

**The Impact of Tahoe Forest Hospital
on the Local Economy**



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Introduction

The primary purpose of this report is to document the contribution of Tahoe Forest Hospital (TFH) to the local economy of Truckee, California. Data presented in this report reveal that the hospital has a substantial impact on income, employment, and sales tax revenue in the Tahoe Forest Hospital District (TFHD) – a contribution often overlooked in public policy discussions of health care costs, access to care, and community benefits. The hospital plays a critical role in local economic development by creating jobs and income for local residents through the normal hospital operations. The hospital is also responsible for generating employment and income in other businesses in the Truckee area.

Utilizing data provided by Tahoe Forest Hospital, the analysis presented in this report indicates that TFH spent \$48.0 million locally on operations in 2006. When the expenditures by other businesses as a result of the hospital are included in the analysis, TFH directly and indirectly generated a total of \$70.3 million in spending in the TFHD. Additionally, the hospital employed 450 individuals living in the TFHD in 2006. When the employment created by other businesses as a result of the hospital is included in the analysis, TFH directly and indirectly generated a total of 713 jobs in the district. Similarly, TFH generated \$17.7 million in payroll for the year 2006. When the income created by other businesses as a result of the hospital is included in the analysis, TFH was responsible for \$23 million in payroll for TFH employees and those employed in other businesses.

In addition to hospital operations expenditures, TFH also spent \$6.8 million locally on construction in 2006, which generated a total of \$9.8 million in expenditures throughout the TFHD. The construction employed 66 individuals living in the local area. Including the employment created by other businesses as a result of hospital construction in the analysis, a total of 97 jobs were generated in the district. The hospital construction created \$3.5 million in payroll for 2006. When the payroll generated by other businesses as a result of the hospital construction is included in the analysis, TFH was responsible for \$4.6 million in payroll for local residents.

As local and state policymakers consider the medical and health care priorities for rural areas, they should bear in mind the importance of hospitals to local and regional economies. As this report demonstrates, TFH provides much more than necessary medical care and services. The jobs, income, and economic benefits created in other businesses, as well as sales tax revenue generate by all sectors represent additional contributions to economic well-being in the TFHD. Finally, the hospital's investment in high technology, capital improvements, and new construction continues to generate additional income and employment for the district's economy.

This report – *The Impact of Tahoe Forest Hospital on the Local Economy* – was prepared for the citizens, community leaders, and health care providers of the Tahoe Forest Hospital District by the Nevada Rural Health Works Program. This program is a joint research and policy analysis project of the Nevada Office of Rural Health at the University of Nevada School of Medicine, Nevada Cooperative Extension, and the Center for Economic Development at the University of Nevada, Reno. Over the past decade, Nevada Rural Health Works Program has provided local and state leaders with the information and assistance needed to make the best possible decisions

about the role of hospitals and the health sector in economic development. Research undertaken by the Nevada Rural Health Works Program includes community health care needs assessments, budget studies and feasibility assessments, community health planning, market demand studies, and economic impact analysis.

The Impact of Tahoe Forest Hospital on the Local Economy is divided into three sections. The first section briefly discusses the role of the health sector in rural economic development, highlighting the financial and non-financial linkages between the health sector and the rest of the local economy. The second section provides an overview of the demographic and economic context of the Tahoe Forest Hospital District. The third section demonstrates the direct and indirect economic impact of Tahoe Forest Hospital on jobs and payroll in the local economy. Utilizing an economic impact model developed specifically for the health care industry, this report provides estimates of the direct economic contribution of hospital operating activity, as well as the indirect or secondary income and employment impacts in other businesses resulting from hospital activity. The jobs and income generated in other business are estimated with employment and income multipliers derived for the hospital's service area. The report also contains an appendix that summarizes the model and data used to estimate employment and income multipliers.

Rural Health Care and Local Economic Development

Over the past couple of decades, the health sector has become an important engine of economic growth in Truckee and rural areas of California. The health sector includes hospitals, clinics, and physician practices, as well as nursing homes, pharmacies, and other providers of medical services and products. The premise of this report is that rural communities and leaders need to improve their understanding of the importance of the health sector to the local economy, including the amount of jobs and payroll it provides, directly and indirectly, and its role in generating additional employment and income to the residents in the Truckee area. The nexus between health care services and rural development is typically overlooked. A couple of fundamental areas of commonality exist. First, a strong health care system can attract and maintain business and job growth, and "keeping health care dollars at home." Second, the existence of quality health care services is a key factor in attracting and retaining retirees.

