ANALYSIS OF EDUCATION-INDUSTRY LINKAGES AND ECONOMIC BENEFITS IN PLACER COUNTY

Prepared for

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Funded by:

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Key Findings

- The view that universities are also economic entities and act as engines of economic growth is often overlooked. If a small university were to locate in Placer County, it could potentially create an economic impact of over 2,000 jobs and $105 million in economic output. Should a large university locate in Placer County, the potential economic impacts could reach over 4,600 jobs and $233 million in economic output. The combination of a large and a small university in Placer County could potentially generate over 6,700 jobs and $338 million in economic output. For every job added in university-related economic activities, Placer County would gain another 0.33 jobs in indirect and induced industries. In terms of industry output, for every dollar of university economic output, the county would see an increase of $0.67 in output in indirect and induced sectors.
- The presence of a four-year university in Placer County would be a strong advantage that would help the County economy through attracting businesses and industries that utilize a highly skilled and educated labor force and consider the presence of an academic community as an important locational factor. Fifteen industries may see increased economic development potential if a university were to locate in Placer County. These industries include Accounting, Auditing, and Bookkeeping; Colleges and Universities; Commercial Banks; Computer and Data Processing Services; Computer and Office Equipment; Electronic Components and Accessories; Engineering and Architectural Services; Hospitals; Insurance Agents, Brokers, and Services; Legal Services; Management and Public Relations; Mortgage Bankers and Brokers; Offices and Clinics of Medical Doctors; Personnel Supply Services; and Real Estate Agents and Managers.

The combination of a large and a small university would generate over 6,700 jobs and $338 million in economic output in Placer County.

Every job added in university-related economic activities would create another 0.33 jobs in the County.

The presence of a university would help the County attract businesses in the following industries:

1. *Accounting, Auditing, and Bookkeeping*
2. *Colleges and Universities*
3. *Commercial Banks*
4. *Computer and Data Processing Services*
5. *Computer and Office Equipment*
6. *Electronic Components and Accessories*
7. *Engineering and Architectural Services*
8. *Hospitals*
9. *Insurance Agents, Brokers, and Services*
10. *Legal Services*
11. *Management and Public Relations*
12. *Mortgage Bankers and Brokers*
13. *Offices and Clinics of Medical Doctors*
14. *Personnel Supply Services*
15. *Real Estate Agents and Managers*

- Based on surveys of major employers, approximately 37 percent of the total occupations within the participating companies have Bachelor's Degree or higher requirements. Survey respondents emphasized an increasing importance of occupations requiring a Bachelor's Degree or higher training level over the next five to 10 years. Approximately 65 percent of the respondents projected an increase in the workforce demand for undergraduate and higher level degrees. Overall, the surveyed employers stressed that a university in Placer County would have a positive impact on the region and would significantly help businesses' employment needs. Respondents generally agreed with the 15 selected industries that SRRI arrived at through the analysis of industries depending on occupations with higher education requirements, and also thought that sectors related to hospitality, retail trade, and telecommunications would benefit from the presence of a local university. Almost all respondents felt that most industries could utilize more people trained in accounting, business administration, and management. Overall, the respondents had a very optimistic forecast for the future of the Placer County economy. Seventy percent of the interviewed employers projected that their employment as well as their products and services would expand over the next five to 10 years.

Major employers stated that 37 percent of their total occupations require a Bachelor's Degree or higher and expect this level to increase in the future.

Surveyed businesses stressed that the presence of a university would have a positive impact on the region, significantly help businesses' employment needs, and enhance the County's business attraction abilities.

- The presence of a four-year university could create a better-educated labor force in Placer County. This higher-educated workforce would have higher income levels resulting in increased consumption activities and a ripple effect where other industries experience indirect and induced economic benefits due to the shifting consumption patterns. These economic changes, driven by the shift in consumption and income, would also have an effect on state and local tax generation. The increase in annual income creates greater economic potential for the entire economy since the income could flow into a variety of activities including savings, investment and consumption. This increased economic potential would generate close to 9,400 jobs and over one billion dollars of output in Placer County. Additionally, the shifts in income and consumption would potentially generate about $49 million in state and local taxes including sales, personal, and business taxes and all economic activity (direct, indirect, and induced).

A university in the County may create a higher-educated workforce with greater earning potential.

The increased economic potential would create close to 9,400 jobs and over one billion dollars of output in the County, and would potentially generate about $49 million in state and local taxes.

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Introduction

Universities create enormous potential to positively impact local communities through their educational, economic, and cultural activities. While the educational and cultural aspects are generally widely understood, the view that universities are also economic entities and act as engines of economic growth is often overlooked. In a general sense, universities supply employment opportunities, create partnerships with businesses, demand construction and upkeep of facilities, and provide research and development activities. These economic activities provide larger benefits to the local area including a ripple effect of employment and spending, a highly educated workforce, increase in business attraction capabilities, and greater income, spending, and tax generation potential.

In order to provide a greater understanding of the economic potential created in Placer County by the presence of one or more four-year universities, the County engaged the Sacramento Regional Research Institute (SRRI) to conduct a study of education-industry linkages and economic benefits. The objectives of this study are to outline the potential economic impacts resulting from the economic activities of a university and provide information linking industry composition and growth with the availability of higher education. The analysis conducted in this study will frame universities in an economic development sense tracing their impacts and highlighting business attraction potential.

This report is broken down into three main sections. The first section outlines the direct economic effects of educational institutions and develops three scenarios (the presence of a small university, a large university, and both a large and a small university in Placer County) and the full range of economic impacts related to those scenarios. The second section examines industry staffing patterns and identifies those industries that make the highest use of occupations requiring a Bachelor's Degree or higher. It also assesses the County's increased ability to attract specific types of businesses and industries. Further, the second section places the industries with a high demand for four-year degrees in the Placer County context by examining employment trends and the viewpoints of major employers related to occupational demand, benefits of higher education, and business attraction potentials. The third section evaluates the potential effects on income, expenditures, and tax generation resulting from the presence of a four-year university and the changes in economic structure.

Direct Economic Effects of Educational Institutions

SRRI's 2002 *Placer County University Study* revealed that County residents as well as regional employers and educational leaders believe that there is a need for higher education infrastructure in Placer County. Additionally, growth in the Sacramento Region and the County in particular has created an environment with the need for the creation of a local college campus that will act as a resource for the County, the Sacramento Region, and the state. Placer County has the unique opportunity to evaluate and plan for the establishment of one or more local four-year universities aimed at providing the area with the educational resources it currently does not have and most likely needs.

If one or more university campuses were to be located in Placer County, they would act as a catalyst for educational, employment, political, cultural, and social growth. Often one of the most understated benefits of a university is related to its economic impacts—educational institutions would directly and indirectly create significant contributions of employment and output in the County. Viewing colleges and universities as merely business activities is a narrow but important view of their value to the host economy. This conceptualization is one that can be quantified with considerable accuracy. In order to provide Placer County with a conceptualization of the economic effects, SRRI analyzed the educational and industry linkages as well as the economic benefits of higher education scenarios in the County. This section addresses the direct economic impacts of higher education programs in Placer County and provides information linking industry output and employment growth with the creation of one or more universities in the County.

Research Methodology

The foundation of this study was not based on any formal or informal university proposals or plans in Placer County; therefore, SRRI's primary methodology relied on modeling specific elements and assessing potential effects. Based on the surveys of residents, employers, and educational leaders analyzed in the 2002 *Placer County University Study* as well as the current County and regional educational infrastructure, SRRI focused solely on four-year universities for this analysis. This information also points to the potential for Placer County to locate one or more four-year university campuses within its borders. This analysis evaluates the economic impacts of a small university, a large university, and a combination of both a large and a small university in Placer County.

