3.587	3.407	0.473	10.847
20	Miscellaneous Crops	0.246	11	0.032	0.074	0.050	0.012	0.167
22	Forest Products	8.144	170	0.386	1.564	3.346	0.280	5.577
23	Greenhouse and Nursery Products	88.070	1,813	37.774	15.660	29.135	1.133	83.703
24	Forestry Products	1.950	40	0.294	0.751	0.562	0.175	1.781
25	Commercial Fishing	0.914	30	0.104	0.471	0.255	0.026	0.857
26	Agricultural, Forestry, Fishery Services	59.958	2,320	22.552	6.201	6.957	1.578	37.288
27	Landscape and Horticultural Services	113.163	2,550	31.602	13.012	23.834	2.943	71.392
32	Silver Ores	0.287	14	0.470	-3.647	-0.652	-0.403	-4.232
38	Natural Gas & Crude Petroleum	157.016	291	20.183	9.119	43.170	8.516	80.987
40	Dimension Stone	27.879	148	7.522	2.695	6.855	0.856	17.929
41	Sand and Gravel	9.226	49	2.895	0.877	2.048	0.291	6.111
48	New Residential Structures	1,140.316	6,431	210.324	58.370	44.953	10.542	324.189
49	New Industrial and Commercial Buildings	584.909	3,937	190.245	57.503	20.034	5.547	273.329
50	New Utility Structures	131.887	961	47.412	14.290	6.008	0.882	68.592
51	New Highways and Streets	114.503	805	37.998	11.384	6.368	0.913	56.663
53	New Mineral Extraction Facilities	55.870	537	32.329	3.063	2.466	3.054	40.911
54	New Government Facilities	424.233	2,149	140.746	43.342	22.066	3.240	209.394
55	Maintenance and Repair, Residential	436.796	2,695	112.265	34.448	21.890	2.286	170.890
56	Maintenance and Repair Other Facilities	605.203	6,415	305.950	93.331	33.928	2.896	436.104
57	Maintenance and Repair Oil and Gas Wells	12.015	67	3.477	1.416	2.014	0.471	7.378
58	Meat Packing Plants	11.268	29	0.969	0.033	0.147	0.082	1.231
59	Sausages and Other Prepared Meats	1.904	9	0.161	0.006	0.043	0.008	0.218
60	Poultry Processing	36.405	245	9.079	0.286	1.629	0.355	11.349
62	Cheese, Natural and Processed	124.071	284	10.411	0.305	8.403	0.943	20.063
64	Ice Cream and Frozen Desserts	0.404	2	0.071	0.003	0.035	0.003	0.112
65	Fluid Milk	65.213	171	8.871	0.260	3.664	0.574	13.368
66	Canned Specialties	11.594	35	0.501	0.022	1.088	0.037	1.648
67	Canned Fruits and Vegetables	38.206	208	4.259	0.106	3.937	0.187	8.490
68	Dehydrated Food Products	109.526	574	19.371	0.420	15.989	0.671	36.451
69	Pickles, Sauces, and Salad Dressings	2.825	11	0.202	0.007	0.572	0.014	0.795
71	Frozen Specialties	0.770	5	0.095	0.003	0.093	0.004	0.194
73	Cereal Preparations	1.741	4	0.038	0.001	0.029	0.002	0.071
78	Prepared Feeds, N.E.C	26.318	65	3.132	0.117	1.054	0.277	4.580
79	Bread, Cake, and Related Products	66.570	403	13.512	0.390	8.611	0.383	22.896

Table B Sonoma County IMPLAN Model – Detailed Base Data (Continued)

	Industry	Industry Output ($millions)	Employ -ment (jobs)	Employee Compen-sation ($millions)	Proprietor Income ($millions)	Other Property Income ($millions)	Indirect Business Tax ($millions)	Total Value Added ($millions)
80	Cookies and Crackers	2.836	18	0.549	0.025	0.598	0.021	1.192
