

# The Economic Significance of Travel to the North Lake Tahoe Area *2003-2016 Detailed Visitor Impact Estimates*

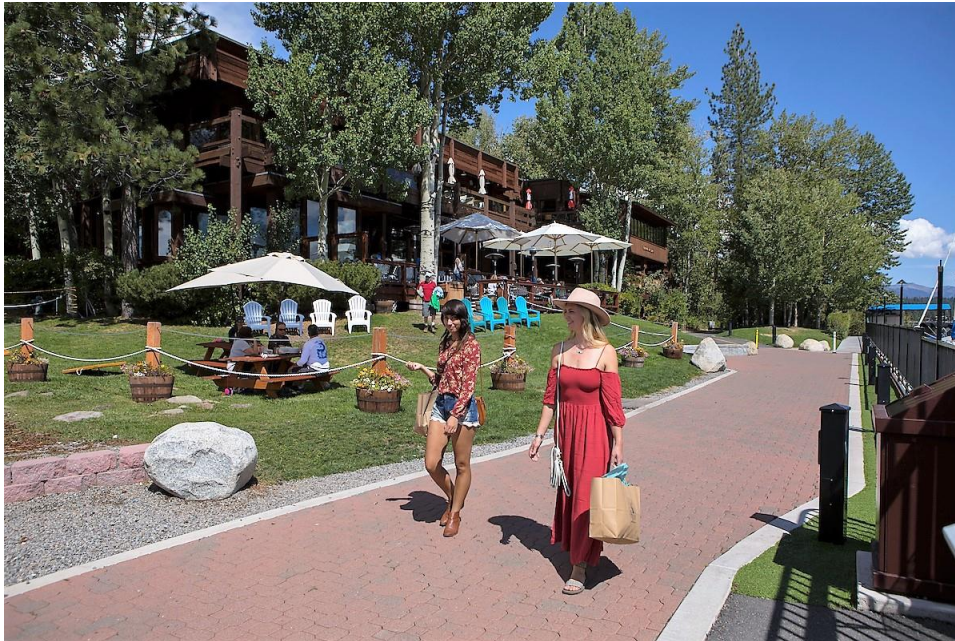


photo credit: R. Salm

*October 2017*

*Prepared for the*

North Lake Tahoe Resort Association  
Placer County  
North Lake Tahoe, California

# **The Economic Significance of Travel to the North Lake Tahoe Area**

**2003-2016 Detailed Visitor Impact Estimates**

October 2017

*prepared for the*

North Lake Tahoe Resort Association & Placer County  
North Lake Tahoe, California

Dean Runyan Associates  
833 SW Eleventh Avenue, Suite 920  
Portland OR 97205  
503.226.2973  
[www.deanrunyan.com](http://www.deanrunyan.com)

## Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>I</b>
PREFACE .....	V
<b>1. INTRODUCTION .....</b>	<b>1</b>
OBJECTIVES.....	1
DATA SOURCES.....	2
REPORT CONTENTS.....	2
STUDY AREA.....	3
<b>2. VISITOR VOLUME AND SPENDING .....</b>	<b>5</b>
MEASUREMENT OF TRAVEL IMPACTS.....	5
TYPES OF TRAVELER ACCOMMODATION .....	5
VISITATION & SPENDING BY TYPE OF TRAVELER ACCOMMODATION.....	6
VISITOR SPENDING TRENDS .....	11
<b>3. EARNINGS AND EMPLOYMENT .....</b>	<b>17</b>
EARNINGS AND EMPLOYMENT IN NORTH LAKE TAHOE AREA.....	17
EMPLOYMENT AND EARNINGS GENERATED BY TRAVEL SPENDING .....	19
<b>4. TAX IMPACTS .....</b>	<b>22</b>
TAX RECEIPTS GENERATED BY TRAVEL SPENDING .....	22
PROPERTY TAX RECEIPTS.....	22
<b>5. CONSTRUCTION AND REAL ESTATE.....</b>	<b>24</b>
<b>6. VISITOR IMPACT OVERVIEW.....</b>	<b>27</b>
<b>APPENDICES .....</b>	<b>31</b>
APPENDIX A REGIONAL TRAVEL IMPACT MODEL .....	33
APPENDIX B IMPLAN MODELING SYSTEM.....	35

## EXECUTIVE SUMMARY

*The Economic Significance of Travel to the North Lake Tahoe Area: Detailed Visitor Impact Estimates, 2003-2016* describes the economic impacts associated with all visitor spending in the North Lake Tahoe Area of Placer County. Direct travel-generated impacts accounts for nearly \$647 million in visitor spending, providing over 6,400 jobs with earnings of \$215 million made by employees and business owners throughout the North Lake Tahoe Area.

### North Lake Tahoe Area Visitor Spending and Related Impacts, 2003-2016

*Direct Travel-Generated Impacts Only*

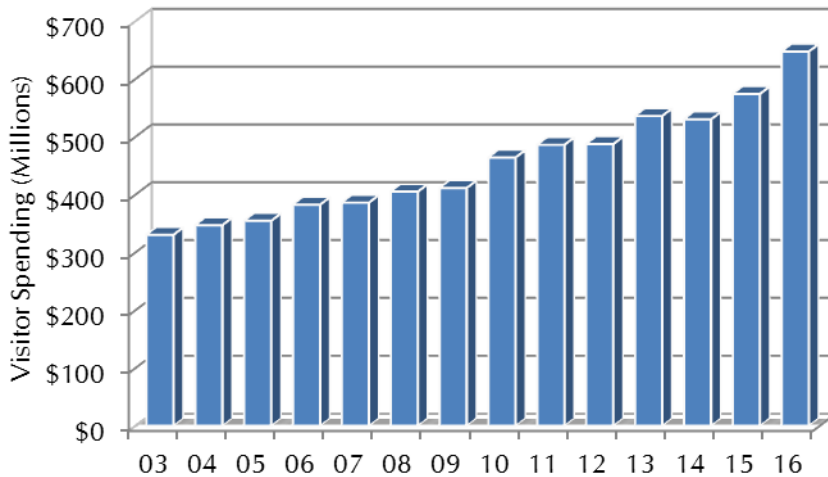
	Visitor Spending (\$ Million)	Earnings (\$ Million)	Employment (jobs)	Tax Receipts	
				Local (\$ Million)	State (\$ Million)
2003	330.4	106.5	4,910	8.2	8.6
2004	347.1	112.0	5,020	8.4	9.4
2005	354.5	114.2	5,000	8.5	9.8
2006	382.5	123.7	5,030	9.3	10.7
2007	386.0	124.6	4,960	9.3	10.9
2008	405.0	130.5	5,090	9.8	11.5
2009	411.3	128.1	5,020	9.4	12.8
2010	464.1	155.8	5,620	11.4	14.8
2011	486.0	161.4	5,830	11.9	14.6
2012	487.3	166.0	5,720	12.0	13.9
2013	536.0	180.8	6,050	13.9	13.9
2014	530.0	185.6	5,920	13.9	13.7
2015	574.0	202.9	6,240	15.6	14.6
2016	647.2	214.5	6,450	18.2	16.0
Annual Percentage Change					
03-16	5.3%	5.5%	2.1%	6.4%	4.9%
15-16	12.8%	5.7%	3.4%	16.5%	9.7%

Source: Dean Runyan Associates

Note: State Tax Receipts affected by changes in state sales tax rate.

Visitor spending also generates local tax receipts (transient occupancy and sales taxes) of \$18.2 million, and state tax receipts (sales taxes, gasoline taxes, business and personal income taxes) of \$16.0 million.

### Total Visitor Spending in North Lake Tahoe Area, 2003-2016



Note: Visitor spending not adjusted for inflation.  
Source: Dean Runyan Associates

The following table and pie charts provide an overview of all the visitor-generated economic impacts for the North Lake Tahoe Area. The table *Earnings and Employment Generated by Visitor Spending in North Lake Tahoe Area, 2016* shows the proportion of visitor-generated earnings and employment as a percent of the North Lake Tahoe Area’s total economy. Visitor spending in the area generates 60 percent of employment, and about half (51%) of all earnings in the North Lake Tahoe Area.

The bulk of area’s employment and earnings are generated through visitor spending made for lodging accommodations (including rented homes and condominiums), food services, and recreation throughout the North Lake Tahoe Area. The re-spending of travel-generated earnings by employees and businesses (referred to as secondary impacts) created over 1,300 additional jobs with earnings of \$45.6 million. In addition, construction and real estate activity associated with vacation homes generated approximately 1,100 more jobs with associated earnings of \$64.7 million.

## Earnings & Employment Generated by Visitor Spending in North Lake Tahoe Area, 2016

### Visitor-Generated Impacts

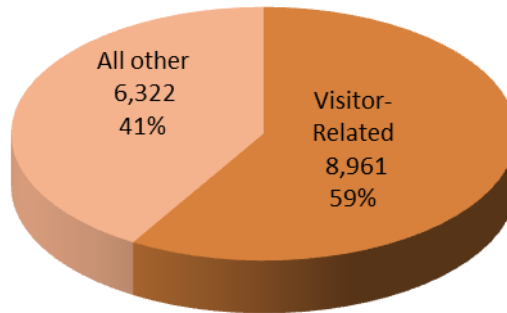
	Direct	Secondary	Vacation Home	Vistor- Related	Area Total	Percent Visitor
<b>Earnings (\$Millions)</b>						
Leisure and Hospitality Serv.	201	7.2	0.0	208.6	214.2	97%
Retail & Misc. Services	13	6.4	0.0	19.5	74.2	26%
Construction	0	3.7	47.5	51.2	98.7	52%
Real Estate, Rental & Leasing	0	1.1	17.2	18.3	35.5	52%
All Other	<u>0</u>	<u>27.3</u>	<u>0.0</u>	<u>27.3</u>	<u>217.1</u>	<u>13%</u>
Total	\$215	\$45.6	\$64.7	\$324.8	\$639.8	51%
<b>Employment (Number of Jobs)</b>						
Leisure and Hospitality Serv.	6,020	333	0	6,353	6,830	93%
Retail & Misc. Services	430	316	0	746	2,329	32%
Construction	0	51	920	971	1,887	51%
Real Estate, Rental & Leasing	0	138	257	395	652	61%
All Other	<u>0</u>	<u>495</u>	<u>0</u>	<u>495</u>	<u>3,585</u>	<u>14%</u>
Total	6,450	1,334	1,177	8,961	15,283	59%

Source: Dean Runyan Associates

Note: Leisure and Hospitality Services includes employment associated with the rental of homes and condominiums. Vacation Home estimates were judgmental based on workforce characteristics and factors described in the previous section of this report. Area total includes wage & salary employment only. Self-employed are not included.