Since there are no four-year universities currently located in Placer County, it was necessary for SRRI to base the economic impact analysis on a set of data assumption and the creation of various scenarios. The data assumption and scenarios create a potential view of the implementation of higher education in Placer County including form, size, and the interaction between the County and students. Rather than reflecting the most

likely future outcomes, it is important to note that these scenarios identify the potential outcomes of locating a higher education infrastructure within Placer County.

SRRI chose California State University, Sacramento (CSUS) as the base model for developing scenarios of higher education in Placer County. While not directly in line with the demands of residents, employers, and educational leaders, the Sacramento Region has a well-established educational institution that has many similar characteristics to these demands, but goes beyond in terms of offerings, operations, and size. The characteristics of CSUS arose from the environment and demands of the Sacramento Region (where Placer County plays an important role). Additionally, SRRI has a comprehensive understanding of the operations, economic activities, and characteristics of CSUS.

In order to create scenarios for large and small universities, SRRI assessed the demographic features of a large number of counties throughout the state which have established universities in order to identify comparable regions that can be applied to the regional model. Using data from any large or small university in the state would not provide an accurate picture of the potential characteristics of higher education in Placer County. Universities in each county vary greatly size and scope and face vastly different demographics and densities of higher education institutions. SRRI performed an initial cut of counties most dissimilar to Placer County taking into account the concentration of established universities, geographic features, and general population size. These counties face economic and student demands far different from any potential college in Placer County.

After the initial cut, SRRI choose 12 demographic factors for comparison purposes:

1. Population
2. Change in Population between 1990 and 2000
3. Percent of Population Age 18 to 24
4. Educational Attainment
5. Home Ownership Rate
6. Median Household Income
7. Per Capita Income
8. Land Area
9. Population Density
10. High School Graduates
11. Percent of High School Graduates with UC/CSU Requirements
12. High School Graduates Going to Four-Year Universities

SRRI considered a county to be similar to Placer County if the demographic feature was within (+/-) 10 percent of Placer County. Using a tallied point system, two counties with the best demographic fit to Placer County were identified—Contra Costa and Sonoma Counties. The selection process is based on the assumption that those counties that are similar to Placer County provide useful examples of the types of universities that may

arise in Placer County since the areas face similar demographic characteristics and demands.

These two counties provided the basis for adjusting the model to create a large and small university scenario for Placer County. Contra Costa County was used for the small university due to the presence of St. Mary's College. For the large university scenario, SRRI analyzed Sonoma County's California State University campus. The small, private St. Mary's College had a total enrollment of 4,127 students in the fall of 2001, while the public California State University, Sonoma (Sonoma State) had a total student enrollment of 7,590. As a number comparison, CSUS in 2001 had a total student enrollment of 26,923 as one of the larger campuses in the California State University system. Figure 1 lists some other important pieces of information for the scenario creation process for Sonoma State and St. Mary's College.

FIGURE 1
SELECTED MODEL UNIVERSITY DEMOGRAPHIC DATA

University	*County*	*Total Enrolled*	*Number of Students Enrolled from County*	*Percent Students Enrolled from County*	*Percent Students Living On Campus*	*Fiscal Year 2001-2002 Total Expenditures*
Sonoma State	Sonoma	7,590	2,660	35%	29%	$112,966,815
St. Mary's College	Contra Costa	4,127	595[2]	24%[2]	62%[1]	$68,778,000

Sacramento Regional Research Institute, December 2003
Data Source: St. Mary's College; California State University, Sonoma; and California Postsecondary Education Commission
[1] Fall 2002.
[2] Undergraduate only.

To gain an overall understanding of the two universities, SRRI collected information in areas such as current and future planned construction, daily operations (such as foundations, associated students' organizations, food services, and student unions), student expenditures, and each universities' recent total expenditures.

To create the financial and economic scenarios of a large and small university in Placer County, the enrollment and expenditure data from both Sonoma State and St. Mary's was compared to the CSUS model, and scaling factors were created using ratios between the two universities and CSUS. The scaling factors were then applied to actual CSUS economic and financial data and dissimilar features were removed where appropriate. These final numbers acted as the basis for quantifying the potential economic impacts of a large and a small university in Placer County.

Introduction to Economic Impacts

Universities act as a major employers and purchasers of goods and services, and typically attract resources to the area both in terms of students and employment. In addition to the

general educational services, universities contribute a great deal to a region's economy. In general, economic activities of a university can be broken down into three broad categories:

1. **Operations**. This category accounts for all general operations of a university including those of its supporting organizations. Operations typically include items such as instruction, public services, student services, facilities management, administration, and academic support. A university's supporting organizations also provide a great deal of economic activity and often include: associated students organizations, on-campus radio and TV stations, foundations (which may operate bookstores, dining facilities, and provide student employment), university unions (which provide student services, facilities, retail, and dining services), and trust foundations (which handle fund-raising and financial management).
2. **Construction.** Universities are continuously updating, renovating, and adding to their campuses and this category accounts for those activities.
3. **Student Expenditures.** University students act as consumers throughout the region purchasing a variety of items such as personal services, housing, foods and beverages, transportation and many other retail goods.

A university's economic activities do not end with operations, construction, and student expenditures. While employment and output in Placer County can be directly attributed to these university activities, the economic activities also create jobs and output in linked industries in the county.

An input-output econometric model is necessary in order to analyze the full range of economic impacts resulting from the scenario university activities. This type of model evaluates the effects of industries on each other based on the premise that industries use the outputs of other industries as inputs. The full range of economic activity produced by universities includes direct, indirect, and induced benefits.

- **Direct Benefits** consist of economic activity related exclusively to the university. This includes all expenditures made by the university and all directly related employment within Placer County.
- **Indirect Benefits** define the creation of additional economic activity that results from linked businesses, suppliers of goods and services, and provision of operating inputs.
- **Induced Benefits** measure the consumption expenditures of direct and indirect sector employees. Examples of induced benefits include employees' expenditures on items such as retail purchases, housing, doctors and dentists, banking, and insurance.

Additionally, this input-output analysis can be used to quantify the multiplier effect that occurs when new output or employment is added in the county. The multiplier effect is generated when new output or employment is added in one sector, but generates

additional output or employment in other sectors which supply goods and services to the university (indirect impact) and consumer services to employees (induced impact).

As discussed above, to create the operations, construction, and student expenditures scenario data for a large and small university in Placer County, the scaling factors for Sonoma State (large) and St. Mary's (small) were applied to actual 2001-2002 Fiscal Year CSUS data and unrelated features were removed where appropriate. The adjusted numbers were used to quantify the potential direct benefits and to calculate the indirect and induced impacts of a large and a small university in Placer County. The impacts were calculated for Placer County only, and even greater impacts would be expected for the entire region. Combining the three broad economic categories of operations, construction, and student expenditures, SRRI produced total economic impacts for three distinct scenarios:

1. Combination of both a large and small university locating in Placer County
2. A large university only locating in Placer County
3. A small university only locating in Placer County

These three scenarios identify the potential economic outcomes of locating higher education infrastructure within Placer County in a variety of forms.

Total Economic Impacts

The economic impacts of the three university scenarios range from over 2,000 jobs and close to $105 million in output for the small university to nearly 6,000 jobs and over $338 million in output for a combination of both a small and large university in Placer County. Figure 2 shows the direct, indirect, induced, and total impacts associated with the three scenarios. Due to the inclusion of similar activities in all cases, the economic multipliers are the same in all scenarios. For every job added in university-related economic activities, Placer County would gain another 0.33 jobs in indirect and induced industries. In terms of industry output, for every dollar of university economic output, the county would see an increase of $0.67 in output in indirect and induced sectors. These demonstrate the multiplier effect and equate to employment and output multipliers of 1.33 and 1.67, respectively.