82	Confectionery Products	2.379	11	0.183	0.007	0.261	0.010	0.460
91	Malt Beverages	29.537	73	3.810	0.124	6.029	5.601	15.564
93	Wines, Brandy, and Brandy Spirits	1,560.612	5,796	251.486	3.716	168.036	271.455	694.692
95	Bottled and Canned Soft Drinks & Water	28.141	84	3.335	0.104	2.257	0.208	5.904
97	Canned and Cured Sea Foods	0.382	3	0.069	0.002	0.017	0.002	0.090
98	Prepared Fresh Or Frozen Fish Or Seafood	14.361	95	1.607	0.057	0.316	0.072	2.053
100	Potato Chips & Similar Snacks	0.755	3	0.066	0.002	0.105	0.004	0.177
103	Food Preparations, N.E.C	45.064	256	6.778	0.210	5.180	0.260	12.428
108	Broadwoven Fabric Mills and Finishing	1.325	12	0.269	0.028	0.075	0.010	0.382
116	Yarn Mills and Finishing Of Textiles, N.E.C.	3.167	26	0.530	0.055	0.198	0.027	0.810
122	Cordage and Twine	6.531	57	1.809	0.060	0.368	0.076	2.313
123	Textile Goods, N.E.C	0.721	5	0.123	0.007	-0.045	0.005	0.091
124	Apparel Made From Purchased Materials	27.125	208	8.075	0.397	1.548	0.165	10.185
125	Curtains and Draperies	2.459	28	0.580	0.036	0.006	0.014	0.637
126	Housefurnishings, N.E.C	14.336	115	2.343	0.189	1.181	0.089	3.802
128	Canvas Products	2.344	29	0.914	0.055	0.232	0.017	1.218
130	Automotive and Apparel Trimmings	25.585	171	4.433	0.434	1.088	0.176	6.131
132	Fabricated Textile Products, N.E.C.	6.116	51	0.611	0.052	0.451	0.025	1.139
133	Logging Camps and Logging Contractors	2.638	19	0.526	0.072	0.467	0.031	1.095
134	Sawmills and Planing Mills, General	35.046	174	8.368	1.099	3.086	0.475	13.028
137	Millwork	12.767	113	4.407	0.583	0.448	0.134	5.572
138	Wood Kitchen Cabinets	17.946	193	6.950	0.853	1.403	0.185	9.391
140	Structural Wood Members, N.E.C	63.654	514	19.126	2.214	3.549	0.672	25.561
141	Wood Containers	10.211	112	4.450	0.521	0.651	0.104	5.725
142	Wood Pallets and Skids	12.565	145	4.666	0.542	0.781	0.127	6.115
143	Mobile Homes	0.263	3	0.066	0.009	0.019	0.003	0.098
144	Prefabricated Wood Buildings	0.624	6	0.087	0.010	0.015	0.003	0.115
145	Wood Preserving	7.308	24	0.663	0.080	0.394	0.057	1.194
146	Reconstituted Wood Products	4.171	18	0.532	0.086	0.480	0.036	1.134
147	Wood Products, N.E.C	24.325	211	7.095	0.815	2.259	0.267	10.435
148	Wood Household Furniture	9.570	95	2.902	0.344	0.830	0.075	4.152
150	Metal Household Furniture	0.840	6	0.211	0.020	0.062	0.006	0.300
152	Wood TV and Radio Cabinets	2.034	25	0.901	0.111	0.059	0.031	1.102
154	Wood Office Furniture	12.652	120	3.237	0.490	0.394	0.057	4.177
155	Metal Office Furniture	0.425	2	0.065	0.012	0.018	0.002	0.098
157	Wood Partitions and Fixtures	9.109	76	2.926	0.334	0.583	0.060	3.903
160	Furniture and Fixtures, N.E.C	0.502	3	0.066	0.009	0.044	0.002	0.121
165	Paper Coated & Laminated Packaging	4.691	16	0.924	0.069	0.701	0.051	1.745
166	Paper Coated & Laminated N.E.C.	2.549	11	0.681	0.053	0.366	0.027	1.127
172	Stationery Products	5.146	14	0.912	0.050	1.272	0.072	2.306
174	Newspapers	83.939	841	32.047	3.443	9.635	1.041	46.166