Local Business and Job Growth

Research has documented the important role of quality-of-life factors in business and industry location decisions. A key quality-of-life factor is the availability and quality of health care services. The availability of health care services is important for a couple of reasons. First, employees and management may offer strong resistance if they are asked to move into a community with substandard or inconveniently located health services. Second, any business or industry making a location decision wants to ensure that the local labor force will be productive, and a key factor in productivity is good health. Thus, investments in health care services yield dividends in the form of increased labor productivity. And, the rising cost of health care services is a key factor considered by business and industry in location decisions. The existence of health

care services locally can lower health care costs for business and their employees and provide value-added services for firms such as occupational health.

In general, payroll and employment in California's health care sector, including rural regions of the state such as Truckee and the Tahoe Forest Hospital service area, have grown consistently over the past thirty years. Moreover, the principal demographic factors driving increased demand for hospital care and other health care services – population growth and population aging – are projected to increase substantially over the next two decades.

Health Services and Attracting Retirees

A strong and convenient health care system is important to retirees, a special group of residents whose spending and purchasing is a significant source of income for the local economy. Many rural areas have environments (e.g., good climate and outdoor activities) that enable them to be in a good position to attract and retain retirees. The amount of spending by retirees, including the purchasing power associated with Social Security, Medicare, and other transfer payments, is substantial. Additionally, middle- and upper-income retirees often have substantial net worth. Several studies have indicated that the availability of quality health services, along with safety, housing, and recreation opportunities, was a key predictor of retirement location considerations. In general, like worker, retirees are more likely to choose a retirement location that has access to quality health care.

“Keeping Local Health Care Dollars at Home”

In summary, the existence of a strong health care system plays a critical role in local economic development by attracting business, industry and retirees, as well as generating jobs and payroll in its own right. However, the most important economic role the health sector plays in local economic development is “keeping local health care dollars at home.” There are many sources of local health care dollars including commercial and private insurance, Medicare, Medicaid and other transfer payments, and consumer out-of-pocket payments to health care providers and businesses. If these expenditures leave the community (e.g., individuals who travel to Sacramento or Reno for medical care that could be obtained Truckee at Tahoe Forest Hospital), they represent a real loss of potential jobs and income to local residents. In other words, payments for health care services and goods outside of the local community not only affect the health services sector, the “leakage” of those dollars out of the community has repercussions for the entire local economy.

Health care employers and employees are important purchasers of goods and services supporting local business and industry. In Truckee and most other rural areas of the Sierra Nevada, employees in the health service sector realize higher than average wages and are an important segment in local household consumption. Hospitals and other health sector establishments are also important purchasers of local goods and services, such as laundry and waste management, essential to the provision of health care. In summary, the health sector and other businesses that comprise the local economy mutually support one another through purchases and sales. As such, the strength and vitality of the health services sector is a key component of local economic development. The remainder of this report documents the importance of Tahoe Forest Hospital

as an economic engine in its own right and highlights the specific economic contributions of the hospital to other local businesses.

Demographic and Economic Context of the Tahoe Forest Hospital District

Tables 1 and 2 provide selected demographic and economic data for Tahoe Forest Hospital and the States of Nevada and California (see Appendix A for data sources). Table 1 highlights the rapid population growth experienced in the Tahoe Forest Hospital District over the past decade, as well as projected change in population through 2011. Relative to the rapid population growth in the 1990s, TFHD is projected to experience a moderate population increase over the next 5 years.