Total employment increased 17% from 2012, an increase of about 4% per year. The employment for visitor related increased 14% from 2012. Total earnings increased 30% from 2012, an increase of about 7% per year. The visitor related earnings increased at the same 30% rate. The proportions of visitor related employment and earnings remained relatively unchanged.

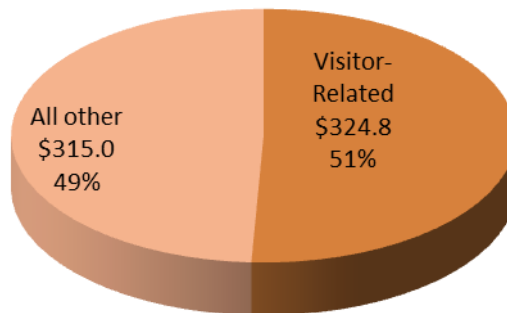
**Visitor-Related Share of Total Employment  
North Lake Tahoe Area, 2016**



**Total Employment: 15,283**

Source: Dean Runyan Associates and California Employment Development Department.

**Visitor-Related Share of Total Payroll Generated Earnings  
North Lake Tahoe Area, 2016**



**Total Payroll Generated Earnings: \$639.8 Million**

Source: Dean Runyan Associates and California Employment Development Department.

*The pie charts above highlight the share of visitor impacts as a proportion of all employment and earnings for the North Lake Tahoe Area.*

## PREFACE

The purpose of this study is to document the economic significance of the travel industry in the North Lake Tahoe Area. Detailed estimates of travel spending, the employment and earnings generated by this spending, and travel-generated tax receipts from 2003 through 2016 are provided in this report. In addition, the report provides visitor volume estimates as well as the secondary impacts associated with visitor spending.

Dean Runyan Associates prepared this study for the North Lake Tahoe Resort Association. Dean Runyan Associates has specialized in research and planning services for the travel, tourism and recreation industry since 1984. With respect to economic impact analysis, the firm developed and currently maintains the Regional Travel Impact Model (RTIM), a proprietary computer model for analyzing travel economic impacts at the state, regional and local level. Dean Runyan Associates also has extensive experience in project feasibility analysis, market evaluation, survey research, and travel and tourism planning.

Many individuals and agencies provided invaluable information for this report. Among the organizations involved in this effort were the Revenue Services Division of the Placer County Department of Administrative Services and the California Employment Development Department. Federal agencies include the U.S. Census Bureau and the Bureau of Economic Analysis.

Finally, special thanks are due to Ron Treabess, Director of Partnerships and Community Planning, and, Andy Chapman, Marketing Consultant for the North Lake Tahoe Resort Association. Without their support and assistance, this report would not have been possible.

Dean Runyan Associates  
833 SW 11th Ave., Suite 920  
Portland, OR 97205  
[www.deanrunyan.com](http://www.deanrunyan.com)



# 1. INTRODUCTION

Visitors traveling to the North Lake Tahoe Area generate a substantial portion of the area's economic activity. The local economy depends on visitors and owners of vacation homes who contribute significantly, as do many businesses that provide overnight accommodations, food and beverage service, and year round outdoor recreation opportunities including the largest concentration of ski resorts in the U.S. Further, the viability of many other types of businesses within the area is linked to the visitor industry. Throughout the North Lake Tahoe Area, visitors generate valuable sales receipts, earnings, employment and tax receipts for Placer County, as well as the state of California.

## OBJECTIVES

This report describes the economic impacts of travel to the North Lake Tahoe Area from 2003 through 2016. In addition, this report includes estimates of the secondary (indirect and induced) impacts associated with visitor spending. A primary objective of this research is to provide reliable, detailed estimates, which allow for year-to-year comparisons to help guide decision making for planning, policy and marketing purposes. Specific objectives include:

- Provide an economic overview of the North Lake Tahoe Area.
- Estimate the direct economic impacts of visitor spending.
- Estimate the impact of secondary businesses that are supported by the North Lake Tahoe Area visitor industry.

## **DATA SOURCES**

This analysis makes use of numerous data sources, including but not limited to:

- County-level employment and personal income data from the Bureau of Economic Analysis' Regional Economic Information System (REIS)
- Payroll and employment data from the California Employment Development Department
- Room tax receipts and other sales tax data from Placer County Department of Administrative Services
- US Census Bureau population and housing data
- Property tax data from the Placer County Tax Assessor
- Study area employment and earnings data from Minnesota Implan Group, Inc.
- Survey data on visitor spending from TNS Global Research

## **REPORT CONTENTS**

Following this introductory chapter, Chapter 2 provides an overview of the spending impacts of visitors to the North Lake Tahoe Area. Chapter 3 provides a comprehensive view of the area's earnings and employment, as well as the associated visitor-generated impacts. State and local tax impacts are presented in Chapter 4, and Chapter 6 provides a summary overview.

## STUDY AREA

The area of study (see map on following page) is located in the central Sierra Nevada mountain range and encompasses the entire portion of Placer County east of the Sierra Crest, which stretches from Donner Summit on the Interstate 80 corridor southward through the Martis Valley, and through the Truckee River Corridor to the North Shore of Lake Tahoe. The area includes the communities of Tahoe City, Tahoe Vista and Kings Beach, as well as a significant portion of Tahoma (the city of Tahoma is divided between the counties of Placer and El Dorado). The study area includes the resorts of Squaw Valley, Alpine Meadows, Sugar Bowl, Homewood, and Northstar, as well as the Granlibakken Tahoe Resort.

It is important to note that the North Lake Tahoe Area lies adjacent to key visitor service and residential locations outside Placer County, which include:

- The Town of Truckee, with a population about 16,000, and the area around Donner Lake (most of which lies within the city limits of Truckee) serve as a destination and gateway for many visitor activities. Interstate 80, a major east-west transportation corridor, passes through the Town of Truckee and connects Northern California with Northern, Nevada.
- Located in the state of Nevada approximately 40 miles from the Reno/Tahoe International Airport, the lakeside communities of Crystal Bay and Incline Village offer a variety of options for lodging, food and beverage service, gaming, entertainment, and recreation, including the ski resorts of Mt. Rose Ski Tahoe and Diamond Peak.
- Located along the west shore of Lake Tahoe, the Placer/El Dorado County boundary divides the town of Tahoma.

Figure 1-1



## 2. VISITOR VOLUME AND SPENDING

The visitor industry is the primary source of economic activity for the North Lake Tahoe Area. This section provides an overview of the spending impacts of visitors to the North Lake Tahoe Area from 2003 through 2016. This section also provides visitor volume estimates for a single year (2016). These visitor volume estimates provide a rough measure of the level of visitation and, with other data, demonstrate the validity of the visitor estimates. Detailed earnings and employment impacts directly derived from visitor spending are provided in Section 3.

### MEASUREMENT OF TRAVEL IMPACTS

The estimates of the direct impacts associated with traveler spending in the North Lake Tahoe Area were produced using the Regional Travel Impact Model (RTIM) developed by Dean Runyan Associates. The input data used to detail the economic impacts of the travel industry in the North Lake Tahoe Area were gathered from various local, state and federal sources.

Travel impacts consist of estimates of travel spending and the employment, earnings, and state and local taxes generated by this spending. Estimates of travel spending are also broken out by type of traveler accommodation, by primary mode of transportation, and by type of commodity purchased.

The RTIM was calibrated specifically to represent the unique characteristics of the travel industry in the North Lake Tahoe Area. However, it is important to recognize the limitations of the estimates reported herein. In particular:

*The North Lake Tahoe Area is not a coherent economic region in terms of a visitor market, a labor market and producer markets (see the discussion of Study Area in the preceding section). This necessarily complicates and limits the estimation of visitor impacts. In addition, because of the geographic scope of the North Lake Tahoe Area, some of the economic information used to make this impact analysis was inferred from data available for larger (e.g., county) jurisdictions.*

A description of RTIM methodology is included in Appendix A.

### TYPES OF TRAVELER ACCOMMODATION

Travelers are classified according to the type of accommodation in which they stay or as a day visitor to the area. The types of travelers are as follows:

**Hotel/Motel/B&B.** There are approximately 2,100 rooms or units for accommodations of this type in North Lake Tahoe. A transient occupancy tax is collected on the rental of these accommodations.

**Rented Condo/Home.** Transient Occupancy Taxes are also collected on the rental of condominiums or privately owned homes for rental periods of less than

thirty days.<sup>1</sup> There are approximately 1,700 condos and properties available for rent in the North Lake Tahoe area. It should be noted that this estimate does not include Airbnb or other similar services.

**Private/Vacation Home.** There are approximately 18,500 vacation homes in North Lake Tahoe Area that are not owner-occupied and not listed as short-term rentals. The short-term residents and visitors who stay in these vacation homes do not pay rental fees and transient occupancy tax when they are using these accommodations. In addition, there are about 11,000 owner-occupied homes in which some visitors may stay as guests of friends and relatives.

**Campgrounds.** There are two popular state parks with campgrounds, Donner Memorial and Sugar Pine Point. In addition, there are a number of other campground facilities operated by the State, the U.S. Forest Service, and commercial owners. Altogether, there are approximately 500 campsites available.