175	Periodicals	6.524	48	1.222	0.149	0.470	0.046	1.887
176	Book Publishing	15.974	71	2.585	0.325	1.776	0.163	4.849
177	Book Printing	1.779	14	0.361	0.041	0.077	0.018	0.496
178	Miscellaneous Publishing	52.791	299	16.417	2.116	11.316	0.668	30.517
179	Commercial Printing	94.286	709	29.906	3.655	6.030	1.185	40.776
180	Manifold Business Forms	1.366	8	0.384	0.047	0.149	0.020	0.600
181	Greeting Card Publishing	24.073	113	4.105	0.919	5.573	0.326	10.923

Table B Sonoma County IMPLAN Model – Detailed Base Data (Continued)

	Industry	Industry Output ($millions)	Employ -ment (jobs)	Employee Compen-sation ($millions)	Proprietor Income ($millions)	Other Property Income ($millions)	Indirect Business Tax ($millions)	Total Value Added ($millions)
182	Blankbooks and Looseleaf Binder	14.224	103	3.674	0.584	1.501	0.197	5.957
183	Bookbinding & Related	0.797	13	0.296	0.036	0.048	0.008	0.389
184	Typesetting	1.140	13	0.332	0.043	0.078	0.010	0.462
185	Plate Making	0.478	9	0.315	0.041	0.039	0.006	0.401
195	Drugs	21.180	120	4.556	0.939	4.438	0.208	10.141
196	Soap and Other Detergents	15.022	56	4.041	0.423	4.325	0.180	8.969
199	Toilet Preparations	15.893	46	2.612	0.305	4.170	0.149	7.236
200	Paints and Allied Products	0.827	3	0.057	0.008	0.068	0.004	0.137
202	Nitrogenous and Phosphatic Fertilizers	18.388	52	2.675	0.136	1.531	0.191	4.534
203	Fertilizers, Mixing Only	4.347	13	0.493	0.044	0.170	0.041	0.747
209	Chemical Preparations, N.E.C	20.902	73	2.393	0.237	1.805	0.128	4.564
211	Paving Mixtures and Blocks	0.668	2	0.080	0.003	0.203	0.005	0.291
213	Lubricating Oils and Greases	3.327	7	0.486	0.019	0.149	0.033	0.687
215	Tires and Inner Tubes	0.650	5	0.138	0.004	0.030	0.016	0.188
217	Rubber and Plastics Hose and Belting	0.757	7	0.170	0.003	0.046	0.004	0.223
219	Fabricated Rubber Products, N.E.C.	22.481	134	6.387	0.109	1.795	0.189	8.480
220	Miscellaneous Plastics Products	100.742	548	22.373	0.358	9.028	0.745	32.505
224	Shoes, Except Rubber	0.873	11	0.295	0.000	0.101	0.007	0.403
226	Luggage	0.653	4	0.153	0.000	0.183	0.006	0.342
229	Leather Goods, N.E.C	4.847	72	2.471	-0.001	1.201	0.031	3.702
230	Glass and Glass Products, Exc Containers	17.164	127	4.746	0.867	2.491	0.204	8.308
234	Ceramic Wall and Floor Tile	9.825	107	3.103	0.560	0.787	0.124	4.573
240	Porcelain Electrical Supplies	9.538	93	3.454	0.604	1.265	0.094	5.417
241	Pottery Products, N.E.C	2.962	40	0.860	0.137	0.150	0.042	1.189
242	Concrete Block and Brick	3.177	16	0.786	0.148	0.430	0.061	1.426
243	Concrete Products, N.E.C	44.535	318	12.766	2.131	4.021	0.701	19.619
244	Ready-mixed Concrete	31.717	158	9.406	1.661	3.473	0.588	15.129
247	Cut Stone and Stone Products	4.369	48	1.773	0.328	0.378	0.051	2.530
249	Asbestos Products	0.372	13	0.243	0.040	0.003	0.000	0.287
253	Nonmetallic Mineral Products, N.E.C.	0.380	4	0.109	0.018	0.046	0.004	0.177