Table 1 – Selected Demographic Data for Tahoe Forest Hospital District

Demographic Indicator	Number	Percent
Population Growth (1990-00)	28,643 - 40,300	40.7%
Population Growth (2000-06)	40,300 - 47,890	18.8%
Estimated Population Growth 2006-2011	47,890 - 55,621	16.1%
Population by Race (2006)		
White	41,477	86.6%
Black	183	0.4%
Native American	367	0.8%
Asian or Pacific Islander	624	1.3%
Other	5,239	10.9%
Population by Age (2003)		
0-19	11,098	23.2%
20-64	32,449	67.8%
65 and over	4,343	9.1%

Table 2 provides an economic snapshot of TFHD and comparative data for Nevada, California and the United States. In general, TFHD possesses a higher per capita income as compared to either state or the nation. Table 2 also provides information on unemployment rates. In 2006, the district had a lower unemployment rate than either state or the nation.

Table 2 – Economic Indicators for Tahoe Forest Hospital District, California, Nevada and the Nation – 2006

Indicator	Tahoe Forest Hospital District	California	Nevada	Nation
Total Personal Income*	\$1,959,851	\$1,041,383,016*	\$70,077,831	\$8,222,224,665
Per Capita Income	\$40,925	\$27,967	\$27,210	\$27,084
Average Household Income	\$101,796	\$82,596	\$71,392	\$71,092
Unemployment Rate	4.3%	7.1%	5.2%	6.6%

*Thousand dollars

Impact of Tahoe Forest Hospital on the Local Economy

The Multiplier Effect

The impact of hospital expenditures and hospital employee expenditures are called multiplier effects. Multiplier effects are a simplified and compact way of representing these effects on the local economy. The multiplier is interpreted as the impact of a one-unit change in sales, employment, or income that results in a corresponding total impact on sales, employment, or income in the larger economy. In essence, the multiplier represents the recycling of dollars and income in a specified geographic unit, such as the Tahoe Forest Hospital service area. This recycling creates new job opportunities and higher wages for individuals.

There are three types of multiplier effects based on the type of economic impact analysis undertaken: direct, indirect, and induced. These types are illustrated in Table 3 below. The *direct multiplier effect* is based on an industry's initial economic impact on the region's economy. For example, if a manufacturing plant has revenue of \$5 million, then this figure becomes the direct economic impact on the community. The *indirect multiplier effect* is based on industry-to-industry transactions only. For example, the hospital sector purchases local laundry, food, and other contracted services. However, the indirect multiplier effect does not include the effect of hospital-sector employee spending on retail and service sectors such as housing, groceries, and real estate. Alternatively, the *induced multiplier effect* includes both the industry-to-industry transactions and household purchases, including employee spending. The total economic impact is defined as the direct plus indirect and induced economic impacts.

Table 3 – Hospital Related Economic Impact Multipliers

Type of Multiplier	Direct	Indirect	Induced
Output Multiplier	Hospital Expenditures	Hospital Supplier Expenditures	Local retail & service expenditures related to hospital spending
Employment Multiplier	Hospital jobs	Hospital supplier jobs	Local retail and service jobs related to hospital employee spending
Income Multiplier	Hospital employee income	Hospital supplier employee income	Local retail and service income related employee spending

The direct, indirect, and induced multiplier effects can be classified as output, employment and income multipliers. An output multiplier of 2.0 indicates that if one dollar is spent by the hospital, an additional dollar is spent in other sectors due to business and household spending. An employment multiplier of 2.0 indicates that if one job is created in the health care sector, 1.0 additional jobs are created in other sectors due to business and household spending. Likewise, an income multiplier of 2.0 indicates that for every dollar of income created in the health sector, an additional dollar of income is created in other sectors due inter-industry spending by health

businesses and employees. The measurement of multiplier effects, the input-output model, and IMPLAN data utilized in this report are explained in Appendix B.

The Impact of Tahoe Forest Hospital on Local Expenditures

Table 4 summarizes the impact of Tahoe Forest Hospital on expenditures in the local economy utilizing the most current IMPLAN output multipliers and payroll data provided by Tahoe Forest Hospital. Table 4 reveals that TFH spent \$48,015,464 locally on operations in 2006. Applying the IMPLAN output multiplier of 1.47 for the hospital sector, the total expenditures created by TFH operations spending was \$70,372,068. In other words, TFH generated an additional \$22,356,604 through induced and indirect economic activity during 2006. Table 4 also highlights the sectors impacted by the hospital expenditures. For example, operations expenditures by TFH created an additional \$365,999 in spending by the Utilities sector.

