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**Final Report of Sustainability Measures  
Lake Tahoe Watershed, Nevada & California**

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**February 2010**

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This Analysis is part of a collaborative effort to better understand the integrated linkage between a sustainable environment, economy and community and future policy-making in the Lake Tahoe Basin. This specific product is authorized pursuant to Section 234 (as amended) and Section 503 (as amended) of the Water Resources Development Act of 1996 (PL 104-303), which provides for coordinated interagency efforts in the pursuit of watershed planning.



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## Executive Summary

### Project Objective & Background:

The Lake Tahoe Watershed Sustainability Measures Project was initiated in 2006 by a broad consortium of community interests, including representatives of business, social services, education, health care, public safety, public services, and government. The primary conveners whom provided leadership during this effort were the North Lake Tahoe Chamber of Commerce and the Lake Tahoe South Shore Chamber of Commerce. The Truckee Tahoe Community Foundation (TTCF) acted as local fiscal agent and signatory to interagency agreement with the U.S. Army Corps of Engineers (Corps).

The objective of the Lake Tahoe Watershed Sustainability Measures Project (Project) is to design and implement a set of measures of sustainability that can be monitored and analyzed to help shape public- and private-sector policy and community awareness to integrate a healthy environment, economy and community in the Lake Tahoe Basin (herein referred to as “Basin”). The locale of the Basin encompasses many communities, including South Lake Tahoe, Meyers, Rubicon, Meeks Bay, Tahoma, Homewood, Tahoe Pines, Sunnyside, Tahoe City, Dollar Point, Carnelian Bay, Tahoe Vista, Kings Beach, Crystal Bay, Incline Village, Glenbrook, Zephyr Cove, Roundhill, and Stateline. Although Alpine Meadows and Squaw Valley are not technically part of the Basin, they are included in several measures due to the strong social and economic association of these communities to the Basin.

The general process to meeting the objective is to provide a comprehensive view of the status of the Basin’s sustainability by developing, measuring, and reporting on a set of measures intended to provide a balance between the heavily-studied environmental conditions in the Basin and the less-considered economic and community circumstances. Measures included as part of this effort would complement the set of environmental sustainability measures maintained by the Tahoe Regional Planning Agency (TRPA).

The Report displays current and historic data up to a period of 20 years for each of 14 sustainability measures. The *Measurement Selection Summary Report; Lake Tahoe Watershed Sustainability Indicators Project; Lake Tahoe Watershed, CA & NV. November 2008.* defines the initial phase of work implemented by the previous contractor in order to define the sustainability measures to be included in this Report and analyzed by the current Project Team. The data was collected at the community level (where available), county level and state level. This data was analyzed to structure an understanding of issues related to the health of the environment, economy, and community of the Basin. Measures will serve as a tool for tracking performance within these subsystems, across the Basin. By analyzing current trends, providing policy analysis and recommendations, and reanalyzing trends in the future, the Report can be used to inform the public, stakeholders, and community decision makers.

In the Report, we analyze the status and trends of data from multiple measures within a group to identify the status and trend of large themes in social and economic stability. Measure groups

are intended to qualitatively and quantitatively describe whether or not the region is attracting new residents, families, businesses, and visitors, affecting the amount of state and federal funding resources available to the region since this funding is tied directly to the census. The selected measures are relevant to the local communities, and data are displayed in such a way that they are easy to interpret and be used by communities and/or the region effectively. It is expected that over time the communities will continue to refine measures, add data, and perform additional analysis as communities become more involved and circumstances change. This Project is designed to stimulate a process which enhances overall understanding of current issues facing the Basin, facilitate community capacity building, and help guide future policy decisions.

### **Summary of Trends & Findings:**

In terms of sustainability, the data collected from the Basin displays several trends. Population of the Basin has been steadily decreasing in family aged populations, seen across all communities. These declines have direct and indirect impacts on other areas, such as school enrollment and business revenues, both of which have seen declines in most, if not all, communities. Social measures that have shown an upward trend include voter registration and ethnic diversity. Voter registration numbers have increased significantly in the majority of communities, showing increased social participation and creating more direct accountability between officials and the people they represent. Ethnic diversity has also seen an increase, mainly in Hispanic populations, in two thirds of Basin communities.