254	Blast Furnaces and Steel Mills	1.651	6	0.154	0.005	0.031	0.009	0.198
265	Aluminum Rolling and Drawing	18.761	59	3.117	0.080	0.878	0.192	4.267
269	Brass, Bronze, and Copper Foundries	0.099	4	0.110	0.002	-0.062	0.001	0.051
276	Hand and Edge Tools, N.E.C.	4.560	36	1.060	0.092	1.559	0.049	2.760
277	Hand Saws and Saw Blades	2.026	13	0.377	0.035	0.405	0.021	0.837
278	Hardware, N.E.C.	47.521	209	11.437	0.940	11.375	0.542	24.294
280	Plumbing Fixture Fittings and Trim	0.453	4	0.108	0.008	0.078	0.004	0.198
281	Heating Equipment, Except Electric	6.219	24	1.342	0.118	1.975	0.062	3.497
282	Fabricated Structural Metal	5.880	29	1.591	0.116	0.960	0.069	2.737
283	Metal Doors, Sash, and Trim	0.864	6	0.249	0.018	0.173	0.010	0.450
284	Fabricated Plate Work (Boiler Shops)	17.320	127	6.903	0.548	3.272	0.185	10.908
285	Sheet Metal Work	16.905	117	4.461	0.333	2.562	0.155	7.511
286	Architectural Metal Work	0.998	13	0.292	0.021	0.191	0.008	0.512
287	Prefabricated Metal Buildings	0.305	3	0.064	0.005	0.052	0.002	0.122
289	Screw Machine Products and Bolts, Etc.	20.840	151	5.375	0.438	3.529	0.200	9.542
290	Iron and Steel Forgings	0.133	1	0.029	0.002	0.017	0.001	0.050
294	Metal Stampings, N.E.C.	1.460	11	0.240	0.020	0.146	0.009	0.415
295	Plating and Polishing	1.254	34	0.624	0.048	0.335	0.012	1.019
296	Metal Coating and Allied Services	0.358	3	0.058	0.005	0.048	0.003	0.113

Table B Sonoma County IMPLAN Model – Detailed Base Data (Continued)

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297	Small Arms Ammunition	0.663	12	0.251	0.016	0.247	0.063	0.576
301	Industrial and Fluid Valves	0.572	3	0.085	0.007	0.035	0.004	0.130
304	Miscellaneous Fabricated Wire Products	0.575	5	0.206	0.018	0.040	0.005	0.268
306	Fabricated Metal Products, N.E.C.	29.975	208	8.444	0.698	1.589	0.259	10.990
308	Internal Combustion Engines, N.E.C.	1.150	3	0.143	0.004	0.035	0.009	0.191
309	Farm Machinery and Equipment	4.155	21	1.055	0.026	0.384	0.038	1.503
313	Oil Field Machinery	1.666	12	0.771	0.012	0.043	0.017	0.842
315	Conveyors and Conveying Equipment	42.176	251	12.140	0.409	3.106	0.387	16.043
316	Hoists, Cranes, and Monorails	0.722	3	0.177	0.010	0.054	0.006	0.247
317	Industrial Trucks and Tractors	2.153	12	0.516	0.014	0.057	0.019	0.605
318	Machine Tools, Metal Cutting Types	24.404	189	13.774	0.475	0.887	0.282	15.418
319	Machine Tools, Metal Forming Types	0.316	3	0.088	0.003	0.005	0.002	0.098
321	Special Dies and Tools and Accessories	21.409	246	10.018	0.374	0.856	0.184	11.431
322	Power Driven Hand Tools	0.717	4	0.103	0.003	0.056	0.005	0.167
327	Woodworking Machinery	11.418	87	4.660	0.124	0.280	0.106	5.170
328	Paper Industries Machinery	0.416	4	0.093	0.003	0.011	0.003	0.110
330	Food Products Machinery	10.068	97	4.219	0.138	0.561	0.090	5.009
334	Blowers and Fans	9.842	87	3.556	0.098	0.706	0.091	4.451
335	Packaging Machinery	8.173	49	1.965	0.052	0.492	0.068	2.577