FIGURE 2
TOTAL EMPLOYMENT AND OUTPUT IMPACTS

	Direct	*Indirect*	*Induced*	*Total*
Scenario 1: Combination of a Large and Small University				
Employment Impacts	5,059	537	1,127	6,728
Output Impacts	$202,731,691	$44,837,485	$90,577,445	$338,146,632
Scenario 2: Large University				
Employment Impacts	3,485	370	776	4,632
Output Impacts	$140,208,866	$30,816,158	$62,338,320	$233,363,364
Scenario 3: Small University				
Employment Impacts	1,574	168	351	2,096
Output Impacts	$62,522,825	$14,021,327	$28,239,125	$104,783,268

Sacramento Regional Research Institute, January 2004
Data Source: IMPLAN, 2000 Coefficients

In total, should both a large and small university become established in Placer County, they would contribute over 6,700 jobs to the county and close to $338 million in output to the county's economy including direct, indirect, and induced benefits. The economic activities directly related to the universities would supply over 5,050 jobs and over $202 million in industry output to the county, but due to the indirect and induced benefits, the county would gain about 1,660 more jobs and an additional $135 million in industry output. Moreover, both the large and small universities would provide nearly $231 million in total added value to the county. This reflects the amount of output produced over and above the cost of the inputs and includes direct, indirect, and induced impacts. Placer County would also benefit from over $168 million in employee compensation (including salary and benefits) resulting from the economic impacts, which directly affects spending patterns and indirectly affects many other economic activities such as investment and savings.

A scenario in which only a large university is established in Placer County, shows that the university would contribute over 4,600 jobs to the county and over $233 million in output accounting for all economic impacts. The direct economic activities of the large university would supply almost 3,500 jobs and over $140 million in industry output to the county, but with the indirect and induced impacts, Placer County would see about 1,146 more jobs and an additional $93 million in industry output. Additional economic impacts would also be created because of value added and employee compensation. A large university would provide nearly $159 million in total added value and nearly $116 million in employee compensation.

If only a small university were to locate in Placer County, its total economic impacts would be nearly 2,100 jobs and almost $105 million in output. The direct economic activities related to the small university would supply 1,574 jobs and $62.5 million in industry output to Placer County. With the addition of indirect and induced benefits, the

county would gain about 519 more jobs and an additional $423 million in industry output. Total value added from the small university—the output produced after the cost of inputs has been accounted for—in Placer County would be nearly $72 million. Placer County would also benefit from about $52.5 million in employee compensation resulting from direct, indirect, and induced impacts.

Whether one or two universities, of either size, were to locate to Placer County, it is evident that the presence of a university would have a strong affect on the creation of jobs and total output within the county. These impacts would not only be positive for Placer County's economy as a whole, but would have non-economic effects as well. Universities help to create a higher-educated workforce for the county and the larger Sacramento Region, contributing to economic success of the entire region. In addition, universities create other positive social and cultural benefits and provide for greater economic effects on income, consumption, and taxes which will be discussed later in this report.

Detailed Economic Impacts

Due to the economic linkages, a wide range of industries throughout Placer County would receive economic benefits as a result of four-year university-related activities. Because of the similar economic activities involved in all three scenarios, the same six industry sectors experience some of the greatest total employment and input impacts in all cases. Specific data related to each scenario is presented in Figures 3 through 8 at the end of this section.

The Educational Services, Retail Trade, Business Services, Personal and Consumer Services, Health Services, and Construction sectors would experience the greatest total employment impacts due to the university-related economic activities. These six industry sectors account for close to 95 percent of the total employment impacts in all three scenarios. The Educational Services industry sector would see the greatest benefits with approximately 73 percent of the total impacts. This sector is influenced primarily by the economic activities related to Colleges and Universities, but also encompasses other lower (elementary and secondary schools) and specialized educational services. The largest indirect employment benefits would be in the Business Services and Construction sectors, both of which provide support activities to many industry sectors. In terms of induced employment impacts, the Retail Trade, Personal and Consumer Services, and Health Services sectors lead the list in all three scenarios demonstrating the demand for services from these sectors that are generated by spending activity from the direct and indirect sector employees.

The total output impacts are also led by the similar industry sectors in all three scenarios accounting for close to 83 percent of the total output impacts—Educational Services, Business Services, Real Estate, Retail Trade, Construction, and Health Services. Like the employment impacts, the largest support sectors (indirect) are Business Services and Construction. Retail Trade, Real Estate, Health Services, and Personal and Consumer

Services are the largest sectors in terms of induced output impacts, all of which gain from the spending patterns related to direct and indirect activities.

FIGURE 3
SCENARIO 1—COMBINATION OF A LARGE AND SMALL UNIVERSITY
DETAILED EMPLOYMENT IMPACTS

	Employment Impacts			
Sector	*Direct*	*Indirect*	*Induced*	*Total*
Educational Services	4,911	0	25	4,936
Retail Trade	29	13	385	427
Business Services	7	291	82	381
Personal and Consumer Services	10	34	205	250
Health Services	11	0	179	191
Construction	59	102	18	179
Finance	2	15	42	59
Real Estate	2	27	25	53
Wholesale Trade	2	15	36	53
Government	2	5	37	44
Insurance	1	2	32	36
Communications	20	4	7	32
Transportation	1	8	22	30
Manufacturing	0	14	11	28
Agriculture and Food Processing	0	6	12	18
Legal Services	0	2	7	9
Utilities	0	1	3	4
Mining	0	0	0	0
Total Impacts	5,059	537	1,127	6,728

Sacramento Regional Research Institute, January 2004
Data Source: IMPLAN, 2000 Coefficients

FIGURE 4
SCENARIO 1—COMBINATION OF A LARGE AND SMALL UNIVERSITY
DETAILED OUTPUT IMPACTS

	Output Impacts			
Sector	*Direct*	*Indirect*	*Induced*	*Total*
Educational Services	$182,650,425	$14,762	$908,346	$183,573,532
Business Services	$437,226	$18,951,731	$4,720,314	$24,109,273
Real Estate	$959,946	$5,357,604	$15,363,034	$21,680,584
Retail Trade	$1,431,243	$685,320	$18,547,940	$20,664,503
Construction	$7,744,965	$7,678,850	$1,576,278	$17,000,094
Health Services	$904,327	$15,589	$13,363,257	$14,283,174
Personal and Consumer Services	$496,153	$2,231,790	$9,876,126	$12,604,066
Finance	$388,231	$2,137,491	$6,385,409	$8,911,131
Communications	$2,814,930	$1,339,011	$2,322,298	$6,476,239
Wholesale Trade	$243,121	$1,660,050	$3,927,933	$5,831,103
Manufacturing	$61,042	$2,602,228	$1,899,752	$4,563,029
Insurance	$193,188	$188,888	$3,990,493	$4,372,569
Foreign and Domestic Trade	$3,842,267	$0	$0	$3,842,267
Government	$288,117	$547,641	$2,571,273	$3,407,032
Transportation	$96,438	$787,665	$2,165,689	$3,049,793
Utilities	$90,222	$295,170	$1,711,848	$2,097,240
Agriculture and Food Processing	$32,051	$213,247	$666,643	$911,942
Legal Services	$32,007	$129,960	$580,558	$742,525
Misc.	$25,791	$0	$0	$25,791
Mining	$1	$488	$254	$745
Total Impacts	$202,731,691	$44,837,485	$90,577,445	$338,146,632

Sacramento Regional Research Institute, January 2004
Data Source: IMPLAN, 2000 Coefficients

FIGURE 5
SCENARIO 2—LARGE UNIVERSITY
DETAILED EMPLOYMENT IMPACTS

	Employment Impacts			
Sector	*Direct*	*Indirect*	*Induced*	*Total*
Educational Services	3,378	0	17	3,395
Retail Trade	25	8	265	298
Business Services	5	200	56	261
Personal and Consumer Services	9	23	141	173
Health Services	9	0	123	133
Construction	38	70	12	120
Finance	2	11	29	41
Real Estate	2	19	17	37
Wholesale Trade	2	10	25	37
Government	1	3	26	30
Insurance	1	1	22	25
Communications	13	3	5	21
Transportation	1	5	15	21
Manufacturing	0	10	8	19
Agriculture and Food Processing	0	4	8	13
Legal Services	0	1	5	6
Utilities	0	1	2	3
Mining	0	0	0	0
Total Impacts	3,485	370	776	4,632