**Day Travel.** Day visitors by definition do not stay overnight in the North Lake Tahoe Area. Normally, this would include a trip of at least 50 miles one-way from home. Thus, a day trip from Sacramento would count as a visit for the purposes of this study. Other day visitors may be staying in visitor accommodations just outside of the North Lake Tahoe Area. Thus, a visitor staying in a rented home in Truckee and visiting the North Lake Tahoe Area during the day would also be counted as a day visitor.<sup>2</sup>

## VISITATION & SPENDING BY TYPE OF TRAVELER ACCOMMODATION

The graphs and tables in this section relate the spending of visitors in the North Lake Tahoe Area to the type and availability of accommodations. The definitions of the variables or categories used follow:

**Average Daily Spending** The average daily amount spent by each adult visitor on goods and services in the North Lake Tahoe Area. Normally, this includes accommodations, food services, recreation, and other retail expenditures while in the destination area. Transportation expenditures to and from the North Lake Tahoe Area are not included. The primary source of these estimates is visitor survey data.<sup>3</sup> Average daily spending by owners of vacation homes (seasonal residents) will include expenditures on some goods and services (e.g., household items) not typically included with visitors of shorter duration. Overall, however, these are a small proportion of total visitor spending. Visitor

---

<sup>1</sup> The Placer County Assessor distinguishes between those transient occupancy taxes collected from rented condominiums or homes and from hotels, motels or bed & breakfasts.

<sup>2</sup> It should be noted that the estimate of day travel is the least reliable of all visitor types. It must be estimated primarily from survey data, since measures of accommodation occupancy are not relevant.

<sup>3</sup> The survey data provided by RRC Associates was adjusted for annual price changes by Dean Runyan Associates. Dean Runyan Associates also made use of its own camping expenditure data and expenditures of seasonal residents.

spending for seasonal residents does not include mortgage payments, insurance, construction, and durable goods purchases. Expenditures of this type by either full-time or seasonal residents cannot be reliably allocated to North Lake Tahoe area businesses.

**Total Visitor Spending** The total amount of visitor spending for a particular calendar year. These estimates were generated by the Regional Travel Impact Model for the North Lake Tahoe Area.

**Visitor-Days** The total number of days of all adult visitors who stayed in the North Lake Tahoe Area during the calendar year. This estimate is computed by dividing total visitor spending by average daily spending. For example, (\$487 million / \$155 average daily spending per person) = 3,143,000 visitor-days.

**Persons per Unit** The average number of adults staying in each overnight unit of accommodation.

**Inventory** Estimates of the total available units each day during peak season for each accommodation type (see preceding section).

**Occupancy Rate** The average daily rate of occupancy for a calendar year. The occupancy rate is computed by dividing the total number of visitor-days by the persons per unit, and dividing this amount by the inventory multiplied by 365 days. For example, (876,000 visitor-days/2.0 persons per unit)/(2,000 rooms x 365 days) = 60% occupancy rate.

**Length of Stay** The average number of days each visitor stays in the North Lake Tahoe Area on a trip away from home.

**Visitors** The number of adults visiting the North Lake Tahoe Area on separate trips, including repeat visitors. Computationally, this is equal to visitor-days divided by length of stay.

*Note: Several of these variables, including inventory, persons per unit, and length of stay can be adjusted to reflect data availability, without altering the visitor spending estimates.*

The following table, *North Lake Tahoe Area Visitor-Days by Type of Overnight Accommodation*, shows the spending of overnight visitors and the associated occupancy rates for each category. Although these rates should be viewed as approximate, they are useful in showing the relative levels of accommodation usage for each type of visitor, and additionally function as a measure of validity of the overall spending estimates. For example, occupancy rates of roughly 60 and 45 percent are reasonable for commercial lodging establishments and rented condominiums in North Lake Tahoe. An occupancy rate of 23 percent for campgrounds can be interpreted to mean that campgrounds in the North Lake Tahoe Area are fully occupied about three months out of the year. An occupancy rate of 7 percent for owned vacation homes indicates that the average vacation home is used by its owner about three weeks during each calendar year. Of course, some vacation homes will be occupied by owners for longer periods of time, while others for less.

### North Lake Tahoe Visitor-Days by Type of Overnight Accommodation, 2016

Accommodation	Ave. Daily Spending (per person)	Total Visitor Spending (Million)	Visitor-Days (Thousand)	Persons per Unit	Inventory Estimate	Occupancy Rate
Hotel/Motel/B&B	\$250	\$289	1,155	2.0	2,100	75%
Rented Condo/Home	\$218	\$223	1,021	3.0	1,700	55%
Private/Vacation Home	\$67	\$63	932	2.5	18,500	6%
Campground	\$49	\$6	125	3.0	500	23%
Total Overnight	\$179	\$580	3,233			

Note: Occupancy rate was calculated based on estimated visitor spending and accommodation inventory. Inventory estimate for private/vacation home represents the total of vacant single-family residential, condominium, and time-share housing units not included as rental property above. Total visitor spending was \$647 million for 2016.

Source: Dean Runyan Associates.

The following tables and pie charts in this section provide visitation estimates for all accommodation types and day visitors, as well as overnight visitors traveling to the North Lake Tahoe Area by private motor vehicle (auto, R.V.) or passenger air (primarily Reno/Tahoe International Airport). The pie charts draw attention to the important distinction between the number of visitors (number of adults who visited the area on separate trips, including repeat visitors) and the number of visitor-days (total days spent by all adult visitors in the area). For example, whereas 42 percent of all visitors to the North Lake Tahoe Area are on day trips, only 14 percent of all visitor-days are attributable to day travelers. Intuitively this makes sense since each overnight visitor to the area will spend three or more times the number of visitor-days as compared to a day visitor who does not stay overnight. Conversely, only 9 percent of all North Lake Tahoe Area visitors stay in a private/unpaid vacation home, while 29 percent of all visitor-days are attributed to this type of visitor, as many will spend a period of multiple weeks while on a vacation in the area.



### North Lake Tahoe Visitation by Type of Accommodation, 2016

	Ave. Daily Spending (per person)	Total Visitor Spending (Million)	Visitor- Days (Thousand)	Length of Stay (Days)	Vistor- trips (Thousand)
Hotel/Motel/B&B	\$250	\$289	1,155	3.4	339
Rented Condo/Home	\$218	\$223	1,021	3.5	289
Private/Vacation Home	\$67	\$63	932	10.4	90
Campground	\$49	\$6	125	3.5	36
Day Trip	\$128	\$67	523	1.0	523
<b>Total</b>	<b>\$172</b>	<b>\$647</b>	<b>3,756</b>	<b>2.9</b>	<b>1,275</b>

Source: Dean Runyan Associates

### North Lake Tahoe Visitation by Type of Accommodation, 2012

	Ave. Daily Spending (per person)	Total Visitor Spending (Million)	Visitor- Days (Thousand)	Length of Stay (Days)	Vistor- trips (Thousand)
Hotel/Motel/B&B	\$233	\$204	876	3.4	257
Rented Condo/Home	\$204	\$158	775	3.5	219
Private/Vacation Home	\$69	\$64	932	10.4	90
Campground	\$47	\$6	125	3.5	36
Day Trip	\$126	\$55	436	1.0	436
<b>Total</b>	<b>\$155</b>	<b>\$487</b>	<b>3,143</b>	<b>3.0</b>	<b>1,037</b>

Source: Dean Runyan Associates

### North Lake Tahoe Visitation by Primary Mode of Transportation, 2016

	Ave. Daily Spending (per person)	Total Visitor Spending (Million)	Visitor- Days (Thousand)	Length of Stay (Days)	Vistor- trips (Thousand)
Overnight Total	\$179	\$580	3,233	4.3	753
Air	\$242	\$192	796	5.4	149
Car	\$159	\$388	2,438	4.0	604
Day Total	\$128	\$67	523	1.0	523
<b>Total (Overnight &amp; Day)</b>	<b>\$172</b>	<b>\$647</b>	<b>3,756</b>	<b>2.9</b>	<b>1,275</b>

Source: Dean Runyan Associates

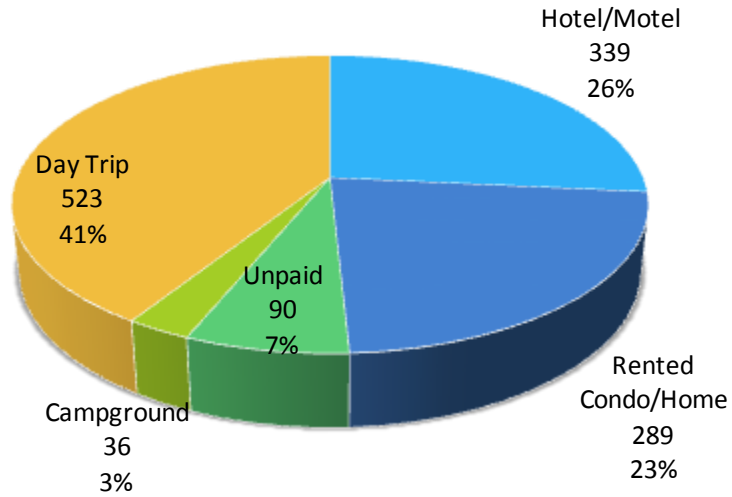
### North Lake Tahoe Visitation by Primary Mode of Transportation, 2012

	Ave. Daily Spending (per person)	Total Visitor Spending (Million)	Visitor- Days (Thousand)	Length of Stay (Days)	Vistor- trips (Thousand)
Overnight Total	\$160	\$432	2,708	4.5	601
Air	\$221	\$137	618	5.5	113
Car	\$141	\$295	2,090	4.3	488
Day Total	\$126	\$55	436	1.0	436
<b>Total (Overnight &amp; Day)</b>	<b>\$155</b>	<b>\$487</b>	<b>3,143</b>	<b>3.0</b>	<b>1,037</b>