337	Industrial Furnaces and Ovens	4.724	39	1.284	0.040	0.111	0.030	1.465
338	General Industrial Machinery, N.E.C	1.162	6	0.243	0.010	0.080	0.009	0.342
339	Electronic Computers	5.137	19	1.450	0.129	0.175	0.036	1.790
340	Computer Storage Devices	49.845	165	8.228	1.038	0.356	0.290	9.912
342	Computer Peripheral Equipment,	8.623	29	1.871	0.070	0.078	0.063	2.081
349	Service Industry Machines, N.E.C.	21.957	107	6.321	0.182	2.279	0.244	9.026
352	Fluid Power Pumps & Motors	1.471	10	0.798	0.020	0.055	0.014	0.887
353	Scales and Balances	23.909	151	8.813	0.256	2.468	0.161	11.698
354	Industrial Machines N.E.C.	32.533	286	13.240	0.501	1.520	0.300	15.561
357	Motors and Generators	0.188	2	0.029	0.001	0.012	0.001	0.043
359	Relays & Industrial Controls	9.387	53	2.278	0.032	1.055	0.080	3.445
364	Electric Housewares and Fans	0.405	4	0.121	0.002	0.067	0.004	0.193
368	Wiring Devices	27.132	187	8.241	0.121	4.562	0.258	13.181
369	Lighting Fixtures and Equipment	2.645	21	0.428	0.007	0.136	0.017	0.588
370	Radio and TV Receiving Sets	19.891	128	5.039	0.100	0.568	0.161	5.868
372	Telephone and Telegraph Apparatus	823.384	1,435	164.676	3.767	136.384	6.959	311.786
373	Radio and TV Communication Equipment	81.347	250	13.025	0.211	9.549	0.551	23.335
374	Communications Equipment N.E.C.	5.068	59	2.266	0.056	0.736	0.042	3.101
376	Printed Circuit Boards	12.533	139	7.218	0.192	0.555	0.105	8.071
377	Semiconductors and Related Devices	66.531	292	20.359	0.701	12.431	0.554	34.045
378	Electronic Components, N.E.C.	69.234	264	12.468	0.315	2.937	0.555	16.275
381	Engine Electrical Equipment	0.465	3	0.083	0.002	0.036	0.003	0.123
382	Magnetic & Optical Recording Media	0.225	1	0.036	0.001	0.027	0.003	0.067
383	Electrical Equipment, N.E.C.	8.124	38	1.798	0.068	0.034	0.048	1.947
386	Motor Vehicle Parts and Accessories	136.699	590	24.510	4.098	8.288	0.502	37.398
387	Truck Trailers	0.556	4	0.101	0.012	0.036	0.002	0.151
389	Aircraft	1.514	6	0.303	0.034	0.010	0.014	0.361
391	Aircraft and Missile Equipment,	0.401	4	0.099	0.007	0.019	0.002	0.128
393	Boat Building and Repairing	1.488	12	0.470	0.031	0.071	0.012	0.585
395	Motorcycles, Bicycles, and Parts	4.125	27	1.246	0.099	0.303	0.034	1.681

Table B Sonoma County IMPLAN Model – Detailed Base Data (Continued)

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400	Search & Navigation Equipment	34.082	153	12.224	0.077	0.575	0.400	13.275
401	Laboratory Apparatus & Furniture	0.717	3	0.112	0.001	0.010	0.006	0.129
402	Automatic Temperature Controls	10.550	120	6.411	0.052	0.155	0.117	6.735
403	Mechanical Measuring Devices	29.330	190	11.944	0.090	0.617	0.351	13.002
404	Instruments To Measure Electricity	1,192.656	4,911	517.049	3.836	22.812	13.707	557.404
405	Analytical Instruments	11.190	48	4.202	0.030	0.142	0.136	4.509
406	Optical Instruments & Lenses	37.154	261	26.596	0.196	0.461	0.442	27.696