Table 4 – Impact of Tahoe Forest Hospital on Local Expenditures – 2006

Sector	Local Expenditures Impacts (Dollars)			
	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Agriculture, Forestry, Fishing & Hunting	\$0	\$23,122	\$75,117	\$98,239
Mining	\$0	\$5,174	\$11,440	\$16,614
Utilities	\$0	\$132,875	\$233,124	\$365,999
Construction	\$0	\$53,479	\$25,809	\$79,287
Manufacturing	\$0	\$66,382	\$102,260	\$168,641
Wholesale Trade	\$0	\$116,180	\$177,864	\$294,045
Transportation & Warehousing	\$0	\$432,889	\$276,188	\$709,077
Retail Trade	\$0	\$241,962	\$1,721,371	\$1,963,334
Information	\$0	\$197,907	\$285,077	\$482,984
Finance & Insurance	\$0	\$964,178	\$1,150,807	\$2,114,985
Real Estate & Rental	\$0	\$2,478,907	\$987,353	\$3,466,260
Professional--Scientific & Technical Services	\$0	\$1,376,439	\$483,202	\$1,859,640
Management of Companies	\$0	\$284,585	\$74,997	\$359,581
Administrative & Waste Services	\$0	\$887,251	\$237,830	\$1,125,081
Educational Services	\$0	\$51,681	\$256,604	\$308,284
Health & Social Services	\$48,015,464	\$4,380	\$2,236,735	\$50,256,580
Arts--Entertainment & Recreation	\$0	\$40,375	\$379,804	\$420,178
Accommodation & Food Services	\$0	\$605,424	\$1,407,149	\$2,012,572
Other Services	\$0	\$137,306	\$855,708	\$993,014
Government & non-NAICS	\$0	\$251,868	\$3,025,805	\$3,277,672
Total	\$48,015,464	\$8,352,362	\$14,004,241	\$70,372,068

The Impact of Tahoe Forest Hospital on Local Employment

Table 5 summarizes the impact of Tahoe Forest Hospital on local employment utilizing the most current IMPLAN employment multipliers and employment data provided by Tahoe Forest Hospital. Table 5 reveals that 450 individuals living in TFHD were employed by the hospital in 2006. Applying the IMPLAN employment multiplier of 1.58 for the hospital sector, the total number of local jobs created by TFH was 713. In other words, TFH generated an additional 263 jobs through induced and indirect economic activity during 2006. Table 4 also highlights the sectors gaining the additional jobs created by the hospital. For example, TFH created 10 new jobs in the Transportation & Warehousing sector.

Table 5 – Impact of Tahoe Forest Hospital on Local Employment – 2006

Sector	Employment Impacts (Number of Jobs)			
	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Agriculture, Forestry, Fishing & Hunting	0	0	1	1
Mining	0	0	0	0
Utilities	0	0	1	1
Construction	0	1	0	1
Manufacturing	0	1	1	1
Wholesale Trade	0	1	1	2
Transportation & Warehousing	0	7	3	10
Retail Trade	0	4	29	33
Information	0	1	1	2
Finance & Insurance	0	10	8	18
Real Estate & Rental	0	16	7	23
Professional--Scientific & Technical Services	0	16	6	22
Management of Companies	0	2	1	3
Administrative & Waste Services	0	21	5	26
Educational Services	0	1	7	8
Health & Social Services	450	0	26	476
Arts--Entertainment & Recreation	0	1	9	11
Accommodation & Food Services	0	14	32	47
Other Services	0	3	22	25
Government & non-NAICS	0	2	2	4
Total	450	101	162	713

The Impact of Tahoe Forest Hospital on Local Income and Payroll

Table 6 documents the income and payroll impact of Tahoe Forest Hospital utilizing the most current IMPLAN income multipliers and data provided by TFH. In 2006, the total payroll created by the hospital was \$17,713,648. Applying the IMPLAN income multiplier of 1.30 for the hospital sector, the total payroll created by the TFH was \$23,027,742. In other words, the TFH generated an additional \$5,314,094 in payroll through induced and indirect economic activity during 2006. Table 6 provides a detailed breakdown of the sectors gaining the additional payroll generated by TFH. For example, the \$17.7 million in payroll created an additional \$538,133 in payroll in the Retail sector.