Source: Dean Runyan Associates

**Visitor-Trips to the North Lake Tahoe Area  
by Type of Accommodation, 2016**

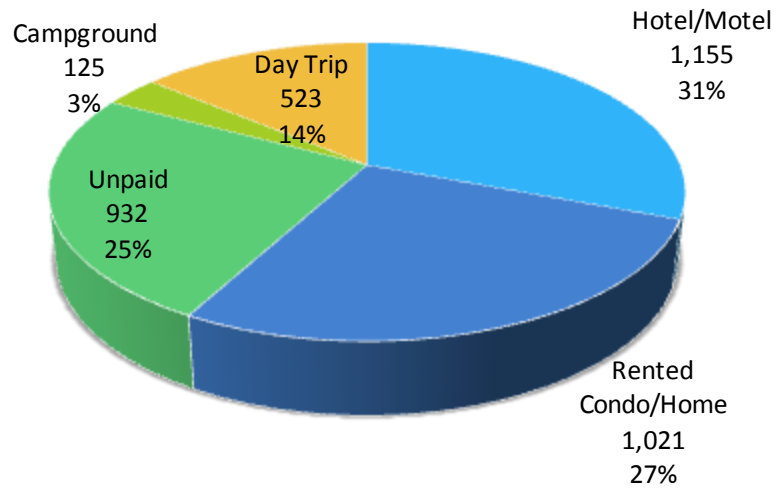
(thousands)



Source: Dean Runyan Associates

**Visitor-Days in the North Lake Tahoe Area  
by Type of Accommodation, 2016**

(thousands)

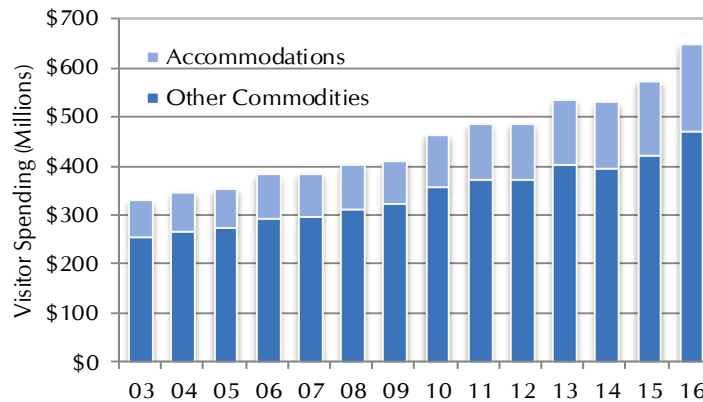


Source: Dean Runyan Associates

## VISITOR SPENDING TRENDS

The following bar chart illustrates the overall trend in visitor spending in the North Lake Tahoe Area from 2003 through 2016. Visitor spending peaked at nearly \$650 million in 2016. Accommodations were responsible for 27 percent of the total, a 4 percent increase in share from 2012. In general, the trend of total visitor spending tracks the trend of accommodations spending, because over two-thirds of all visitor spending in the North Lake Tahoe Area occurs among people who stay overnight in hotels, motels and rented condominiums.

**Visitor Spending in the North Lake Tahoe Area  
by Accommodations and Other Commodities, 2003-2016**

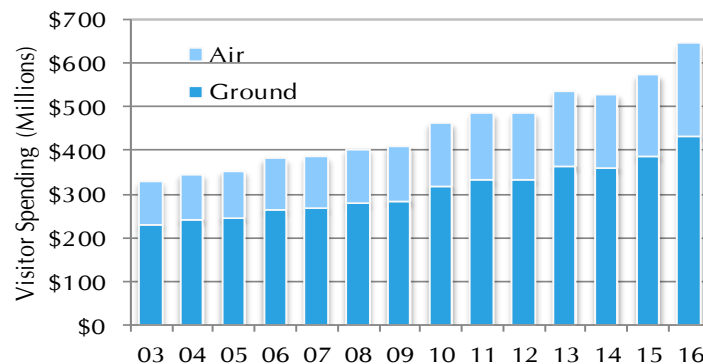


Source: Dean Runyan Associates

Note: Other commodities include recreation, food services, various retail purchases, motor fuel, and miscellaneous services.

The Reno/Tahoe International Airport, located in Reno, Nevada, provides an important transportation link for North Lake Tahoe Area visitors. For the years 2003 through 2016, nearly one-third (33 percent) of total visitor spending was attributable to those who traveled by air, as the primary method of travel to the North Lake Tahoe Area. The air travel proportion in 2012 was 31 percent.

**Visitor Spending in the North Lake Tahoe Area  
by Primary Mode of Transportation, 2003-2016**

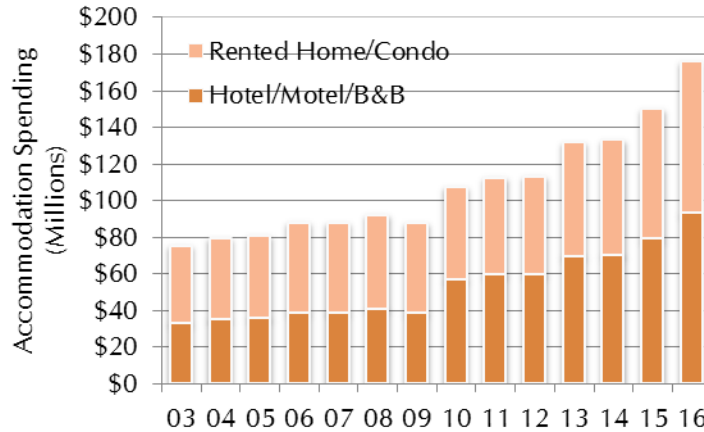


Source: Dean Runyan Associates

Note: Spending on airfare is not included in these total spending estimates.

Spending just for overnight accommodations peaked in 2016 at \$176 million, with almost half (47%) made for rented homes and condos. This proportion remains unchanged from 2012.

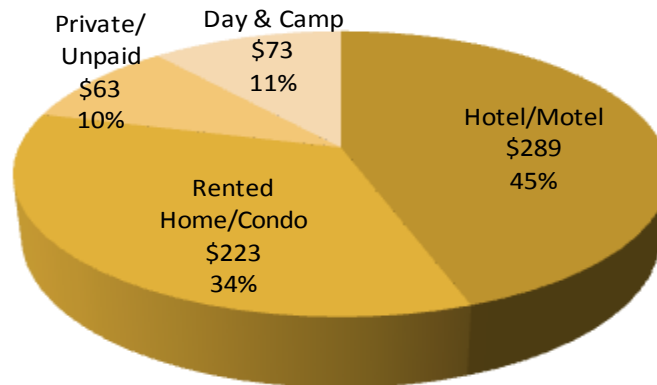
**Accommodation Spending in the North Lake Tahoe Area  
by Type of Lodging, 2003-2016**



Source: Dean Runyan Associates

In the chart below, total visitor spending in the North Lake Tahoe Area for 2016 is broken out by type of accommodation (i.e., where visitors spend the night). During 2016, those who stayed overnight in hotels, motels, bed & breakfast inns spent \$289 million (45 percent of visitor spending). In 2012 this sector was 42 percent of the total. Additionally, visitors who stay in rented homes and condominiums spent \$223 million (34 percent of visitor spending). In 2012 these visitors were 32% of the total. Both of these categories have gained a larger share of the total.

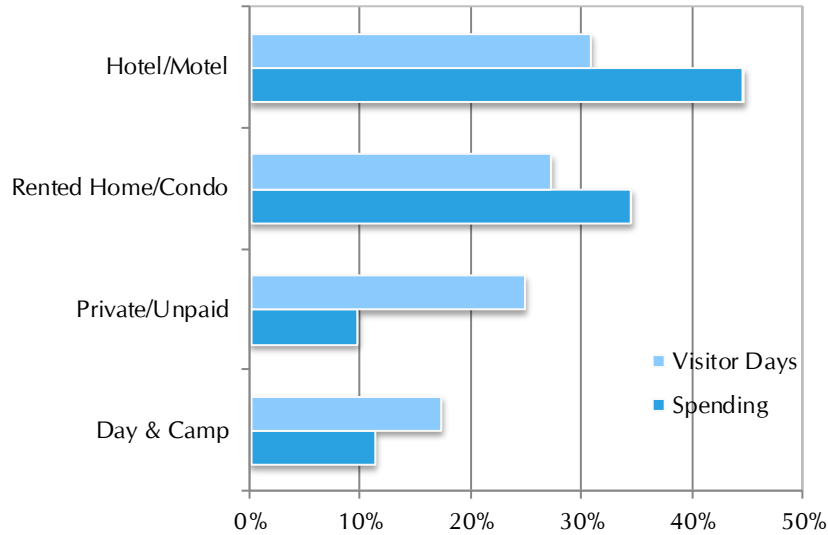
**Total Visitor Spending in the North Lake Tahoe Area  
by Type of Accommodation, 2016**  
(\$ Million)



Source: Dean Runyan Associates

It is also of interest to compare this spending breakout with visitor volume. For example, while visitors staying in hotels, motels, bed & breakfasts make up 30 percent of the total visitor-days, they comprise 44 percent of all visitor spending. Conversely, those staying in private/unpaid vacation homes account for 25 percent of the visitor-days though just 10 percent of all visitor spending.