407	Surgical and Medical Instrument	472.147	2,451	141.957	1.132	15.253	5.511	163.854
408	Surgical Appliances and Supplies	108.334	493	32.624	0.249	4.253	1.502	38.628
411	Electromedical Apparatus	4.639	20	0.980	0.008	0.090	0.040	1.118
412	Ophthalmic Goods	494.388	2,181	299.691	2.072	16.637	8.232	326.633
413	Photographic Equipment and Supplies	20.399	76	2.935	0.019	0.661	0.164	3.778
414	Watches, Clocks, and Parts	0.398	2	0.065	0.000	0.003	0.003	0.071
415	Jewelry, Precious Metal	6.733	57	1.312	0.113	1.023	0.061	2.509
417	Jewelers Materials and Lapidary Work	13.446	121	3.106	0.523	0.485	0.066	4.179
418	Musical Instruments	5.438	95	1.677	0.117	0.719	0.036	2.548
420	Games, Toys, and Children's Vehicles	9.356	122	2.713	0.257	1.487	0.101	4.558
421	Sporting and Athletic Goods, N.E.C.	4.851	50	0.846	0.053	0.582	0.125	1.606
423	Lead Pencils and Art Goods	0.554	10	0.196	0.013	0.167	0.007	0.383
424	Marking Devices	7.402	153	3.959	0.248	1.840	0.062	6.109
425	Carbon Paper and Inked Ribbons	1.360	16	0.329	0.023	0.250	0.016	0.618
426	Costume Jewelry	0.123	3	0.027	0.003	0.051	0.001	0.082
427	Fasteners, Buttons, Needles, Pins	0.015	2	0.008	0.001	0.003	0.000	0.013
429	Signs and Advertising Displays	14.378	156	4.686	0.250	1.556	0.149	6.641
432	Manufacturing Industries, N.E.C.	26.252	207	7.728	0.524	4.601	0.319	13.172
434	Local, Interurban Passenger Transit	57.911	1,059	25.509	4.303	5.858	1.279	36.949
435	Motor Freight Transport and Warehousing	344.235	3,022	83.401	30.402	35.778	4.701	154.281
436	Water Transportation	4.973	26	0.549	0.022	0.215	0.070	0.857
437	Air Transportation	77.773	736	31.409	1.058	8.074	5.798	46.338
439	Arrangement Of Passenger Transportation	30.148	451	9.806	5.848	5.165	0.900	21.719
440	Transportation Services	8.025	116	3.508	1.864	0.579	0.069	6.019
441	Communications, Except Radio and TV	346.453	1,138	62.433	23.187	92.837	18.995	197.453
442	Radio and TV Broadcasting	43.730	232	11.493	4.352	3.583	0.714	20.141
444	Gas Production and Distribution	766.784	778	55.531	19.325	77.313	42.074	194.243
445	Water Supply and Sewerage Systems	4.306	24	0.781	0.355	1.210	0.292	2.638
446	Sanitary Services and Steam Supply	72.531	287	14.607	7.101	8.603	13.281	43.591
447	Wholesale Trade	976.738	8,571	383.905	25.303	126.647	139.372	675.226
448	Building Materials & Gardening	192.239	2,929	93.753	12.696	30.713	31.624	168.785
449	General Merchandise Stores	131.990	3,417	61.332	1.213	20.456	21.063	104.064
450	Food Stores	365.158	6,082	183.453	33.622	56.676	58.357	332.107
451	Automotive Dealers & Service Stations	468.919	4,717	187.479	21.743	70.430	72.519	352.170
452	Apparel & Accessory Stores	60.412	1,629	20.059	3.968	9.363	9.641	43.031
453	Furniture & Home Furnishings Stores	108.413	2,132	49.523	4.307	16.518	17.008	87.355
454	Eating & Drinking	541.011	13,357	186.392	28.578	51.601	37.207	303.778
455	Miscellaneous Retail	450.332	9,804	149.189	66.480	66.806	68.788	351.262