Medium home prices have been steadily increasing on the north and west shores of the Basin, while the south and east shores continue to see steady declines since 2007. Although long term trends show an increase, short term trends may be stable or decreasing due to the current status of the economy. Increases in per capita income have been common across communities. Employment in the Basin is decreasing. Much of the decline is consistent with the recessionary period experienced by the nation beginning in December 2007. However, employment in specific Tahoe sectors, such as gaming, has been in decline since before the current recession (TRPA Nevada Gaming Abstract<sup>1</sup>). Community and economic subsystems have been facing declines in light of the recession and changes in Tahoe's traditional economic and business base, however, environmental measures have displayed that the declining trend in water clarity may be slowing<sup>2</sup>. Water clarity in the Basin has been improving modestly, with the greatest clarity in 2008, of the twenty monitoring years included in this Report.

This Report presents several policy recommendations which incorporate current local and regional policy, stakeholder input, and data analysis. Utilizing the data and information collected as part of this process, the project team and the Steering Committee identified potential public policy goals and alternatives that will achieve the given set of objectives for each selected measure group in this Report.

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<sup>1</sup> [http://gaming.nv.gov/abstract\\_rpts.htm](http://gaming.nv.gov/abstract_rpts.htm)

<sup>2</sup> UC Davis. 2009. Tahoe: State of the Lake Report 2009. Tahoe Environmental Research Center.

The Project team and the Steering Committee aggregated several measures together into four measure groups: Housing, Transportation, Education and Business.

Key findings of the Housing measure group indicate that although the recent downturn in the economy has halted the steady increase in housing prices, that trend is unlikely to continue and housing affordability will continue to be a problem. Since access to affordable housing is a key goal to improve community quality of life, the team recommended a renewed focus on creating affordable incentives, zoning policy that encourages increased density in urban core areas, and creating a basin wide housing authority to leverage investments.

Key findings of the Transportation measure group indicate that the need for and desire for public transit is increasing and that the public is becoming cognizant of the necessary link between land use and transportation. The team recommended encouragement of pedestrian and transit oriented development, exploration of new air quality mitigation transportation project linkages, and a concerted effort to engage the United States Forest Service more directly in transit planning efforts.

Key findings of the Education measure group show long-term declines in school enrollment, occurring over the last ten years, leading to reductions in aggregate per pupil funding and service stress at local school districts. Because access to quality education is a key component to business attraction and retention, the team recommended developing strategies to retain parents of school aged children in the region through housing policy and the development of student housing to accommodate community college level students.

Key findings of the Business measure group indicate that even factoring out the impact of the national recession business related tax revenue is flat or declining, gaming revenue is declining, and wages are not keeping pace with the cost of living. The team recommended the creation of an economic development entity to assist with the development of a new regional economic “Prosperity Plan” designed to coordinate economic development activities, assist with development of funding sources, and act as an ombudsman to help project developers increase the efficiency of the project approval process. Such an effort could run parallel to the implementation of the new Tahoe Regional Planning Agency Regional Plan.

Using the data trends, established evaluation attributes and current local and regional policies, measures that are and are not benefited by current policies can be identified, the appropriate alternative policies can be determined, and the ability of the proposed policy to solve the underlying problem/cause can be assessed. For the purposes of this analysis pertinent elements including goals, policies and alternatives related to the four recommended measure groups, were reviewed in the following documents:

- The Washoe County Comprehensive Plan
- The Douglas County Master Plan
- The Placer County General Plan

- The El Dorado County General Plan
- The Tahoe Regional Planning Agency Goals and Policies
- The Regional Plan Update for the Basin Draft Alternatives Summary Report
- The City of South Lake Tahoe General Plan Policy Document Public Review Draft

A growing number of decision makers, investors and community leaders recognize that the creation of prosperity is dependent upon more than financial capital. They are aspiring to a more inclusive definition of prosperity that accounts for social value, environmental quality and community wellbeing. By providing this snapshot of the prosperity of the region, and a system to help measure the progress toward maintaining environmental quality while building prosperity, we hope we can provide you with a tool to increase the prosperity of the Basin communities.

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**FINAL REPORT OF SUSTAINABILITY MEASURES**  
**LAKE TAHOE WATERSHED, NEVADA AND CALIFORNIA**

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**1.0 Objective**

The objective of the Lake Tahoe Watershed Sustainability Measures Project (Project) is to design and implement a set of measures of sustainability that can be monitored and analyzed to help shape public- and private-sector policy and community awareness to integrate a healthy environment, economy and community in the Lake Tahoe Basin (Basin). A measure is statistical data that measures one element of a community's vitality (e.g., economy, environment, or community) and is used, in conjunction with other measures to evaluate a community's overall health. Communities across the United States have found that a succinct 'report card' of measures of sustainability help them to identify areas where linkages among the economy, environment and community are unbalanced. For the Project, measures of sustainability are: measures that measure Tahoe's ability to meet today's needs without endangering the ability of future generations to meet their needs.