**Total Visitor Spending and Visitor-Days in North Lake Tahoe Area  
by Type of Accommodation, 2016**



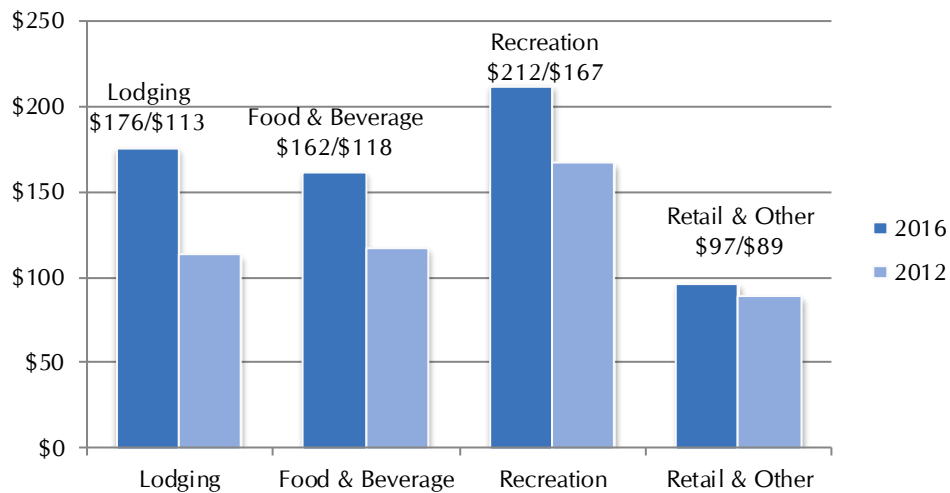
Source: Dean Runyan Associates

Note:

Visitor spending for private/vacation home/time-share does not include mortgage payments, insurance, construction and durable goods purchases. Expenditures of this type by either full-time or seasonal residents cannot be reliably allocated to North Lake Tahoe Area businesses.

The bar chart, *Total Visitor Spending in the North Lake Tahoe Area by Type of Commodity*, provides a breakout of spending by the type of good or service purchased for all categories of visitors. As can be seen, the largest single category is recreation (33 percent). This includes spending on skiing, summer recreational activities, and other entertainment or cultural/artistic events by all categories of visitors (all accommodation types and day visitors.) Spending on Food and Beverage refers to spending on all food and beverages for on-premise consumption. Spending on retail and other includes all retail purchases (including gasoline and groceries) and other miscellaneous goods and services.

**Total Visitor Spending in the North Lake Tahoe Area  
by Type of Commodity, 2016**  
(\$ Millions)



Source: Dean Runyan Associates

The visitor spending estimates for the North Lake Tahoe Area are presented in the following detailed table.

## North Lake Tahoe Visitor Spending, 2005-2016

### Direct Impacts Only\*

	2005	2010	2012	2013	2014	2015	2016
<b>Spending by Type of Accommodation (\$ Millions)</b>							
Hotel/Motel/B&B	126.0	193.8	204.2	230.0	227.1	250.2	288.6
Rented Home/Condo	120.3	150.1	158.0	178.3	176.1	193.8	222.8
Private/Unpaid	57.9	61.9	64.1	63.2	63.1	62.9	62.8
Day & Campgrounds	50.2	58.3	60.9	64.5	63.7	67.1	72.9
Total Spending	354.5	464.1	487.3	536.0	530.0	574.0	647.2
<b>Spending on Accommodations (\$ Millions)</b>							
Hotel/Motel/B&B	36.0	57.0	60.1	70.0	70.6	79.6	93.3
Rented Home/Condo	44.9	50.6	53.3	62.1	62.6	70.6	82.8
Accomm. Spending	80.9	107.6	113.4	132.0	133.2	150.2	176.1
<b>Spending on other Commodities (\$ Millions)</b>							
Food & Beverage	74.9	110.0	117.6	128.8	128.3	141.1	161.9
Recreation *	129.8	162.2	167.1	181.7	178.0	190.2	212.5
Retail & Other	68.9	84.2	89.2	93.4	90.4	92.5	96.8
Other Spending	273.6	356.5	373.9	403.9	396.8	423.8	471.1
<b>Spending on all Accommodations and Commodities (\$ Millions)</b>							
Accomm. Spending	80.9	107.6	113.4	132.0	133.2	150.2	176.1
Other Spending	273.6	356.5	373.9	403.9	396.8	423.8	471.1
Total Spending	354.5	464.1	487.3	536.0	530.0	574.0	647.2
<b>Spending by Primary Mode of Transportation (\$ Millions)</b>							
Air	107.4	145.8	153.4	171.6	169.4	185.6	212.4
Ground	247.1	318.2	333.8	364.4	360.6	388.4	434.8
Total Spending	354.5	464.1	487.3	536.0	530.0	574.0	647.2

Note: Report details may not add to totals due to rounding.

\* Spending on recreation includes campground fees.

\*For further information on Direct Impacts see Appendix B.

Source: Dean Runyan Associates

*This page left intentionally blank*



### 3. EARNINGS AND EMPLOYMENT

#### EARNINGS AND EMPLOYMENT IN NORTH LAKE TAHOE AREA

This section describes the findings on visitor-generated earnings and employment for the North Lake Tahoe Area. Before these findings are presented, it is necessary to describe the North Lake Tahoe Area economy in terms of the number and types of jobs present in the area, as well as the workforce that resides in North Lake Tahoe and surrounding areas.

Because the North Lake Tahoe region represents a portion of Placer County, it has been necessary to derive an estimate of the earnings and employment in the area from several sources.<sup>4</sup> The table below provides an estimate of the total employment and earnings within the North Lake Tahoe Area. Two points are crucial to note in interpreting this table:

1. The employment and associated earnings are for “place of work” rather than “place of residence.” This means that the enterprise that employs individuals is located in the North Lake Tahoe Area. The residence of the employees may or may not be the North Lake Tahoe Area. In the case of construction and real estate employment, the actual work site may or may not be located within the North Lake Tahoe Area, even though the establishment is formally located there.
2. The average employment numbers refer to all payroll jobs, proprietorships, general partnerships, and other employees, such as those receiving commissions. Payroll employment includes all full-time, part-time and seasonal jobs, regardless of the hours worked per week. Proprietors and partners are counted with reference to the enterprise, not the individual. An individual may be a partner in several enterprises, each of which would be counted as a partnership (employment).<sup>5</sup>

The estimates of total employment and earnings indicate that over 40 percent all jobs in the North Lake Tahoe Area are found in leisure industries (accommodations, food services and recreation). We would expect that most of these jobs, including food services and recreation, are visitor related.<sup>6</sup> Furthermore, we would expect that a substantial portion of retail employment would also be visitor related, as well as employment in real estate and other services related to the management of rental homes and condominiums. Thus, on the basis of these numbers alone, we would expect that about one-half of all employment in the North Lake Tahoe Area and the associated

---

<sup>4</sup> Calif EDD for covered employment (zip code area), BEA for relationship between payroll and total employment and earnings at the county level. Because recreation and accommodations are concentrated in North Lake Tahoe, the county level BEA data is good approximation.

<sup>5</sup> This explains the seemingly high employment for real estate. The individual that is the proprietor of multiple businesses would also be counted more than once in terms of total employment.

<sup>6</sup> In urban areas, or areas that are not visitor destinations, the majority of employment in food services and recreation is not visitor related.

earnings are *directly* attributable to spending made by visitors. (Note: The additional employment and earnings associated with the construction and vacation home real estate market is presented in Section 5).

### North Lake Tahoe Average Annual Payroll Employment, 2012 and 2016

Industry	2012	2016	Change
Agriculture, Forestry	<i>n.d.</i>	<i>n.d.</i>	
Utilities	12	12	0
Construction	1,439	1,887	448
Manufacturing	164	205	41
Wholesale Trade	43	69	26
Retail Trade	1,199	1,369	170
Transportation & Warehousing	71	63	-8
Information	118	107	-11
Finance & Insurance	163	169	6
Real Estate Rental & Leasing	712	652	-60
Prof., Scientific & Technical Services	494	469	-25
Management of Companies & Enterprises	<i>n.d.</i>	<i>n.d.</i>	
Admin., Support, Waste & Remediation Services	519	604	85
Educational Services	84	128	44
Health Care & Social Services	360	404	44
Arts, Entertainment & Recreation	1,868	1,919	51
Accommodation & Food Services	3,510	4,259	749
Other Services	440	891	451
Non-Classified	63	73	10
Federal Government	45	44	-1
State Government	36	105	69
Local Government	1,688	1,854	166
<b>Total Payroll Employment</b>	<b>13,037</b>	<b>15,283</b>	<b>2,246</b>

Source: California Employment Development Department.

Covers Placer & Nevada County Zip Codes: 96140-96141, 96143, 96145, 96146, 96148, 96161.

Wage & salary employment only. Self-employed are not included.

## EMPLOYMENT AND EARNINGS GENERATED BY TRAVEL SPENDING

The earnings and employment generated by visitor spending are shown in the table below. These findings (6,450 jobs and \$214.5 million in earnings for 2016) are consistent with the overall estimates of the North Lake Tahoe Area economy and workforce, presented in the preceding discussion. Just as importantly, they provide an additional validity check on the spending and visitor volume estimates presented earlier.

### Earnings & Employment Generated by Visitor Spending in North Lake Tahoe Area, 2005-2016

Direct Impacts Only

	2005	2010	2012	2013	2014	2015	2016
<b>Direct Earnings Generated by Visitor Spending (Millions)</b>							
Accomm. & Food Serv.	\$64.3	\$94.3	\$97.9	\$110.1	\$116.1	\$128.7	\$142.6
Recreation	\$40.3	\$51.0	\$57.1	\$59.1	\$57.9	\$61.9	\$58.8
Retail & Misc. Services	\$9.5	\$10.5	\$11.0	\$11.6	\$11.6	\$12.4	\$13.1
Total Direct Earnings	\$114.2	\$155.8	\$166.0	\$180.8	\$185.6	\$202.9	\$214.5
<b>Direct Employment Generated by Visitor Spending (Jobs)</b>							
Accomm. & Food Serv.	2,280	2,870	2,870	3,210	3,290	3,500	3,550
Recreation	2,360	2,370	2,460	2,420	2,230	2,340	2,470
Retail & Misc. Services	360	380	390	410	410	410	430
Total Direct Employment	5,000	5,620	5,720	6,050	5,920	6,240	6,450
<b>Average Annual Earnings (Thousands)</b>							
Accomm. & Food Serv.	\$28.2	\$32.8	\$34.1	\$34.3	\$35.3	\$36.8	\$40.1
Recreation	\$17.1	\$21.5	\$23.2	\$24.4	\$26.0	\$26.5	\$23.8
Retail & Misc. Services	\$26.7	\$27.8	\$28.5	\$28.1	\$28.5	\$30.4	\$30.4
Total Direct Earnings	\$22.8	\$27.7	\$29.0	\$29.9	\$31.3	\$32.5	\$33.2

Note: Accommodation & Food Service includes employment associated with the rental of homes and condominiums.