456	Banking	859.843	3,346	157.765	8.215	389.523	13.899	569.402
457	Credit Agencies	185.638	2,609	115.165	11.008	-3.593	7.719	130.298
458	Security and Commodity Brokers	156.599	785	76.914	9.353	-21.079	6.062	71.250
459	Insurance Carriers	419.173	3,218	142.475	0.000	82.310	23.025	247.810

Table B Sonoma County IMPLAN Model – Detailed Base Data (Continued)

	Industry	Industry Output ($millions)	Employ -ment (jobs)	Employee Compen-sation ($millions)	Proprietor Income ($millions)	Other Property Income ($millions)	Indirect Business Tax ($millions)	Total Value Added ($millions)
460	Insurance Agents and Brokers	177.042	2,966	80.759	29.962	26.673	1.887	139.281
461	Owner-occupied Dwellings	1,253.791	0	0.000	0.000	787.146	162.577	949.722
462	Real Estate	1,531.541	7,662	83.743	123.745	700.758	181.187	1,089.433
463	Hotels and Lodging Places	188.648	3,114	66.147	9.592	28.752	13.449	117.940
464	Laundry, Cleaning and Shoe Repair	75.632	2,171	19.838	31.484	4.338	1.933	57.593
465	Portrait and Photographic Studios	22.740	496	3.620	5.817	2.067	0.580	12.084
466	Beauty and Barber Shops	74.146	2,285	15.926	26.687	2.899	0.895	46.407
467	Funeral Service and Crematories	17.353	252	3.800	6.356	1.337	0.494	11.988
468	Miscellaneous Personal Services	84.926	1,337	6.142	9.883	5.957	1.670	23.652
469	Advertising	50.675	473	19.083	3.666	3.264	0.470	26.484
470	Other Business Services	362.585	2,768	103.990	19.909	55.693	6.528	186.120
471	Photofinishing, Commercial Photography	81.671	797	18.338	3.570	8.542	1.876	32.327
472	Services To Buildings	73.936	1,543	26.037	4.771	7.566	1.523	39.897
473	Equipment Rental and Leasing	128.586	1,118	31.765	5.422	17.632	3.806	58.624
474	Personnel Supply Services	258.297	7,327	201.124	41.387	6.238	4.909	253.658
475	Computer and Data Processing Services	340.854	2,636	190.348	63.879	21.550	5.178	280.956
476	Detective and Protective Services	33.426	1,124	19.749	3.477	2.002	0.461	25.689
477	Automobile Rental and Leasing	28.613	339	6.037	2.684	7.984	2.261	18.966
478	Automobile Parking and Car Wash	40.080	803	10.949	4.551	11.568	1.855	28.922
479	Automobile Repair and Services	445.812	4,015	112.931	47.044	80.955	21.833	262.763
480	Electrical Repair Service	27.033	336	5.634	3.916	1.721	0.972	12.242
481	Watch, Clock, Jewelry and Furniture Repair	24.144	372	4.445	3.131	2.091	1.328	10.994
482	Miscellaneous Repair Shops	81.751	943	20.219	13.492	8.250	2.623	44.584
483	Motion Pictures	64.345	836	9.972	8.363	3.149	0.752	22.236
484	Theatrical Producers, Bands Etc.	24.549	378	3.923	3.228	1.206	0.739	9.096
485	Bowling Alleys and Pool Halls	2.949	120	0.893	0.515	0.218	0.266	1.891
486	Commercial Sports Except Racing	3.032	29	1.150	0.832	0.079	0.169	2.230
487	Racing and Track Operation	9.124	164	1.567	1.312	0.786	1.718	5.383
488	Amusement and Recreation Services, N.E.C.	74.189	3,054	19.692	10.956	11.160	4.052	45.859