The general process to meeting the objective is to provide a comprehensive view of the status of the Basin's sustainability by developing, measuring, and reporting on a measure set intended to provide a balance between the heavily-studied environmental conditions in the Basin and the less-considered economic and community circumstances. Measures measured as part of this effort would complement the set of environmental Threshold Indicators maintained by the Tahoe Regional Planning Agency (TRPA).

This report summarizes results of data collection and analysis conducted on a set of 14 measures selected by a group of stakeholders in 2008<sup>3</sup>. This information is used for policy analysis and can be used to assist the Project Steering Committee with development of future Project measures.

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<sup>3</sup> US Army Corps of Engineers and Truckee Tahoe Community Foundation. November 2008. *Measurement Selection Summary Report; Lake Tahoe Watershed Sustainability Indicators Project; Lake Tahoe Watershed, CA & NV*. Prepared by HDR.

## 2.0 Background

The Project was initiated in 2006 by a broad consortium of community interests, including representatives of business, social services, education, health care, public safety, public services, and government. Primary conveners whom provided leadership during this effort were the North Lake Tahoe Chamber of Commerce and the Lake Tahoe South Shore Chamber of Commerce. The Truckee Tahoe Community Foundation (TTCF) acted as local fiscal agent and signatory to interagency agreement with the U.S. Army Corps of Engineers (Corps). In 2007, invitations for participation in development of a set of measures for analysis were made to the broader community. Together, this ad hoc group (Work Group) of stakeholders began initial efforts for the Project. In 2009, data collection and analysis were conducted on a set of 14 measures selected by the Work Group. Table 1 below summarizes major Project milestones.

**Table 1. Summary of Major Project Milestones**

<b>Date</b>	<b>Activity</b>	<b>Result</b>
09/06	Integrating Environmental & Community Sustainability Workshop	72 Community Priorities Identified
11/06	Watershed Sustainability Measures Effort Begins	
04/07	Sustainability Measures - 101 Presentation	<ul style="list-style-type: none"> <li>● 3 subsystems</li> <li>● 12 measure categories</li> <li>● 100+ measurements</li> </ul>
08/07	Work Group Preliminary Narrowing Exercise	<ul style="list-style-type: none"> <li>● 73 Preliminary Measurements</li> <li>● 29 Priority Measurements Identified</li> </ul>
	Environmental measurements to be selected from existing TRPA measures	<ul style="list-style-type: none"> <li>● 65 Preliminary Measurements</li> <li>● 25 Priority Measurements</li> </ul>
11/07	Screening Criteria Narrowing (General & Work Group Approved) at Work Group Meeting	19 Recommended Measurements (9 economic, 10 community)
11/08	Measurement Selection Summary Report; <u>Lake Tahoe Watershed; Sustainability Indicators Project; Lake Tahoe Watershed, CA &amp; NV. November 2008.</u>	Final Measurement Report with 14 Recommended Measures released
08/09	Workplan Developed for Measure Data Collection and Analysis	Data Collection and Analysis Initiated on 14 Measures.

Date	Activity	Result
10/09	Convene Steering Committee	Develop Selection Criteria for Policy Analysis.
12/09	Draft Report of Sustainability	

The November 2008 Corps and TTCF Measurement Selection Summary Report; Lake Tahoe Watershed Sustainability Measures Project; Lake Tahoe Basin. California & Nevada-Interim Final Report summarizes key steps taken by the Work Group and results of the process used to develop 14 measurements (identified as priority measures) recommended for inclusion in the Project. Selected measures centered on measuring economic and community sustainability. These measures were selected to complement the set of environmental threshold indicators maintained by the TRPA. Final recommended measures and methodology of analysis are included in Table 2 below.

**Table 2. Final Recommended Measures and Methodology of Measurements**

Priority Measures by Subsystem	Data Analysis Methodology	Time Scale	Source
<b>Community</b>			
Population totals by age for Lake Tahoe Basin residents	Calculate change over time and difference between communities and region. The CED will calculate net migration rates by age and include this in the measure.	1990 and 2000	U.S. Census. Net migration calculated by the CED using additional data from the California Dept. of Public Health. Migration rates may not be available with existing data in Nevada.
Population totals of Lake Tahoe Basin residents by race and Hispanic origin	Calculate change over time and difference between communities and region	1990 and 2000	U.S. Census.
Percent of registered voters in the Lake Tahoe Basin who participate in respective county-level elections	Calculate change over time (if available) and difference between communities and region	May vary by county – likely to have last two elections for all counties.	County Clerks/Recorders
Number of Lake Tahoe Basin public school students enrolled in grades K -12	Calculate change over time and percentage of population	1998 to 2008 (annual data) in California	California Department of Education, Nevada Department of Education or individual Nevada schools
Graduation rates for Lake Tahoe Basin public high schools	Calculate change over time and difference between communities and region	1998 to 2008 in California (annual data)	California Department of Education, Nevada Department of