Table 6 – Impact of Tahoe Forest Hospital on Local Income and Payroll – 2006

Sector	Income and Payroll Impacts (Dollars)			
	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Agriculture, Forestry, Fishing & Hunting	\$0	\$5,518	\$17,807	\$23,324
Mining	\$0	\$745	\$1,669	\$2,414
Utilities	\$0	\$19,255	\$33,415	\$52,670
Construction	\$0	\$17,131	\$8,380	\$25,511
Manufacturing	\$0	\$10,602	\$17,735	\$28,337
Wholesale Trade	\$0	\$30,123	\$46,974	\$77,097
Transportation & Warehousing	\$0	\$210,337	\$118,707	\$329,044
Retail Trade	\$0	\$61,069	\$477,063	\$538,133
Information	\$0	\$31,960	\$43,939	\$75,899
Finance & Insurance	\$0	\$278,795	\$256,913	\$535,708
Real Estate & Rental	\$0	\$304,779	\$134,615	\$439,395
Professional--Scientific & Technical Services	\$0	\$453,215	\$159,444	\$612,659
Management of Companies	\$0	\$86,717	\$23,278	\$109,995
Administrative & Waste Services	\$0	\$312,758	\$71,058	\$383,816
Educational Services	\$0	\$20,435	\$103,622	\$124,057
Health & Social Services	\$17,713,648	\$1,140	\$876,768	\$18,591,556
Arts--Entertainment & Recreation	\$0	\$10,262	\$102,720	\$112,982
Accommodation & Food Services	\$0	\$141,388	\$331,848	\$473,236
Other Services	\$0	\$43,787	\$284,133	\$327,920
Government & non-NAICS	\$0	\$67,285	\$96,705	\$163,989
Total	\$17,713,648	\$2,107,301	\$3,206,791	\$23,027,740

The Impact of Construction at Tahoe Forest Hospital on Local Expenditures

In addition to hospital operations spending, Tahoe Forest Hospital had substantial expenditures on new construction and remodeling in 2006. Table 7 summarizes the impact of construction expenditures at TFH on the local economy utilizing the most current IMPLAN output multipliers and data provided by Tahoe Forest Hospital. Table 7 reveals that TFH spent \$6,787,429 locally on construction in 2006. Applying the IMPLAN output multiplier of 1.44 for the construction sector, the total expenditures created by construction at TFH was \$9,786,349. In other words, TFH generated an additional \$2,998,920 through induced and indirect economic activity during 2006. Table 7 also highlights the sectors impacted by the construction expenditures. For example, construction expenditures by TFH created an additional \$473,454 in spending by the Retail sector.

Table 7 – Impact of Construction at Tahoe Forest Hospital on Local Expenditures – 2006

Sector	Local Expenditures Impacts (Dollars)			
	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Agriculture, Forestry, Fishing & Hunting	\$0	\$3,321	\$10,389	\$13,710
Mining	\$0	\$1,748	\$1,582	\$3,330
Utilities	\$0	\$6,456	\$32,241	\$38,697
Construction	\$6,787,429	\$2,176	\$3,569	\$6,793,175
Manufacturing	\$0	\$35,113	\$14,142	\$49,255
Wholesale Trade	\$0	\$17,726	\$24,599	\$42,324
Transportation & Warehousing	\$0	\$28,357	\$38,197	\$66,554
Retail Trade	\$0	\$235,388	\$238,065	\$473,454
Information	\$0	\$28,563	\$39,426	\$67,989
Finance & Insurance	\$0	\$57,710	\$159,156	\$216,867
Real Estate & Rental	\$0	\$79,690	\$136,551	\$216,241
Professional--Scientific & Technical Services	\$0	\$464,955	\$66,827	\$531,782
Management of Companies	\$0	\$11,491	\$10,372	\$21,863
Administrative & Waste Services	\$0	\$40,246	\$32,892	\$73,138
Educational Services	\$0	\$794	\$35,488	\$36,283
Health & Social Services	\$0	\$0	\$309,340	\$309,340
Arts--Entertainment & Recreation	\$0	\$3,268	\$52,527	\$55,795
Accommodation & Food Services	\$0	\$16,622	\$194,608	\$211,230
Other Services	\$0	\$16,458	\$118,344	\$134,802
Government & non-NAICS	\$0	\$12,050	\$418,468	\$430,519
Total	\$6,787,429	\$1,062,136	\$1,936,784	\$9,786,349