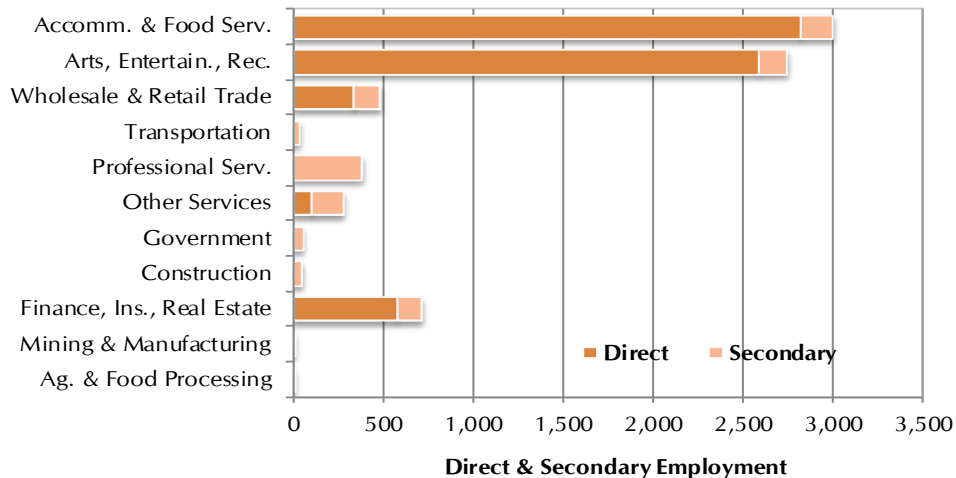
## SECONDARY IMPACTS

The most comprehensive way to describe the economic benefits of an industry is to consider not only its direct impacts, but to also include a measure of the indirect or secondary impacts that accrue due to the impact of visitor-related businesses<sup>7</sup>. Travel spending within the North Lake Tahoe Area brings money into communities within the area in the form of business receipts. Portions of these receipts are re-spent within the area for labor and supplies. Hotels, for example, may purchase maintenance services from independent contractors. Business proprietors and employees, in turn, spend a portion of their earnings on goods and services in the area. This re-spending of direct travel-related revenues creates secondary benefits also known as *indirect and induced impacts*.

Secondary impacts provide a picture of the magnitude and variety of business activity generated by travel spending in the North Lake Tahoe Area. Thus, the economic benefits of the travel industry are spread throughout the economy of the North Lake Tahoe Area.

In 2016 there was a noticeable shift from 2012. Accommodation and food service had a jump in employment while Arts, Entertainment, and Recreation job growth was relatively flat over the same period. This is reflected in our employment numbers and the California Employment Development department’s data.

**Direct and Secondary Travel Generated Employment  
North Lake Tahoe Area, 2016**

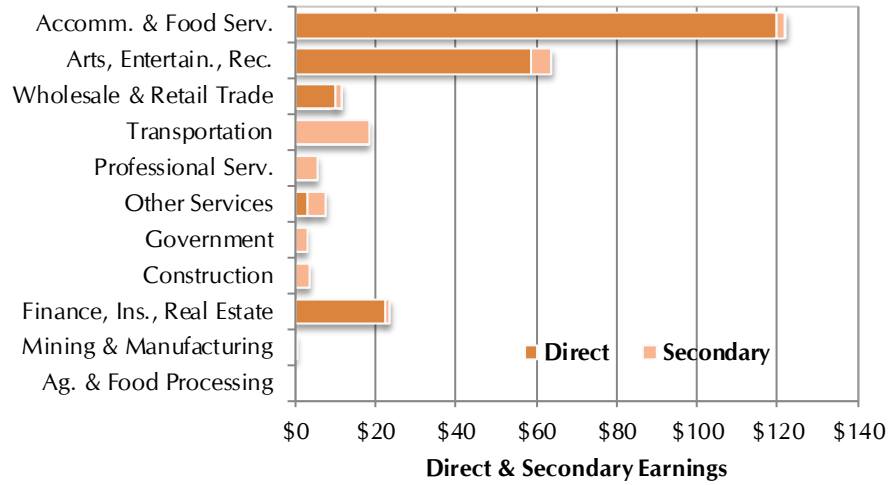


Source: Dean Runyan Associates and Minnesota Implan Group.

Note: Secondary Impacts include Indirect and Induced effects. Accommodation & Food Service includes the impact associated with the rental of homes and condominiums.

<sup>7</sup> These secondary impacts are sometimes referred to as the “multiplier effect.” The multiplier is the ratio of the total impacts to the direct impacts. Secondary impacts or multipliers will vary substantially among different economic regions. In general, larger and more diverse economies will have larger secondary impacts or multipliers because there will be less “leakage” of indirect and induced effects. See Appendix C for a description of the Implan methodology, including the use of workforce characteristics in the calculation of secondary impacts.

## Direct and Secondary Travel Generated Earnings North Lake Tahoe Area, 2016



Source: Dean Runyan Associates and Minnesota Implan Group.

Note: Secondary Impacts include Indirect and Induced effects. Accommodation & Food Service includes the impact associated with the rental of homes and condominiums.

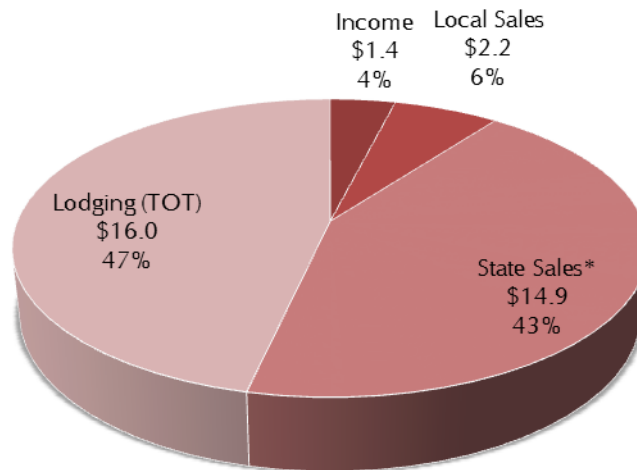
## 4. TAX IMPACTS

### TAX RECEIPTS GENERATED BY TRAVEL SPENDING

Although residents of the surrounding region hold many of the jobs generated by visitor spending in the North Lake Tahoe Area, most of the tax impacts remain in the area because about 9 out of 10 tax dollars generated by visitor spending are attributable to point of sale taxes. These tax impacts are shown in the following pie chart. More than one-half (53 percent) of all tax impacts generated by travel to the North Lake Tahoe Area accrues to local government in the form of transient occupancy taxes (TOT) and local sales taxes. The total generated taxes for 2016 are \$34.4 million, this is an increase of 33 percent from 2012 (\$25.9 million). An average annual increase of about 7 percent.

### North Lake Tahoe Area Visitor-Generated State and Local Tax Receipts, 2016 (\$ Millions)

**Combined Total: \$34.4 Million**



Source: Dean Runyan Associates & Placer County Dept. of Administrative Services

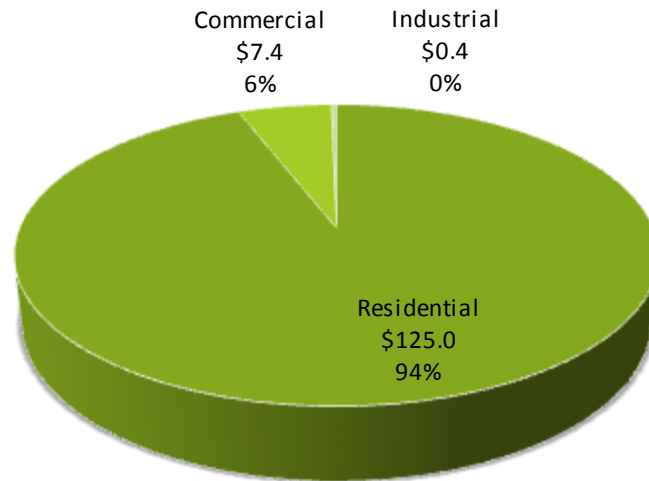
Note: \* State Sales tax includes state motor fuel tax. State income taxes include taxes on personal and business income. Property taxes are not included.

### PROPERTY TAX RECEIPTS

In addition to tax receipts generated directly from visitor spending, property tax assessments for North Lake Tahoe Area property provide substantial tax revenue for Placer County. Within the North Lake Tahoe Area, 94 percent of the most recent property tax assessment roll (fiscal year 2015-16) was related to residential and vacation home properties. Because of the high proportion of vacation homes, condominiums, and time-shares in the North Lake Tahoe Area (about two-thirds of all housing units), properties that are visitor-related and are not owner-occupied generate a significant

source of the area's property tax receipts. Visitor-related commercial properties such as hotels and restaurants also generate a substantial portion the property tax receipts collected for property classified as commercial, which generated about 7.4% of all property tax receipts for the area.

**North Lake Tahoe Area of Placer County  
Property Tax Receipts, FY 2015-2016**



Source: Dean Runyan Associates & Placer County Tax Assessor

## 5. CONSTRUCTION AND REAL ESTATE

Segments of construction and real estate employment in the North Lake Tahoe Area can also be attributed to visitors, to the extent that such activity is related to the construction, maintenance or sale of vacation home property. Estimates of visitor-generated construction and real estate activity are less straightforward, and ultimately less precise, than estimates of direct and secondary visitor spending made in the preceding section. There are two principle reasons for this distinction.

First, expenditures on visitor-related construction activities are related to anticipated visitation and expenditures made by visitors in a future time period. In the case of vacation homes by private owners, construction expenditures are investments predicated on expectations of visitor activity at a later and extended period of time. The same is true with regard to the sale of vacation home property. Therefore, it is analytically useful to distinguish visitor-related construction and real estate from the other type of visitor-related impacts discussed.