<b>Priority Measures by Subsystem</b>	<b>Data Analysis Methodology</b>	<b>Time Scale</b>	<b>Source</b>
			Education or individual Nevada schools
Percentage of Lake Tahoe Basin public high school students who drop out	Calculate change over time and difference between communities and region	1998 to 2008 in California (annual data),	California Department of Education, Nevada Department of Education or individual Nevada schools
Levels and frequency of transit ridership on TART and BlueGo	Calculate change over time (if available) and compare traffic growth with growth in transit ridership over available time period		TART and BlueGo
Payers for hospital services in the Lake Tahoe Basin	Calculate change over time and difference between communities and region. Data for services to all persons listing a Tahoe Basin zip code in their residential address will be included	2003, 2005, and 2007	California Office of Statewide Health Planning and Development and UNLV Center for Health Information Analysis
<b>Economic</b>			
Tourist accommodation room nights and transient occupancy tax collections for the Lake Tahoe Basin	Calculate change over time and difference between communities and region.	Varies by county	County Treasurers/Tax Collectors for tax collections, STR Global for room nights.
Retail sales tax and sales tax collections for the Lake Tahoe Basin	Calculate change over time and compare per capita collections between communities and region	Varies by county	County Treasurers/Tax Collectors
Median house prices in the Lake Tahoe Basin	Calculate change over time and difference between communities and region. Data may not be available for all communities, individually.	Varies by county	Tahoe Sierra Board of Realtors MLS
Annual per capita income of Lake Tahoe Basin residents	Calculate change over time and difference between communities and region. Normalize data to constant (real) dollars using the national CPI.	1990 and 2000	U.S. Census
Totals for Lake Tahoe Basin residents ages 16+ that are civilian	Calculate change over time and difference between communities and region	1990-2008 (annual data)	California Employment Development Department and the

<b>Priority Measures by Subsystem</b>	<b>Data Analysis Methodology</b>	<b>Time Scale</b>	<b>Source</b>
employed/unemployed			Nevada Department of Employment, Training, and Rehabilitation (if they have community data)
<b>Environmental</b>			
Tahoe Deep Water Clarity	Calculate change in Secchi depth over time	1990-2008.	Lake Tahoe Index Station

These 14 priority measures serve as the focus of data collection and analysis included in this Report in Section 4.0. Linkages between a select group of measures and policy documents are identified in Section 5.0. The information obtained on these measures is used for policy analysis in Section 6.0. Based upon an evaluation of the existing policy, trends identified within the data, and policy timeframes (policy updates, legislative cycles), opportunities to influence the decision making process and recommendations for policy outcomes are included in Section 7.0 of this Report.

### 3.0 Approach/Methodology

#### 3.1 Data Sources

The Basin as defined in TRPA regulation encompasses multiple communities, including South Lake Tahoe, Meyers, Rubicon, Meeks Bay, Tahoma, Homewood, Tahoe Pines, Sunnyside, Tahoe City, Dollar Point, Carnelian Bay, Tahoe Vista, Kings Beach, Crystal Bay, Incline Village, Glenbrook, Zephyr Cove, Roundhill, and Stateline. During the measure definition phase of work, the ad hoc work group agreed to include data collection from Alpine Meadows and Squaw Valley in future analysis and policy discussions. The basis of inclusion was the strong social and economic association between these two communities and the more formally designated Basin. In this sense Alpine Meadows and Squaw Valley joined the Basin ‘business shed’ much as adjacent watershed can be in a common viewshed. Efforts to include the Northstar community under the same rationale were stymied by insurmountable difficulty in separating data from the adjacent Martis Valley and Truckee areas within project resources. The Basin is situated within small portions of five counties belonging to two states. Data was obtained for the various communities within the Basin to evaluate sustainability. Data was also obtained for the States of Nevada and California for the purpose of comparison with the Tahoe communities. In certain cases, data was also obtained for urban areas in close proximity (Reno, Nevada and Sacramento, California) for comparison. The data source and identified data gaps are identified for each measure in Table 3 below.