The Impact of Construction at Tahoe Forest Hospital on Local Employment

Table 8 summarizes the impact of construction at TFH on local employment utilizing the most current IMPLAN employment multipliers and data provided by Tahoe Forest Hospital. Table 8 reveals that 66 construction employees living in TFHD were employed by the hospital in 2006. Applying the IMPLAN employment multiplier of 1.47 for the construction sector, the total number of local jobs created by construction at TFH was 97. In other words, construction at TFH generated an additional 31 jobs through induced and indirect economic activity during 2006. Table 8 also highlights the sectors gaining the additional jobs created by the hospital construction. For example, TFH construction created 4 new jobs in the Accommodation & Food Services sector.

Table 8 – Impact of Construction at Tahoe Forest Hospital on Local Employment – 2006

Sector	Employment Impacts (Number of Jobs)			
	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Agriculture, Forestry, Fishing & Hunting	0	0	0	0
Mining	0	0	0	0
Utilities	0	0	0	0
Construction	66	0	0	66
Manufacturing	0	0	0	0
Wholesale Trade	0	0	0	0
Transportation & Warehousing	0	0	0	1
Retail Trade	0	4	4	7
Information	0	0	0	0
Finance & Insurance	0	0	1	1
Real Estate & Rental	0	0	1	1
Professional--Scientific & Technical Services	0	5	1	5
Management of Companies	0	0	0	0
Administrative & Waste Services	0	1	1	1
Educational Services	0	0	1	1
Health & Social Services	0	0	3	3
Arts--Entertainment & Recreation	0	0	1	1
Accommodation & Food Services	0	0	4	4
Other Services	0	0	3	3
Government & non-NAICS	0	0	0	0
Total	66	11	20	97

The Impact of Construction at Tahoe Forest Hospital on Local Income and Payroll

Table 9 documents the income and payroll impact of construction at Tahoe Forest Hospital in 2006 utilizing the most current IMPLAN income multipliers and data provided by TFH. In 2006, the total payroll created by the hospital construction was \$3,521,348. Applying the IMPLAN income multiplier of 1.31 for the construction sector, the total payroll created by the construction at TFH was \$4,605,082. In other words, construction at TFH generated an additional \$1,083,734 in payroll through induced and indirect economic activity during 2006. Table 9 provides a detailed breakdown of the sectors gaining the additional payroll generated by construction at TFH. For example, the \$3.5 million in payroll created an additional \$172,571 in payroll in the Health & Social Services sector.

Table 9 – Impact of Construction at Tahoe Forest Hospital on Local Income and Payroll – 2006

Sector	Income and Payroll Impacts (Dollars)			
	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Agriculture, Forestry, Fishing & Hunting	\$0	\$1,051	\$3,505	\$4,556
Mining	\$0	\$400	\$328	\$728
Utilities	\$0	\$1,283	\$6,577	\$7,860
Construction	\$3,521,348	\$1,022	\$1,649	\$3,524,019
Manufacturing	\$0	\$8,141	\$3,491	\$11,632
Wholesale Trade	\$0	\$6,663	\$9,246	\$15,908
Transportation & Warehousing	\$0	\$16,341	\$23,365	\$39,706
Retail Trade	\$0	\$86,126	\$93,898	\$180,024
Information	\$0	\$6,572	\$8,648	\$15,220
Finance & Insurance	\$0	\$19,902	\$50,567	\$70,469
Real Estate & Rental	\$0	\$15,946	\$26,496	\$42,441
Professional--Scientific & Technical Services	\$0	\$242,639	\$31,383	\$274,022
Management of Companies	\$0	\$5,076	\$4,582	\$9,658
Administrative & Waste Services	\$0	\$21,362	\$13,986	\$35,348
Educational Services	\$0	\$437	\$20,395	\$20,832
Health & Social Services	\$0	\$1	\$172,570	\$172,571
Arts--Entertainment & Recreation	\$0	\$1,207	\$20,218	\$21,425
Accommodation & Food Services	\$0	\$5,691	\$65,316	\$71,007
Other Services	\$0	\$8,723	\$55,925	\$64,648
Government & non-NAICS	\$0	\$3,974	\$19,034	\$23,008
Total	\$3,521,348	\$452,556	\$631,178	\$4,605,082