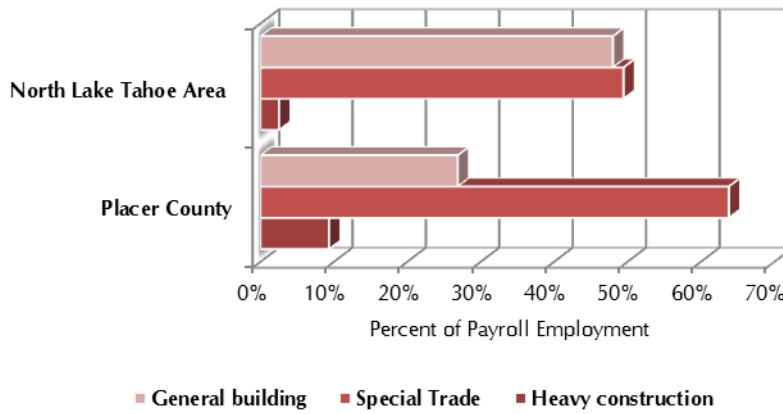
Second, there is generally more “out-of-area” activity associated with the employment for construction and real estate than on visitor expenditures made for accommodations, food service and recreation. This is especially true for vacation home construction, which, over the last decade, has been a significant source of construction activity in the Truckee Area. Likewise, real estate brokers and agents in the North Lake Tahoe Area may service vacation home property in Truckee or other locations outside the North Lake Tahoe Area. It is also important to consider, particularly with regard to large development projects, that construction activity in the North Lake Tahoe Area may generate employment and earnings for firms from outside the area.

### **Construction**

Construction employment in the North Lake Tahoe Area is most orientated toward general building contractors. The following bar chart illustrates the overall pattern in payroll employment for construction businesses in the North Lake Tahoe Area. Furthermore, as compared to all of Placer County, general building contractors in the North Lake Tahoe Area comprise nearly twice as large a proportion of payroll employment. This is probably due to the relatively high number of residential structures (both owner-occupied and vacation homes) relative to other commercial and industrial structures in the North Lake Tahoe Area.



## Characteristics of Construction Employment North Lake Tahoe Area, 2015



Source: derived from U.S. Census Bureau County Business Patterns by Dean Runyan Associates

As shown in the table below, an examination of the mix of single-family and condominium housing units in the North Lake Tahoe Area shows about two-thirds are not owner-occupied and serve as vacation homes and short-term rental properties. These North Lake Tahoe Area properties provide an ongoing source for construction employment as maintenance and improvements are made to entire stock of housing.

### Visitor Industry Activity

#### North Lake Tahoe Area Single-Family Residential and Condominium Housing Units, 2016

Location	Zip Area	Owner-Occupied	Vacant Units	Total Units	Percent Vancancy
Camelian Bay	96140	714	1,312	2,026	65%
Homewood	96141	593	916	1,509	61%
Tahoma	96142	111	233	344	68%
Kings Beach	96143	1,535	1,570	3,105	51%
Tahoe City	96145	2,038	3,321	5,359	62%
Olympic Valley	96146	588	1,759	2,347	75%
Tahoe Vista	96148	370	573	943	61%
<b>Combined Total</b>		<b>5,949</b>	<b>9,684</b>	<b>15,633</b>	<b>62%</b>

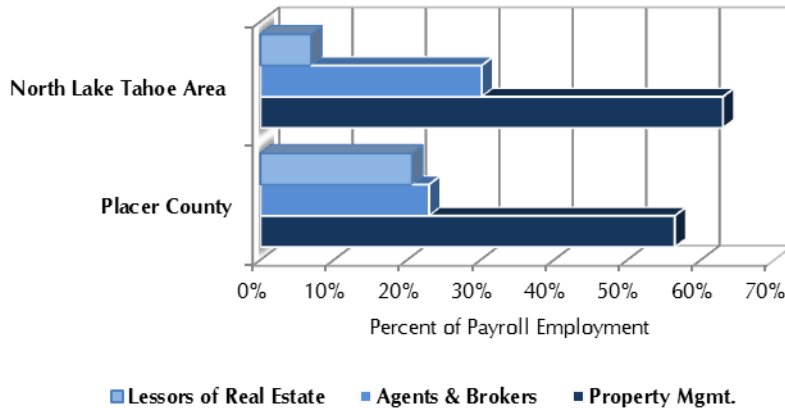
Source: Dean Runyan Associates using CoreLogic

### Real Estate

As shown in the following bar chart, payroll employment for real estate establishments in the North Lake Tahoe Area is most oriented toward property management and the sales activity of agents and brokers. As compared to all of Placer County, agents and brokers comprise about twice as large a proportion of payroll employment for real estate

establishments. In addition, property management and appraisal, which tends to be more oriented to commercial property, represents a significantly higher proportion of real estate employment in all of Placer County.

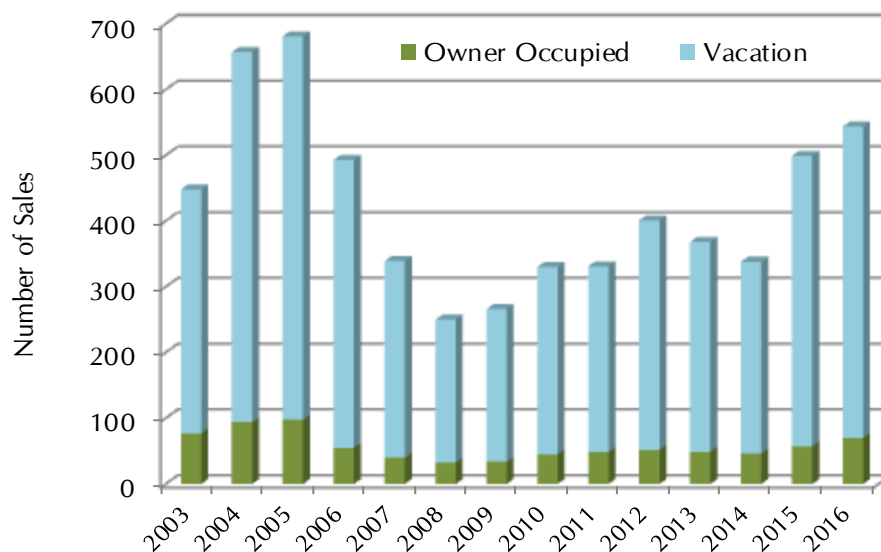
### Characteristics of Real Estate Employment North Lake Tahoe Area, 2015



Source: derived from U.S. Census Bureau County Business Patterns by Dean Runyan Associates

As shown below, over 500 single-family and condominium, and timeshare units were sold in the North Lake Tahoe Area in 2016, an increase of about 9 percent from the previous year. Vacation is a combination of non-owner occupied and timeshare units.

### Annual New and Resale Real Estate Transfers North Lake Tahoe Area, 2003-2016 (Owner Occupied & Vacation)



Source: Dean Runyan Associates using CoreLogic  
Note: Based on selected zip codes for North Lake Tahoe Area

## 6. VISITOR IMPACT OVERVIEW

*The Economic Significance of Travel to the North Lake Tahoe Area: Detailed Visitor Impact Estimates, 2003-2016* describes the economic impacts associated with all visitor spending in the North Lake Tahoe Area of Placer County. As shown below, *direct* travel-generated impacts accounts for nearly \$647 million in visitor spending, providing 6,450 jobs with earnings of \$215 million made by employees and business owners throughout the North Lake Tahoe Area.

### North Lake Tahoe Area Visitor Spending and Related Impacts, 2003-2016

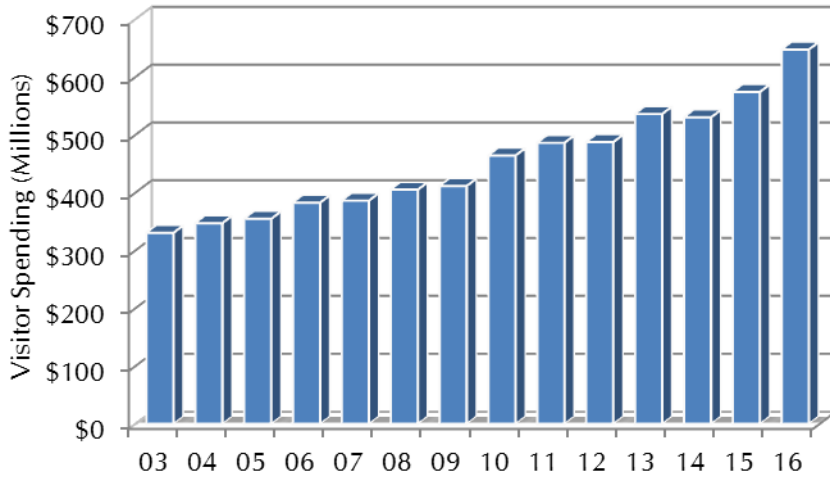
*Direct Travel-Generated Impacts Only*

	Visitor Spending (\$ Million)	Earnings (\$ Million)	Employment (jobs)	Tax Receipts	
				Local (\$ Million)	State (\$ Million)
2003	330.4	106.5	4,910	8.2	8.6
2004	347.1	112.0	5,020	8.4	9.4
2005	354.5	114.2	5,000	8.5	9.8
2006	382.5	123.7	5,030	9.3	10.7
2007	386.0	124.6	4,960	9.3	10.9
2008	405.0	130.5	5,090	9.8	11.5
2009	411.3	128.1	5,020	9.4	12.8
2010	464.1	155.8	5,620	11.4	14.8
2011	486.0	161.4	5,830	11.9	14.6
2012	487.3	166.0	5,720	12.0	13.9
2013	536.0	180.8	6,050	13.9	13.9
2014	530.0	185.6	5,920	13.9	13.7
2015	574.0	202.9	6,240	15.6	14.6
2016	647.2	214.5	6,450	18.2	16.0
Annual Percentage Change					
03-16	5.3%	5.5%	2.1%	6.4%	4.9%
15-16	12.8%	5.7%	3.4%	16.5%	9.7%

Source: Dean Runyan Associates

Note: State Tax Receipts affected by changes in state sales tax rate.