Sacramento Regional Research Institute, January 2004
Data Source: IMPLAN, 2000 Coefficients

FIGURE 6
SCENARIO 2—LARGE UNIVERSITY
DETAILED OUTPUT IMPACTS

	Output Impacts			
Sector	*Direct*	*Indirect*	*Induced*	*Total*
Educational Services	$125,634,472	$10,353	$625,152	$126,269,978
Business Services	$282,989	$13,014,112	$3,248,672	$16,545,774
Real Estate	$800,253	$3,701,369	$10,573,336	$15,074,958
Retail Trade	$1,193,145	$460,281	$12,765,293	$14,418,720
Construction	$4,910,209	$5,294,956	$1,084,845	$11,290,011
Health Services	$753,886	$12,337	$9,197,027	$9,963,251
Personal and Consumer Services	$413,613	$1,499,546	$6,797,066	$8,710,225
Finance	$323,646	$1,482,818	$4,394,646	$6,201,110
Communications	$1,808,263	$923,247	$1,598,281	$4,329,791
Wholesale Trade	$202,676	$1,132,677	$2,703,331	$4,038,683
Foreign and Domestic Trade	$3,203,079	$0	$0	$3,203,079
Manufacturing	$50,891	$1,780,882	$1,307,470	$3,139,251
Insurance	$161,050	$135,851	$2,746,385	$3,043,285
Government	$240,186	$380,291	$1,769,633	$2,390,111
Transportation	$80,394	$540,975	$1,490,496	$2,111,868
Utilities	$75,212	$207,696	$1,178,150	$1,461,058
Agriculture and Food Processing	$26,719	$148,610	$458,804	$634,135
Legal Services	$26,682	$89,821	$399,559	$516,062
Misc.	$21,500	$0	$0	$21,500
Mining	$1	$336	$174	$514
Total Impacts	$140,208,866	$30,816,158	$62,338,320	$233,363,364

Sacramento Regional Research Institute, January 2004
Data Source: IMPLAN, 2000 Coefficients

FIGURE 7
SCENARIO 3—SMALL UNIVERSITY
DETAILED EMPLOYMENT IMPACTS

	Employment Impacts			
Sector	*Direct*	*Indirect*	*Induced*	*Total*
Educational Services	1,533	0	8	1,541
Retail Trade	5	4	120	129
Business Services	3	91	26	119
Personal and Consumer Services	1	11	64	77
Construction	22	32	6	59
Health Services	2	0	56	58
Finance	0	5	13	18
Real Estate	0	8	8	16
Wholesale Trade	0	5	11	16
Government	0	2	12	13
Communications	7	1	2	11
Insurance	0	0	10	11
Transportation	0	2	7	9
Manufacturing	0	4	3	9
Agriculture and Food Processing	0	2	4	6
Legal Services	0	1	2	3
Utilities	0	0	1	1
Mining	0	0	0	0
Total Impacts	1,574	168	351	2,096

Sacramento Regional Research Institute, January 2004
Data Source: IMPLAN, 2000 Coefficients

FIGURE 8
SCENARIO 3—SMALL UNIVERSITY
DETAILED OUTPUT IMPACTS

	Output Impacts			
Sector	*Direct*	*Indirect*	*Induced*	*Total*
Educational Services	$57,015,953	$4,409	$283,194	$57,303,554
Business Services	$154,237	$5,937,619	$1,471,642	$7,563,499
Real Estate	$159,693	$1,656,235	$4,789,698	$6,605,626
Retail Trade	$238,098	$225,039	$5,782,647	$6,245,783
Construction	$2,834,756	$2,383,894	$491,433	$5,710,083
Health Services	$150,441	$3,252	$4,166,230	$4,319,923
Personal and Consumer Services	$82,540	$732,244	$3,079,060	$3,893,841
Finance	$64,585	$654,673	$1,990,763	$2,710,021
Communications	$1,006,667	$415,764	$724,017	$2,146,448
Wholesale Trade	$40,445	$527,373	$1,224,602	$1,792,420
Manufacturing	$10,151	$821,346	$592,282	$1,423,778
Insurance	$32,138	$53,037	$1,244,108	$1,329,284
Government	$47,931	$167,350	$801,640	$1,016,921
Transportation	$16,044	$246,690	$675,193	$937,925
Foreign and Domestic Trade	$639,188	$0	$0	$639,188
Utilities	$15,010	$87,474	$533,698	$636,182
Agriculture and Food Processing	$5,332	$64,637	$207,839	$277,807
Legal Services	$5,325	$40,139	$180,999	$226,463
Misc.	$4,291	$0	$0	$4,291
Mining	$0	$152	$80	$231
Total Impacts	$62,522,825	$14,021,327	$28,239,125	$104,783,268

Sacramento Regional Research Institute, January 2004
Data Source: IMPLAN, 2000 Coefficients

Improving Placer County's Ability to Attract Specific Types of Businesses and Industries

The presence of a local four-year university would be a strong success factor in the economic future of Placer County. Apart from a potential increase in economic activity (discussed in the previous section of this report), the County would benefit from access to local higher education; a larger, better educated, and more diverse labor pool; and increased expertise and professionalism resulting from partnerships between local businesses and the academic community. These factors could play a considerable role in making Placer County even more marketable and attractive for new businesses and industries, leading to potential structural changes in the County's economy.

In order to gain an understanding of the County's potential improved ability to attract businesses and industries that the presence of a university may create, SRRI studied the linkages between education, occupations, and industry occupational structures. Additionally, SRRI conducted a survey of major employers to confirm the results of the quantitative analysis and discover firsthand employers' opinions on the occupational demand for a four-year degree labor force, how a university could best meet that demand, and which industries would be the primary beneficiaries of a local university in Placer County. This section discusses the results of the educational and occupational analysis and the surveys of major employers and provides an assessment of the industries making the highest use of college educated employees, which would represent economic development opportunities if one or more universities were to locate in Placer County.

Research Methodology

SRRI used two methods that complemented as well as served as validity checks for each other to identify industries that would benefit the most from the presence of a university in Placer County. First, industries that rely most heavily on occupations with college majors considered in high demand by Placer employers and residents were examined (as indicated in the 2002 *Placer County University Study*). Second, SRRI identified industries that generally make the highest use of labor force with Bachelor's and higher level degrees regardless of college major.

To develop a list of industries that employ the highest number of occupations with majors demanded by local residents and employers, SRRI used the college majors that were among the highest ranking in the lists of resident and employer curriculum preferences and represented a diverse curriculum selection. This compilation of college majors was specifically based on the surveys of residents, employers, and educational leaders assessed in the 2002 *Placer County University Study*. The final list included the following 12 college majors:

1. Biology
2. Business Administration/Management
3. Communications

4. Computer Science
5. Economics
6. Education
7. Engineering
8. Finance
9. Geology
10. Information Systems Management
11. Marketing
12. Mathematics

Using a "Major to Career Converter" available on *Monster.com*, an online career search database, SRRI developed twelve lists of occupations, each of which represented career opportunities within each major. The resulting occupations were then matched to equivalents within the Employment Development Department's (EDD) Staffing Patterns (a list of occupations employed within particular industry sectors on a statewide basis which includes training levels and employment projections) in order to obtain employment numbers and projections for each occupation as well as which industries employ most of the identified occupations. Although different regions' occupational structures may differ depending on specific businesses present, the distribution of occupations within an industry, or industries within an occupation, EDD believes that their statewide staffing patterns should be similar for other levels of geography, including Placer County. SRRI used data pertaining only to occupations that require higher education level training—these official training levels included Bachelor's Degree, Master's Degree, First Professional Degree, Doctoral Degree, and Work Experience plus a Bachelor's or higher Degree. After identifying occupational matches within the Staffing Patterns, SRRI selected the top occupations based on 2000 employment representing a combined list of occupations for the twelve college majors.