Conclusion: The Contribution of Tahoe Forest Hospital on the Local Economy

The output, employment and income data presented in this report document the tremendous contribution of Tahoe Forest Hospital to the local economy. The data and analysis presented in this report indicates that:

- Tahoe Forest Hospital spent \$48.0 million locally on operations in 2006. When the expenditures by other businesses as a result of the hospital are included in the analysis, the hospital directly and indirectly generated a total of \$70.3 million in spending in the Truckee area.
- Tahoe Forest Hospital employed 450 individuals living in the Truckee area in 2006. When the employment created by other businesses as a result of the hospital is included in the analysis, the hospital directly and indirectly generated a total of 713 jobs in the district.
- Tahoe Forest Hospital generated \$17.7 million in payroll for the year 2006. When the income created by other businesses as a result of the hospital is included in the analysis, the hospital was responsible for \$23 million in payroll for hospital employees and those employed in other businesses.
- Tahoe Forest Hospital spent \$6.8 million locally on construction in 2006, which generated a total of \$9.8 million in expenditures throughout the Truckee area.
- Construction at Tahoe Forest Hospital resulted in the creation of 66 jobs in the local area in 2006. Including the employment created by other businesses as a result of hospital construction in the analysis, a total of 97 jobs were generated in the Truckee area.
- Construction at Tahoe Forest Hospital created \$3.5 million in payroll for 2006. When the payroll generated by other businesses as a result of the hospital construction is included in the analysis, new construction was responsible for a total of \$4.6 million in payroll for local residents.
- Finally, 34.2% of payroll attributed to the hospital or \$7.9 million was spent in 2006 on retail sales in the Truckee area, resulting in additional tax revenue for the counties that comprise the district.

Appendix A: References and Data Sources

References

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Miernyk, W.H. 1965. *The Element of Input-Output Analysis*. New York: Random House.

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Data Sources

Table 1. Selected Demographic Data for Tahoe Forest Hospital District

ESRI Business Analyst Online. 2007. *1990 to 2000 Comparison Profiles for Norden, CA, et. al and Incline Village-Crystal Bay Cdp*.

ESRI Business Analyst Online. 2007. *Demographic and Income Profiles for Norden, CA, et. al, Incline Village-Crystal Bay Cdp, NV, CA, NV, and US*.

Table 2. Economic Indicators for Tahoe Forest Hospital District, California, Nevada and the Nation – 2006

ESRI Business Analyst Online. 2007. *Demographic and Income Profiles for Norden, CA, et. al, Incline Village-Crystal Bay Cdp, NV, CA, NV, and US*.

ESRI Business Analyst Online. 2007. *Market Profiles for Norden, CA, et. Al and Incline Village-Crystal Bay Cdp, NV, CA, NV, and US*.

Table 4. Impact of Tahoe Forest Hospital on Local Expenditures – 2006

Minnesota IMPLAN Group, Inc. (MIG). 2006. "Tahoe Forest Hospital District Input-Output Data for 2004." Stillwater MN: MIG. www.implan.com

Table 5. Impact of Tahoe Forest Hospital on Local Employment – 2006

Minnesota IMPLAN Group, Inc. (MIG). 2006. “Tahoe Forest Hospital District Input-Output Data for 2004.” Stillwater MN: MIG. www.implan.com

Table 6. Impact of Tahoe Forest Hospital on Local Income and Payroll – 2006

Minnesota IMPLAN Group, Inc. (MIG). 2006. “Tahoe Forest Hospital District Input-Output Data for 2004.” Stillwater MN: MIG. www.implan.com

Table 7. Impact of Construction at Tahoe Forest Hospital on Local Expenditures – 2006

Minnesota IMPLAN Group, Inc. (MIG). 2006. “Tahoe Forest Hospital District Input-Output Data for 2004.” Stillwater MN: MIG. www.implan.com