### Total Visitor Spending in North Lake Tahoe Area, 2003-2016



Note: Visitor spending not adjusted for inflation.  
Source: Dean Runyan Associates

The following table and pie charts provide an overview of all the visitor-generated economic impacts for the North Lake Tahoe Area. The table *Earnings and Employment Generated by Visitor Spending - North Lake Tahoe Area, 2016* shows the proportion of visitor-generated earnings and employment as a percent of the North Lake Tahoe Area’s total economy. Visitor spending in the area generates about 60 percent of employment, and about half (51%) of all earnings in the North Lake Tahoe Area.

The bulk of area's employment and earnings are generated through visitor spending made for lodging accommodations (including rented homes and condominiums), food services, and recreation – during winter and summer – throughout the North Lake Tahoe Area. The re-spending of travel-generated earnings by employees and businesses (referred to as secondary impacts) created over 1,300 additional jobs with earnings of \$45.6 million. In addition, construction and real estate activity associated with vacation homes generated approximately 1,100 more jobs with associated earnings of \$64.7 million.

### Earnings & Employment Generated by Visitor Spending in North Lake Tahoe Area, 2016

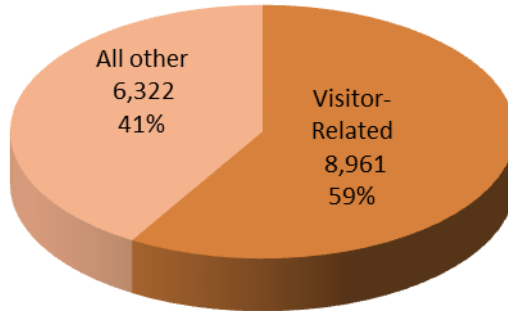
Visitor-Generated Impacts						
	Direct	Secondary	Vacation Home	Vistor- Related	Area Total	Percent Visitor
<b>Earnings (\$Millions)</b>						
Leisure and Hospitality Serv.	201	7.2	0.0	208.6	214.2	97%
Retail & Misc. Services	13	6.4	0.0	19.5	74.2	26%
Construction	0	3.7	47.5	51.2	98.7	52%
Real Estate, Rental & Leasing	0	1.1	17.2	18.3	35.5	52%
All Other	<u>0</u>	<u>27.3</u>	<u>0.0</u>	<u>27.3</u>	<u>217.1</u>	<u>13%</u>
Total	\$215	\$45.6	\$64.7	\$324.8	\$639.8	51%
<b>Employment (Number of Jobs)</b>						
Leisure and Hospitality Serv.	6,020	333	0	6,353	6,830	93%
Retail & Misc. Services	430	316	0	746	2,329	32%
Construction	0	51	920	971	1,887	51%
Real Estate, Rental & Leasing	0	138	257	395	652	61%
All Other	<u>0</u>	<u>495</u>	<u>0</u>	<u>495</u>	<u>3,585</u>	<u>14%</u>
Total	6,450	1,334	1,177	8,961	15,283	59%

Source: Dean Runyan Associates

Note: Leisure and Hospitality Services includes employment associated with the rental of homes and condominiums. Vacation Home estimates were judgmental based on workforce characteristics and factors described in the previous section of this report. Area total includes wage & salary employment only. Self-employed are not included.

Total employment increased 17% from 2012, an increase of about 4% per year. The employment for visitor related increased 14% from 2012. Total earnings increased 30% from 2012, an increase of about 7% per year. The visitor related earnings increased at the same 30% rate. The proportions of visitor related employment and earnings remained relatively unchanged.

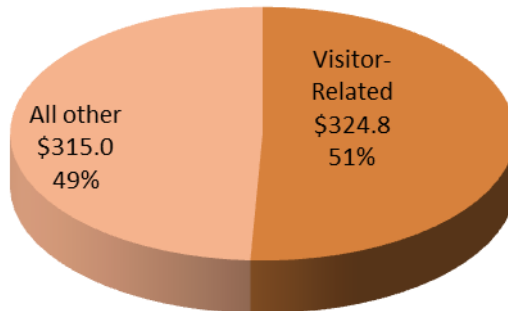
**Visitor-Related Share of Total Employment  
North Lake Tahoe Area, 2016**



**Total Employment: 15,283**

Source: Dean Runyan Associates and California Employment Development Department

**Visitor-Related Share of Total Payroll Generated Earnings  
North Lake Tahoe Area, 2016**



**Total Payroll Generated Earnings: \$639.8 Million**

Source: Dean Runyan Associates and California Employment Development Department.

## APPENDICES

- Appendix A. Regional Travel Impact Model (RTIM) Methodology*
- Appendix B. IMPLAN Modeling System*

*This page left intentionally blank*



## Summary of Regional Travel Impact Model (RTIM) Methods

### TRAVEL SPENDING

**Hotel, Motel, B&B.** Spending on accommodations by hotel and motel guests is estimated from Transient Occupancy Tax (TOT) collections made by Placer County. Spending by hotel and motel guests in other business categories, such as food and transportation, is estimated using spending distributions reported in the visitor survey data. The spending distribution shows how travelers divide their spending between lodging and other purchases.

**Rented Home/Condo.** Spending by rented home/condo guests is also estimated from Transient Occupancy Tax (TOT) collections, which are collected on the rental of condominiums or privately owned homes for rental periods of less than thirty days.

**Vacation Home.** Vacation home visitation and expenditures are estimated from an inventory of vacation homes (housing data from the U.S. Bureau of the Census) and survey data for expenditures.

**Unpaid Accommodations.** Spending by private home guests is determined from visitor survey data estimating the number of visitors staying as guests of friends and relatives, and applying

these rates to the household population base.

**Campgrounds.** Spending by campers using commercial campgrounds is estimated from the visitor counts at California State Parks and federally managed national forests, as well as a number of commercial campsites. The average occupancy of these campsites and daily expenditures of visitor camp parties is estimated from state sources and survey data.

**Day Travel.** The share of day visits as a percentage of total travel is estimated from visitor survey data and applied to average daily spending estimates to produce day visitor spending.

### Related Travel Impacts

Spending by travelers generates jobs, earnings, tax revenues.

**Total Earnings** generated directly from traveler expenditures are estimated from the payroll-to-receipts ratio obtained from the 2007 Economic Census for the State of California, and earnings estimates from the Bureau of Economic Analysis.

**Employment** in each business category is calculated from wage and employment data supplied by the California Employment Development

Department, and earnings estimates from the Bureau of Economic Analysis.

**Local Taxes** consist of transient occupancy taxes and local sales taxes applicable to traveler purchases in eating and drinking establishments and retail stores.

**State Taxes** consist of state sales taxes applied to traveler spending on accommodations, retail shopping, restaurant meals, entertainment, the state fuel tax levied on motor fuel purchases, and personal and corporate income taxes.

## IMPLAN Modeling System

IMPLAN is a widely used, nationally recognized economic impact model, first developed by the U.S. Forest Service. IMPLAN can be used to measure the direct and indirect impacts associated with economic changes in a particular region or local area. This methodology has been packaged, along with the necessary data files, as IMPLAN Pro by the Minnesota IMPLAN Group, Inc. (MIG) of Stillwater, Minnesota, and provides the basis for the indirect analysis in this report.

The following are some of the conventions used by IMPLAN.

- **Direct** impacts represent the employment and earnings attributable to travel expenditures made directly by travelers at businesses throughout the North Lake Tahoe Area.
- **Indirect** impacts represent the employment and earnings associated with industries that supply goods and services to the businesses that directly serve visitors (i.e., those that receive money directly from visitors throughout the area).
- **Induced** impacts represent the employment and earnings that result from purchases for food, housing, transportation, recreation, and other goods and services made by travel industry employees, and the employees of the indirectly affected industries.

### Database Components

The IMPLAN databases consist of two major parts: 1) national-level matrices and tables and 2) economic and physical data at the county and/or state level. The national matrices are combined with regional data to create a regional model, which can be edited to reflect local conditions.

IMPLAN data is divided into four main categories:

1. Industry Output
2. Employment
3. Value Added (includes employee compensation)
4. Final Demands

**Industry output** represents the dollar value (producer price of goods and services) of an industry's total production. The data is derived from a number of sources including Bureau of Census economic censuses and the BLS employment projections.

**Employment** is listed as a single number of jobs for each industry. The data is derived from ES202 employment security data supplemented by county business patterns and Regional Economic Information System (REIS) data. All IMPLAN databases include both full-time and part-time workers in employment estimates.

**Value Added** includes employee compensation, proprietor income, other property type income, and indirect business taxes. Employee compensation includes the total payroll costs (including benefits) of each industry in the region. Proprietary income consists of payments received by self-employed individuals (includes private business owners, doctors and lawyers). Other property type income consists of payments from rents, royalties, dividends and interest. Indirect business taxes consist primarily of excise and sales taxes paid by individuals to businesses.

**Final Demands** are the dollar value of goods and services purchased by consumers and institutions (federal, state and local government). Personal consumption expenditures are the largest component of final demand. It consists of payments by individuals/households to industries for goods and services used for personal consumption.

### **Trade Flows**

Trade flows describe the movement of goods and services between a defined region and the outside world (imports and exports into and out of the study region). Regional Purchase Coefficients (RPC's) were used to estimate how much of the local production of a commodity will supply local demand, and how much will be exported from the region. RPC's represent the portion of local demand purchased from local producers for each commodity. IMPLAN software automatically generates RPC's for each commodity with a set of econometrically-based equations.

### **Indirect Impacts**

Input-output models are driven by final consumption (or final demand). Industries respond to meet demands directly or indirectly (by supplying goods and services to industries responding directly). Each industry that produces goods and services generates demands for other goods and services. These other producers, in turn, purchase goods and services. These indirect purchases (indirect effects) continue until "leakage" from the region (imports, wages, profits, etc.) stop the cycle.