To obtain some validation for the findings of the major-to-industry analysis described above, SRRI also developed a list of industries that generally make the highest use of occupations requiring a Bachelor's Degree or higher, irrespective of college major. Similar to the other analysis, SRRI used EDD's Staffing Patterns to identify industries with the highest employment in 2000 within the five higher education training levels (from Bachelor's to Doctoral Degrees). Again, SRRI arrived at a consolidated list of industries that make the highest use of higher-educated employees. The two lists of industries were almost identical, and having considered the relevance of certain industries for Placer County as well as projected growth within occupations with higher education requirements, SRRI created a final list of industry sectors that Placer County would be able to attract more effectively through the presence of a local university. The selected industry sectors were also evaluated in terms of their historic, present and projected economic performance, which was analyzed across four variables—employment growth between 1997 and 2002; share of total employment in 2002; change in the share of total employment between 1997 and 2002; and statewide projected employment growth between 2000 and 2010.

Additionally, based on the economic impact analysis performed in the previous section, SRRI evaluated the industries that could also be attracted not only by a highly educated labor force but also as suppliers of goods and services to a four-year university. The methodology for this analysis is described in the Direct Economic Effects of Educational Institutions section and takes into account the two model scenarios and the existing structure of the Sacramento Region.

To validate the technical analysis described above and gain further insight into occupational, educational, and economic trends in the County, SRRI also interviewed major employers in Placer County and the Sacramento Region. A sample of 60 was developed representing a broad spectrum of locations throughout Placer County, a wide variety of industry sectors (based on the current economic composition of the County), and some of the largest employers in the Sacramento Region. SRRI obtained responses from approximately 33 percent of the sample employers (20 of the 60 businesses). The respondents were typically human resource managers or top management within the companies, ensuring a broad and competent view of the company and its employment needs.

Industries with the Highest Use of Four-Year Degree Occupations

The presence of educational institutions and increased access and availability represent important factors affecting a location's business attraction capabilities. The findings of the 2002 *Placer County University Study* indicated that many employers believe that a new university in Placer would be a strong advantage that would help Placer County's economy through attracting businesses and industries that utilize a highly-skilled and educated labor force and consider the presence of an academic community as an important locational factor. Therefore, it is important to gain an understanding of which industries are particularly reliant on a strong local educational base when choosing a new location for their businesses. This knowledge can be an important tool for improving and focusing business attraction efforts in Placer County.

Based on the analysis of occupations requiring higher education ranging from Bachelor's to Doctoral Degrees, SRRI developed a list of industries that make the highest use of a higher-educated labor force, including:

1. Accounting, Auditing, and Bookkeeping
2. Colleges and Universities
3. Commercial Banks
4. Computer and Data Processing Services
5. Computer and Office Equipment
6. Electronic Components and Accessories
7. Engineering and Architectural Services
8. Hospitals
9. Insurance Agents, Brokers, and Services
10. Legal Services

11. Management and Public Relations
12. Mortgage Bankers and Brokers
13. Offices and Clinics of Medical Doctors
14. Personnel Supply Services
15. Real Estate Agents and Managers

In addition to these 15 industries, many public sector activities would benefit from the presence of a university in Placer County. The occupational patterns of State, Local, and Federal Government employers as well as Elementary and Secondary Schools reflect a reliance on occupations that require a Bachelor's Degree or greater. While economic development and business attraction activities are not typically focused on these public sector activities, the presence of a university would clearly help meet the workforce requirements of these local sectors. A local university would significantly enhance Placer County's ability to both attract more of the 15 selected industries and improve the labor force supply of the existing businesses within these industries as well as the major public sector employers.

Characteristics of the Industries

Based on their use of occupations with four-year degrees, the 15 selected industries analyzed above represent sectors that would benefit the most from local access to higher education in Placer. The County could become more marketable and attractive to these industries once it has established a local university base. While for some of the more specialized industries such as Computer and Data Processing Services, high-tech manufacturing-related sectors, Legal Services, Health Services, and Engineering and Architectural Services, the benefits of a university may significantly be determined by the availability of specialized programs in their respective fields, many of the selected industries would benefit from a more general business, management and finance-oriented curriculum. The surveys of major employers demonstrated similar curriculum elements and preferred elements of a local university. Statewide projections of employment growth rates for the selected industries are relatively strong ranging from eight to 86 percent. (Statewide growth rates represent the potential employment trends for these industries with the presence of a local university more appropriately than those projections specifically related to Placer County, since statewide averages capture the dynamic of local universities). These projected growth rates illustrate the replacement and growth needs for these industries, and Placer County may be more notably affected by these employment trends if one or more universities were to locate in the County.

Accounting, Auditing, and Bookkeeping

Businesses in the Accounting, Auditing, and Bookkeeping sector primarily provide support services to a wide range of industries focused on accounting, bookkeeping, and auditing. In 2002, this sector was relatively small in Placer County comprising 0.4 percent of total employment, but demonstrated a strong 25 percent growth rate between

1997 and 2002. The statewide projected employment demand for this sector shows a 38 percent growth rate between 2000 and 2010. A local university could significantly contribute to this sector's future growth in the County (at rates closer to those projected statewide), potentially making this industry a more significant part of the overall economy and allowing other industries to flourish with the availability of local support services. Major employers expressed a strong demand for qualified accountants and auditors in Placer County.

Colleges and Universities

Clearly, the presence of a university in Placer County would create a new employment demand from the staffing requirements of the university. Many of the occupations within the Colleges and Universities sector call for employees with college degrees, thereby increasing the ability of the County to actually create a workforce more able to staff a local university. Employment in this sector is projected to grow by 21 percent statewide between 2000 and 2010, and Placer County could immediately benefit from employment growth in an industry sector that currently does not play an important role in the County if a four-year university were to locate locally.

Commercial Banks

With a 78 percent employment growth between 1997 and 2002, the Commercial Banks sector represents one of the fastest growing among the selected industries in Placer County. The proportion of total employment in Commercial Banks grew between 1997 and 2002, comprising 1.3 percent of total employment in 2002. The presence of a four-year university could give the County an advantage in expanding this sector through an increased supply of a highly skilled and technically knowledgeable workforce. While the projected statewide average of eight percent growth is modest compared to other selected industries, Commercial Banks in Placer County may have a stronger potential due to the robust and growing regional Financial Activities sector as well as major employers' desire to see more of financial-related businesses in the County.

Computer and Data Processing Services

Acting as support sector serving a large number of industries, the Computer and Data Processing Services sector provides a variety of services including, computer software design and analysis, modifications of custom software, training in the use of software, and maintenance and repair of computer and peripheral equipment. The Computer and Data Processing Services sector makes the highest use of four-year degree employee compared to all other sectors. It had the highest employment growth of 150 percent between 1997 and 2002 in Placer County, and is projected to grow at the highest statewide rate of 86 percent among the selected industries. With the help of a local university, Placer County could significantly increase its ability to attract more businesses

to expand and strengthen its existing Computer and Data Processing Services sector which could provide support services that would enhance economic activities in other industry sectors throughout the County.

Computer and Office Equipment

The Computer and Office Equipment industry includes establishments involved in manufacturing of computer and peripheral equipment, computer terminals, calculating and accounting machines, and other office equipment. Affected by the recent economic recession as well as overall decline in manufacturing jobs, this sector experienced negative growth and shrank as a proportion of total Placer employment between 1997 and 2002. However, it still made up over three percent of total employment in the County in 2002 and statewide growth is projected at about nine percent between 2000 and 2010. Perceived by both employers and residents as one of the County's fortes and a major specialization, this sector still provides good prospects for growth and expansion, relying on the presence of global industry leaders like Hewlett Packard, a recovering economy, and resuming consumer demand. A local university would serve as a critical tool for supporting the existing sector as well as for attracting new businesses within the sector, potentially contributing to augmenting the economic cluster through economies of scale, a better educated labor pool, more sophisticated expertise, and technology and knowledge spillovers.