Table 8. Impact of Construction at Tahoe Forest Hospital on Local Employment – 2006

Minnesota IMPLAN Group, Inc. (MIG). 2006. “Tahoe Forest Hospital District Input-Output Data for 2004.” Stillwater MN: MIG. www.implan.com

Table 9. Impact of Construction at Tahoe Forest Hospital on Local Income and Payroll – 2006

Minnesota IMPLAN Group, Inc. (MIG). 2006. “Tahoe Forest Hospital District Input-Output Data for 2004.” Stillwater MN: MIG. www.implan.com

Appendix B: Model and Data Used to Estimate Employment and Income Multipliers

The economic impacts and secondary benefits of economic activity presented in this report are measured by multipliers using an input-output model and data from IMPLAN, a model that is widely used by economists and other academics in the United States. A computer spreadsheet that uses state IMPLAN multipliers was developed by to enable community development specialists to measure the secondary benefits of the health sector on state, regional, or county economies. The complete methodology is presented in *Measuring the Economic Importance of the Health Sector on a Local Economy: A Brief Literature Review and Procedures to Measure Local Impacts* (Doeksen, et al. 1997).

Input-output (I/O) analysis is designed to analyze the transactions among industries in an economy (Miernyk 1965). These models are largely based on the work of Wassily Leontief during the 1930s. Detailed I/O analysis captures the indirect and induced interrelated circular behavior of the economy. For example, an increase in the demand for health services requires more equipment, more labor, and more supplies, which, in turn, requires more labor to produce the supplies, and so on. By simultaneously accounting for structural interaction between sectors and industries, I/O analysis gives expression to the general economic equilibrium systems. The analysis utilizes assumptions based on linear and fixed coefficients and limited substitutions among inputs and outputs. The analysis assumes that average and marginal I/O coefficients are equal. Nonetheless, the framework has been widely accepted and used by economists and policymakers. I/O analysis is useful when carefully executed and interpreted in defining the structure of a region, the interdependencies among industries, and forecasting economic outcomes. The I/O model coefficients describe the structural interdependencies of an economy. From the coefficients, various predictive devices can be computed, which can be useful in analyzing economic changes in a state, region, or county. Multipliers indicate the relationship between some observed change in the economy and the total change in economic activity created through the economy.

MicroIMPLAN is a computer program developed by the United States Forest Service to construct I/O accounts and models (Alward, et al. 1989). Typically, the complexity of I/O modeling has hindered practitioners from constructing models specific to a community requesting an analysis. Too often, inappropriate multipliers have been used to estimate local economic impacts. In contrast, IMPLAN can construct a model for any state, region, county, or zip code area in the United States by using available state, region, county, or zip code data. Impact analysis can be performed once a regional I/O model is constructed.

Five different sets of multipliers are estimated by IMPLAN, corresponding to five measures of regional economic activity: (1) total industry output, (2) personal income, (3) total income, (4) value added, and (5) employment. Three types of multipliers are generated. Type I multipliers measure the impact in terms of direct and indirect effects. Direct impacts are the changes in the activities of the focus industry or firm, such as the construction of a hospital or the closing of a hospital. The focus business changes its purchases s inputs as a result of the direct impacts. This produces indirect impacts in other business sectors. However, the total impact of a change in the economy consists of direct, indirect, and induced changes. Both the direct and indirect impacts change the flow of dollars to the state, region, or county's households.

Subsequently, the households alter their consumption. The effect of the changes in household consumption on businesses in a community is referred to as an induced effect. To measure the total impact, a Type II multiplier is used. The Type II multiplier compares direct, indirect, and induced effects with the direct effects generated by a change in final demand (the sum of direct, indirect, and induced effects divided by direct effects). IMPLAN also estimates a modified Type II multiplier that also includes the direct, indirect, and induced effects. The Type III multiplier further modifies the induced effect to include spending patterns of households based on a breakdown of households by nine different income groups.

Additional information on the data, methodology, and software requirements of I/O modeling and IMPLAN analysis can be found in guides developed by Doeksen, et al. (1997), Alward, et al., (1989), and the Minnesota IMPLAN Group (MIG) (2000).