489	Membership Sports and Recreation Clubs	14.230	520	4.447	2.431	0.278	0.507	7.663
490	Doctors and Dentists	718.345	8,012	332.209	82.424	53.776	8.992	477.402
491	Nursing and Protective Care	101.963	2,477	58.467	14.954	2.757	2.581	78.758
492	Hospitals	454.837	6,066	224.161	56.909	16.434	1.670	299.174
493	Other Medical and Health Services	201.003	3,252	79.592	20.326	19.262	3.721	122.902
494	Legal Services	159.883	1,764	58.411	59.067	5.591	1.434	124.503
495	Elementary and Secondary Schools	50.455	1,791	30.675	2.972	0.000	0.000	33.647
496	Colleges, Universities, Schools	3.965	128	2.432	0.301	0.000	0.000	2.733
497	Other Educational Services	62.978	1,325	19.200	1.654	2.355	1.739	24.947
498	Job Trainings & Related Services	33.754	819	18.448	0.000	0.111	0.081	18.639
499	Child Day Care Services	64.108	1,394	23.925	0.000	2.042	0.747	26.714
500	Social Services, N.E.C.	105.757	1,887	44.076	0.000	0.833	0.136	45.045
501	Residential Care	66.730	2,010	44.887	0.000	0.579	0.639	46.104
502	Other Nonprofit Organizations	58.506	2,224	28.174	3.768	0.009	0.395	32.346
503	Business Associations	21.903	474	15.930	0.000	0.082	0.014	16.026
504	Labor and Civic Organizations	27.594	1,547	21.788	0.000	0.000	0.004	21.793
505	Religious Organizations	41.723	337	4.814	0.000	0.000	0.000	4.814
506	Engineering, Architectural Services	250.109	2,642	89.364	17.072	6.669	1.668	114.773
507	Accounting, Auditing and Bookkeeping	133.707	3,517	51.086	48.434	5.851	1.200	106.571
508	Management and Consulting Services	245.680	3,111	90.467	17.544	10.717	1.572	120.300

Table B Sonoma County IMPLAN Model – Detailed Base Data (Continued)

	Industry	Industry Output ($millions)	Employ -ment (jobs)	Employee Compen-sation ($millions)	Proprietor Income ($millions)	Other Property Income ($millions)	Indirect Business Tax ($millions)	Total Value Added ($millions)
509	Research, Development & Testing Services	62.283	889	29.764	6.042	1.198	0.673	37.677
510	Local Government Passenger Transit	2.099	34	2.016	0.000	-5.738	0.000	-3.722
511	State and Local Electric Utilities	4.640	7	0.590	0.000	1.624	0.000	2.214
512	Other State and Local Govt. Enterprises	213.359	868	57.782	0.000	39.702	0.000	97.484
513	U.S. Postal Service	119.522	1,469	98.011	0.000	-9.102	0.000	88.908
519	Federal Government - Military	79.832	1,459	47.072	0.000	32.760	0.000	79.832
520	Federal Government - Non-Military	59.964	956	50.566	0.000	9.398	0.000	59.964
522	State & Local Government - Education	646.129	16,969	646.129	0.000	0.000	0.000	646.129
523	State & Local Government - Non-Education	478.699	6,814	371.088	0.000	107.611	0.000	478.699
525	Domestic Services	36.659	3,501	36.356	0.000	0.000	0.000	36.356
528	Inventory Valuation Adjustment	-1.169	0	0.000	0.000	-1.120	0.000	-1.120
	Totals	**28,500.229**	**270,780**	**9,172.171**	**1,660.708**	**4,199.443**	**1,444.274**	**16,476.595**