Electronic Components and Accessories

The Electronic Components and Accessories sector experienced zero growth between 1997 and 2002 in Placer County, but is projected to increase by close to eight percent on a statewide basis between 2000 and 2010. Being a technology driven sector with a high percentage of college educated occupations, this industry could greatly benefit from a local higher education base in the County. Similar to the Computer and Office Equipment sector, the manufacturing activities in this sector thrive on technical expertise and industry linkages, especially in the innovation involved in the early stages of developing and manufacturing new products. Major employers view Placer County as an area that will continue to benefit from its high-tech manufacturing activities and businesses, and the presence of a university may increase the County's economic development potentials in this sector.

Engineering and Architectural Services

Engineering and Architectural Services industry plays an important role in construction activity, which has been a key economic aspect in Placer County. This is demonstrated by the strong employment growth between 1997 and 2002 (71 percent). The industry has also been gaining in proportion of total employment over the past five years, comprising one percent of total employment in Placer County in 2002. Statewide, employment in

Engineering and Architectural Services is projected to grow by 38 percent. Placer's ability to continue attracting more businesses and harness potential growth within this sector will, to a large extent, be determined by the availability of local educational programs that can train the engineers and architects demanded by this industry. According to major employers, a four-year program in engineering and architecture would enhance Placer County's ability to attract businesses in this sector as well as from several other industries, including other Professional and Business Services employers and Computer and Office Equipment manufacturing businesses.

Hospitals

This sector represents one of the fastest growing sectors among the selected industries (75 percent between 1997 and 2002) in Placer County. The proportion of employment in hospitals grew over the past five years, and comprised 1.7 percent of the County's total employment in 2002. With the growing demand for health services driven by demographic and economic growth, hospitals including general, psychiatric, and specialty represent strong potential for sustained employment growth—statewide, this sector is projected to increase by 29 percent between 2000 and 2010. A local university could contribute to this sector's growth through both an increased supply of educated personnel as well as through an increased demand for local medical and hospital services.

Insurance Agents, Brokers, and Services

Like a few of the other selected industries, Insurance Agents, Brokers, and Services act as a support sector providing services to businesses and residents. In Placer County, this industry demonstrated relatively high growth between 1997 and 2002 at 73 percent, increased in the proportion of total employment over the past five years, and had a fairly large proportion of total employment (1.6 percent) in 2002. Statewide, employment in Insurance Agents, Brokers, and Services is projected to grow by 21 percent between 2000 and 2010 driven by population and economic growth, both of which are primary characteristics of Placer County. The industry could benefit from an increased local supply of employees with four-year degrees, especially those graduates that gain skills in management, business finance, and administration.

Legal Services

The Legal Services sector represents another large consumer of a highly-educated labor force. While it demands mostly employees with specialized professional degrees related to law, majors like management and finance represent another useful resource for this sector. A local university would enable Placer County to help expand its legal services sector which also acts as a support sector providing legal advice and services to a wide range of businesses and residents, and depending on demographic and economic growth. Legal Services has demonstrated strong employment growth over the past five years at 69

percent, made up close to two percent of total employment, and has increased its share of total employment since 1997. Additionally, this sector is projected to increase by 30 percent statewide between 2000 and 2010 representing a healthy and sustainable economic development potential.

Management and Public Relations

While Management and Public Relations experienced a 39 percent employment decline in Placer County between 1997 and 2002, it still represents an important sector with a strong demand for college educated employees capturing 1.4 percent of the County's total employment in 2002. The decline in this sector appears to be a regional characteristic, since the statewide projected growth figures are among the highest of the selected industries (38 percent between 2000 and 2010). With an increased supply of a highly-educated workforce potentially driven by the presence of a local university with management and communications curriculum and continued economic growth, this sector could reach the potential seen at the statewide level. The support services provided by this industry are important to the economic activities of a wide range of businesses, and economic development activities in Placer County could support and enhance this declining sector with the presence of a local university.

Mortgage Bankers and Brokers

Population and business growth are significant drivers of the Mortgage Bankers and Brokers industry. This sector has demonstrated a strong historic employment growth (38 percent between 1997 and 2002), a large and growing proportion of total employment (1.7 percent in 2002), and optimistic statewide projections through 2010 (25 percent). These economic trends appear promising especially given a continuous home sales boom encouraged by low interest rates, migration patterns, and regional home affordability. The industry relies heavily on educated professionals with management, accounting and finance majors; therefore, a local university providing training in these disciplines would make Placer County even more marketable to new businesses in this sector.

Offices and Clinics of Medical Doctors

Like the Hospital industry, the Offices and Clinics of Medical Doctors sector has strong projected employment growth and serves as a source of consistent demand for four-year degree employees. Apart from doctors, this sector has a strong need for accounting, administrative, and management specialists, which a local university could assist in developing. The Offices and Clinics of Medical Doctors has already been a valuable element of Placer County's economy with 38 percent growth between 1997 and 2002 and 3.7 percent of total employment (the highest among the selected industries); however, the continued demand for health services make the economic development potential even more promising.

Personnel Supply Services

Acting as another key support sector for a wide range of industries by providing employment supply services, the Personnel Supply Services industry makes use of a large amount of college educated occupations. Responding to the continued economic growth in the County, this sector has seen the largest gain among the selected industries in the proportion of total employment—the sector made up about 1.9 percent of total employment in 1997, and about 2.6 percent in 2002 (a 0.7 percent gain). Additionally, the sector saw healthy employment growth over the past five years in Placer County at 82 percent. Statewide, this sector is projected to remain strong with 36 percent employment growth between 2000 and 2010. Personnel Supply Services represents a good economic development potential for Placer County, especially with the presence of a four-year university.

Real Estate Agents and Managers

Similar to Mortgage Bankers and Brokers, the Real Estate Agents and Managers sector (focused on renting, buying, selling, managing, and appraising real estate for others) has thrived on the continuous and growing home sales demand and business growth in Placer County. The sector's employment grew by 30 percent between 1997 and 2002, and made up 2.2 percent of total employment in 2002. Locally offered programs in business, finance, and management would make Placer County more marketable to Real Estate Agents and Managers businesses, potentially meeting or exceeding the 2000 to 2010 statewide projected employment growth of 25 percent.

Linked Industries

In addition to the increased ability to attract certain industries due to the creation of a higher-educated workforce, the presence of a four-year university would allow Placer County to draw industries that are typically suppliers of goods and services to universities. Should one or more universities locate in Placer County, the local economy would see the benefit of increased employment directly related to the university as well as in industries linked to universities. These economic impacts were discussed in the Direct Economic Effects of Educational Institutions section of this report (indirect effects); however, it is important to stress that the County would also benefit from the increased ability to attract supplier businesses and industries that not only serve universities, but also many other firms and industry sectors in Placer County and the Sacramento Region.

Examining the indirect employment effects in the two scenarios discussed in the Direct Economic Effects of Educational Institutions section of this report, as well as university employment in the Sacramento Region, shows that the following industries experience

the greatest indirect impacts, demonstrating the presence of economic activity related to the supply of goods and services:

- Computer and Data Processing Services
- Personnel Supply Services
- Real Estate
- Accounting, Auditing, and Bookkeeping Services
- Management and Consulting Services
- Wholesale Trade—Durable and Non-durable Goods
- Credit Agencies
- Services to Buildings
- Communications Services
- Engineering and Architectural Services

Economic development activities would benefit from the greater ability to attract firms in these industries because of their link to the economic activities of universities. Many of these sectors are associated with the major Business and Professional Services industry sector, which is projected to experience some of the highest 2000 to 2010 employment growth rates in California and the Sacramento Region due to its connection to much of the public and private economic activities. The other sectors have similar economic linkages and relatively strong projected employment growth because of the demand for real estate and financial services.

Additionally, many of these sectors rely on occupations that typically require college-level education, especially those providing high level and technical business and financial services. While Placer County's ability to attract these sectors would be increased simply due to the economic activities and presence of a university, this ability is amplified due to the benefits that the university would create in terms of a higher-educated workforce that many of the sectors demand.

Economic activities related to over half of these linked industries showed up in the analysis of industries making the greatest use of college educated occupations including Computer and Data Processing Services; Personnel Supply Services; Real Estate; Accounting, Auditing, and Bookkeeping Services; Management and Consulting Services; Credit Agencies; and Engineering and Architectural Services. Three of the linked industries play an important support role for universities, but are not among those making the highest use of occupations requiring a Bachelor's Degree or greater—Wholesale Trade; Services to Buildings; and Communications Services.

Major Employer Interviews

SRRI's survey of major employers in Placer County and the Sacramento Region provided additional insight into the benefits of a local four-year university and strong support for the business attraction analysis discussed above. Overall, the results of the survey indicated that a four-year university would serve as a strong locational advantage that

would aid economic development and business attraction activities as well as act as a tool to create a strong and well trained local workforce.

Respondents depend on occupations requiring four-year degrees at varying levels ranging from two to 100 percent of all occupations, depending on the company and its respective industry. According to responses, the Computer and Office Equipment, Financial Activities, and Professional and Business Services industries require the largest proportion of higher-educated occupations. In general, approximately 37 percent of the total occupations within the participating companies have Bachelor's Degree or higher requirements—this represents a significant portion of Placer County's workforce that could benefit from a local four-year university.

As a percentage of total responses, the most commonly mentioned occupations with Bachelor's Degree or higher training levels included:

- Management
- Business Administration
- Accountants
- Marketing Specialists
- Finance Specialists
- Engineers
- Computer Science Professionals
- Information Technology
- Human Resources

Most of these occupations are housed within a large number of industries, demonstrating the broad workforce benefits that could be created by a four-year university in Placer County. Additionally, respondents indicated that many of these occupations are hard to fill and will continue to have a high demand in the local economy. Occupations related to management, business administration, and accounting were mentioned most frequently by the survey respondents, showing the need for a local university to provide curriculum in these areas.

Survey respondents emphasized an increasing importance of occupations requiring a Bachelor's Degree or higher training level over the next five to 10 years. Approximately 65 percent of the respondents projected an increase in the workforce demand for undergraduate and higher level degrees. Twenty-five percent of the respondents who projected an increase in the demand for higher education also mentioned that they expect Bachelor's degrees to become the minimum requirement for most occupations they will use in the future. Looking ahead to demands of business in Placer County in the future, based on the survey respondents, the ability to provide a higher-educated workforce will be critical to business attraction and retention efforts. A local four-year university may help ensure that the workforce can meet employers' needs.

While some employers were satisfied with the existing educational program offerings, they mentioned particular skill sets that their employees often lack and need to develop

including basic English grammar, foreign languages, business writing, and computer skills. Many of these skills are developed through a lifetime of learning, but are also often part of general university curriculum that helps students hone their skills. Only about 20 percent of the respondents expressed an overall satisfaction with the educational institutions in the region and their program offerings, indicating the need for more and different high-quality institutions throughout the region. The educational programs that respondents felt a university should contain were similar to those obtained in the business, resident, and educational leader surveys completed for the 2002 *Placer County University Study* (local preferences have not shifted) and included programs such as computer science, accounting, engineering, mathematics, and business administration. The strongest demand was for business-related programs. Additionally, respondents appeared to be interested in graduate level programs that would allow residents in the region to obtain Master's Degrees without paying exorbitant costs or traveling long distances. Many employers were interested in programs that would be designed to accommodate students who work full-time and wish to either complete a degree or gain more knowledge in a specific subject area.

Overall, the surveyed employers stressed that a university in Placer County would have a positive impact on the region and would significantly help businesses' employment needs. Many employers emphasized location as a major factor in determining how beneficial the presence of a new university would be for their employment needs—29 percent of the respondents felt a university would be very beneficial and 41 percent felt a local four-year university would be moderately beneficial. The survey also illustrated the respondents' assumption that the potential university would be in their close proximity.

The respondents were asked to discuss the industries they thought benefit most from a university in Placer County. Respondents generally agreed with the 15 selected industries that SRRI arrived at through the analysis discussed earlier in the section, and also thought that sectors related to hospitality, retail trade, and telecommunications would benefit from the presence of a local university. Similar to the responses related to occupations, almost all respondents felt that most industries could utilize more people trained in accounting, business administration, and management.

Among the other benefits that a university would provide, the respondents mentioned an increased economic growth due to employment growth and the development of infrastructure. Many employers commented that the presence of a university within the County boundaries would enable residents to obtain a college education without having to commute to Sacramento or Davis. They believed that this would be a very large benefit because of the traffic congestion between Placer and other counties in the Sacramento Region. Employers also expressed that a university would provide a more educated and diverse workforce in the County. Several respondents stated that the increased number of students would also help businesses fill their key internship positions. Others mentioned that a university could serve as a cultural center that would provide Placer residents with entertainment opportunities and extracurricular activities such as theatrical or musical performances and sporting events.

Overall, the respondents had a very optimistic forecast for the future of the Placer County economy. Seventy percent of the interviewed employers projected that their employment as well as their products and services would expand over the next five to 10 years. Approximately 60 percent of the employers projected an increase in the square footage of their facilities. The respondents were also very optimistic about the expansion of their respective industries within the region with 80 percent of the employers expecting growth within their industries locally.

Effects on Expenditures and Taxes Resulting from Changes in Economic Structure

Other sections of this report have demonstrated that the presence of one or more university campuses in Placer County would bring about important economic benefits and expand the County's ability to attract specific types of businesses and industries. In addition to these impacts, a university campus creates the potential for a higher-educated workforce, which would have higher earning potential and greater incomes. This increased income would ultimately affect consumption patterns and related economic and tax impacts. This section addresses the impacts of the increased economic activity resulting from a higher-educated workforce, specifically in relation to taxes and expenditures.

Research Methodology

SRRI used the analysis from the Direct Economic Effects of Educational Institutions section of this report to identify the potential shift in educational attainment resulting from the presence of a four-year university. One of the two demographically similar counties, Contra Costa County, was used as the model for educational attainment levels. In Contra Costa County, close to 35 percent of the age 25 and over population have a Bachelor's Degree or greater compared to nearly 30 percent in Placer County. This information provided the basis for one important aspect of the scenario used for this analysis—Placer County could potentially see a shift from 30 to 35 percent of its age 25 and over population with a Bachelor's Degree or greater if a four-year university was to locate in the County.

The second key aspect of the scenario created for this analysis relates to earning potential associated with an educational attainment level of a Bachelor's Degree or higher. Based on a study by the Census Bureau and national earning potential data, SRRI calculated the overall difference between the average income of two population groups—those with educational attainment levels of a Bachelor's Degree or higher and those whose educational attainment is below a Bachelor's Degree level. The increased earnings associated with the greater educational attainment level are approximately $33,000 in annual income.

The combination of a shift in educational attainment levels and related increased earning potential creates greater output in the economy. This output can be analyzed using an input-output econometric model and analysis similar to the Direct Economic Effects of Educational Institutions section of this report. The input-output model evaluates the full range of economic activity produced by increased economic output (in this case, income) including direct, indirect (linked goods and services), and induced benefits (consumption activity of the direct and indirect employees). In addition, this model can be used to assess overall tax impacts of increased economic output. It is important to note that the model provides information related to tax generation, and not necessarily allocation. California's current budget restructuring creates a limitation to this analysis since there is

currently no way to determine how much of the tax impact will be allocated to local versus state government in the future.

SRRI's analysis of the effects on expenditures and taxes does not account for potential changes in the relationship between Placer County and the rest of the region, such as Placer County's current capture of additional retail and sales taxes from elsewhere in the region, which may also potentially increase due to higher education in Placer County. In addition, the presence of a university in Placer County will also have impacts on other areas in the Sacramento Region; however, this analysis is specifically limited to the effects on Placer County.

Overall, the following represent the general scenario assumptions used for this analysis:

- With the presence of a four-year university, Placer County has the potential to see a shift in the percentage of its age 25 and over population with a Bachelor's Degree or higher from 30 percent to 35 percent.
- There is a difference of approximately $33,000 in annual income between those with a Bachelor's Degree or higher and those with educational attainment below a Bachelor's Degree level.

Economic and Tax Impacts

The presence of a four-year university could create a better-educated labor force in Placer County. This higher-educated workforce would have higher income levels resulting in increased consumption activities and a ripple effect where other industries experience indirect and induced economic benefits due to the shifting consumption patterns. These economic changes, driven by the shift in consumption and income, would also have an effect on state and local tax generation.

The increase in annual income creates greater economic potential for the entire economy since the income could flow into a variety of activities including savings, investment and consumption. As shown in Figure 9, this increased economic potential would generate close to 9,400 jobs and over one billion dollars of output in Placer County. In addition, over $483 million of value added (total output less the cost of inputs including direct, indirect, and induced effects) would be produced in the County.

FIGURE 9
INCREASED EARNING POTENTIAL
TOTAL EMPLOYMENT AND OUTPUT IMPACTS

	Direct	*Indirect*	*Induced*	*Total*
Employment Impacts	6,400	1,345	1,618	9,364
Output Impacts	$871,116,043	$118,897,808	$129,971,334	$1,119,985,172

Sacramento Regional Research Institute, January 2004
Data Source: IMPLAN, 2000 Coefficients

Figure 10 demonstrates that employment activity would flow mainly to the Retail Trade, Personal and Consumer Services, and Health Services, which are all influenced by the increased consumption patterns. These three sectors make up close to 71 percent of the total employment impacts.

FIGURE 10
INCREASED EARNING POTENTIAL
DETAILED EMPLOYMENT IMPACTS

	Employment Impacts			
Sector	*Direct*	*Indirect*	*Induced*	*Total*
Retail Trade	2,508	41	552	3,102
Personal and Consumer Services	1,467	108	294	1,870
Health Services	1,119	17	257	1,393
Business Services	51	510	118	678
Government	254	28	53	336
Finance	144	126	60	329
Insurance	155	90	47	292
Wholesale Trade	183	50	51	284
Educational Services	203	4	36	243
Transportation	115	41	31	186
Real Estate	51	80	36	167
Construction	0	121	25	147
Manufacturing	38	48	18	104
Agriculture and Food Processing	39	43	17	99
Communications	27	18	10	56
Legal Services	34	11	10	55
Utilities	12	8	5	25
Mining	0	0	0	0
Total Impacts	6,400	1,345	1,618	9,364

Sacramento Regional Research Institute, January 2004
Data Source: IMPLAN, 2000 Coefficients

Some of the individual sub-sectors that would see the greatest total employment effects include:

- Eating and Drinking Establishments
- Doctors and Dentists
- Hospitals
- Amusement and Recreation Services
- General Merchandise Stores
- Wholesale Trade
- Food Stores

- Automotive Dealers and Service Stations

In terms of economic output, Figure 11 shows that a large portion of the total output impacts are related to the movement of goods and services outside of Placer County, both domestically and internationally. After this economic activity, the largest total output impacts are in the Retail Trade, Real Estate, and Health Services sectors.

FIGURE 11
INCREASED EARNING POTENTIAL
DETAILED OUTPUT IMPACTS

	Output Impacts			
Sector	*Direct*	*Indirect*	*Induced*	*Total*
Foreign and Domestic Trade	$354,255,720	$0	$0	$354,255,720
Retail Trade	$119,881,645	$1,974,431	$26,613,865	$148,469,939
Real Estate	$88,858,883	$15,962,613	$22,044,756	$126,866,254
Health Services	$86,274,681	$931,465	$19,173,782	$106,379,927
Personal and Consumer Services	$69,637,539	$6,484,243	$14,174,083	$90,295,863
Finance	$25,638,895	$14,144,666	$9,161,425	$48,944,985
Government	$32,357,498	$3,491,672	$3,689,548	$39,538,717
Business Services	$3,174,746	$29,143,594	$6,773,291	$39,091,631
Insurance	$24,029,386	$6,101,841	$5,727,208	$35,858,435
Wholesale Trade	$20,223,214	$5,479,530	$5,635,989	$31,338,732
Transportation	$11,381,837	$4,282,277	$3,107,868	$18,771,981
Communications	$9,131,361	$5,686,931	$3,331,963	$18,150,254
Manufacturing	$5,281,736	$7,495,813	$2,725,922	$15,503,470
Construction	$0	$10,903,275	$2,261,878	$13,165,152
Utilities	$7,083,786	$3,618,125	$2,456,034	$13,157,944
Educational Services	7,227,526	191,782	1,303,814	8,723,123
Agriculture and Food Processing	$2,303,118	$2,076,250	$956,529	$5,335,895
Legal Services	$2,855,166	$927,714	$833,014	$4,615,893
Miscellaneous	$1,519,132	$0	$0	$1,519,132
Mining	$174	$1,586	$365	$2,125
Total Impacts	$871,116,043	$118,897,808	$129,971,334	$1,119,985,172

Sacramento Regional Research Institute, January 2004
Data Source: IMPLAN, 2000 Coefficients

A few of the specific sub-sectors with the greatest total output gains resulting from the better-educated workforce include:

- Owner-occupied Dwellings
- Doctors and Dentists
- Eating and Drinking Establishments
- Hospitals
- Banking
- Real Estate

- Wholesale Trade
- Insurance Carriers
- Automotive Dealers and Service Stations

The additional income produced by the higher-educated workforce associated with the presence of a four-year university in Placer County would also affect tax generation. As shown in Figure 12, the shifts in income and consumption would potentially generate about $49 million in state and local taxes including sales, personal, and business taxes and all economic activity (direct, indirect, and induced). The greatest tax impact would be in the sales tax area with approximately 39 percent of the total potential tax generation followed by business property tax at close to 24 percent.

FIGURE 12
INCREASED EARNING POTENTIAL
STATE AND LOCAL TAX GENERATION IMPACTS

Tax Area	*Total Tax Generation Potential*
Sales Taxes	$18,925,267
Business Property	$11,792,745
Personal Income	$7,677,192
Corporate Profit Tax	$2,698,451
Business Assessments, Fees, and Other Non-taxes	$2,177,040
Personal Assessments, Fees, and Other Non-taxes	$2,074,196
Business Other Taxes	$2,000,030
Social Insurance-Employer	$350,439
Personal Motor Vehicle	$325,620
Business Motor Vehicle	$262,041
Personal Property	$116,271
Social Insurance-Employee	$91,210
Personal Other Taxes	$61,966
Dividend Payments from Investment	$30,074
Severance Taxes	$21,896
Total State and Local Taxes	$48,604,438

Sacramento Regional Research Institute, January 2004
Data Source: IMPLAN, 2000 Coefficients

While it is clear that there would be tax impacts associated with the increased earning potential and consumption shifts of a higher-educated population, the information in Figure 12 should only be viewed as potential tax generation and not specifically allocation. California's current budget restructuring creates a limitation to this analysis since there is currently no way to determine how much of the tax impact will be allocated to local versus state government in the future.