**Table 3. Data Sources for the Fourteen Selected Sustainability Measures and Data Gaps**

<i>Sustainability Measure</i>	<i>Source(s)</i>	<i>Gaps</i>
<b>Community (8)</b>		
<b>Population Totals by Age for Lake Tahoe Basin Residents</b>	<b>1990 and 2000 US Census</b>	No consistent and reliable estimates of population by age for communities that comprise small percentages of a county are available.
<b>Population totals of Lake Tahoe Basin residents by race and Hispanic origin</b>	<b>1990 and 2000 US Census</b>	No consistent and reliable estimates of population by race or ethnicity for communities that comprise small percentages of a county are available outside of the decennial U.S. Census. Also, the decennial Census changed the way in which it measured race/ethnicity between 1990 and 2000, moving from a question inquiring about the respondent’s primary race to one that asks for all individual racial origins. Only Hispanic origin, an ethnic category, is comparable between 1990 and 2000.

<i>Sustainability Measure</i>	<i>Source(s)</i>	<i>Gaps</i>
<b>Percent of registered voters in the Lake Tahoe Basin who participate in respective county-level elections</b>	<b>Placer, El Dorado, Washoe, and Douglas County Clerks Offices</b>	Data before the 2004 elections is not available in a database format. It would require manually sifting through precinct records at the counties' elections offices.
<b>Number of Lake Tahoe Basin public school students enrolled in grades K -12</b>	<b>California Department of Education, Nevada Accountability Report and Nevada Department of Education</b>	Nevada enrollment data is not warehoused at the state's Department of Education. Individual schools may have this information in hard-copy format.
<b>Graduation rates for Lake Tahoe Basin public high schools</b>	<b>California Department of Education, Nevada Accountability Report</b>	Graduation rates in Nevada were first reported statewide by school district in the Nevada Accountability Report. Previously, the data may be found at individual schools in hard-copy format.
<b>Percentage of Lake Tahoe Basin public high school students who drop out</b>	<b>California Department of Education, Nevada Accountability Report</b>	May be challenging to track of some children who leave high school when they move to another community and fail to notify the school.
<b>Levels and frequency of transit ridership on Tahoe Area Regional Transit (TART) and BlueGo</b>	<b>TART and BlueGO</b>	Transit ridership counts were not available from Tahoe Area Regional Transit before fiscal year 1999 or from BlueGo before 2003.
<b>Payers for hospital services in the Lake Tahoe Basin</b>	<b>California Office of Statewide Health Planning and Development, Center for Health Innovation Analysis UNLV</b>	Whether hospital services were received in Lake Tahoe Basin hospitals or elsewhere are included in this measure. Noise in the data makes community level analysis unreliable in the short term, although data collected over a longer term may reliably show disparities among communities.
<b>Economic (5)</b>		
<b>Tourist accommodation room nights and transient occupancy tax collections for the Lake Tahoe Basin</b>	<b>City of South Lake Tahoe, Reno Sparks Convention Authority, Douglas County Comptroller's Office, Placer County Administration</b>	Data from the City of South Lake Tahoe was not available before FY 1999, from Placer County Administration before FY 2005, from the Reno-Sparks Convention Authority for Incline Village before FY 2006, or from the Douglas County Comptroller's office before FY 2001.
<b>Retail sales tax and sales tax collections for the Lake Tahoe Basin</b>	<b>California Board of Equalization (SLT), Budget Analyst (Placer County)</b>	There may not be a way to break down taxable sales in NV into sub-county portions, data for NV side not available.

<i>Sustainability Measure</i>	<i>Source(s)</i>	<i>Gaps</i>
<b>Median house prices in the Lake Tahoe Basin</b>	<b>Tahoe Sierra Board of Realtors, South Tahoe Association of Realtors, Chase International</b>	
<b>Annual per capita income of Lake Tahoe Basin residents</b>	<b>1990 and 2000 US Census</b>	Per capita income is measured annually at the county level, although the only reliable sub-county measure is from the decennial US Census.
<b>Totals for Lake Tahoe Basin residents ages 16+ that are civilian employed/unemployed</b>	<b>California Employment Development Department, Nevada Department of Employment, Training, and Rehabilitation</b>	Nevada Department of Employment could only provide estimates for the last three years. This is not information that is regularly published by the Nevada Department of Employment.
<b>Environmental (1)</b>		
<b>Tahoe Deep Water Quality</b>	<b>UC Davis Tahoe Environmental Research Center</b>	Winter Average clarity data was used in this report for consistency with TRPA. Should TRPA utilize Annual Average clarity data in the future this measure would be updated at that time.

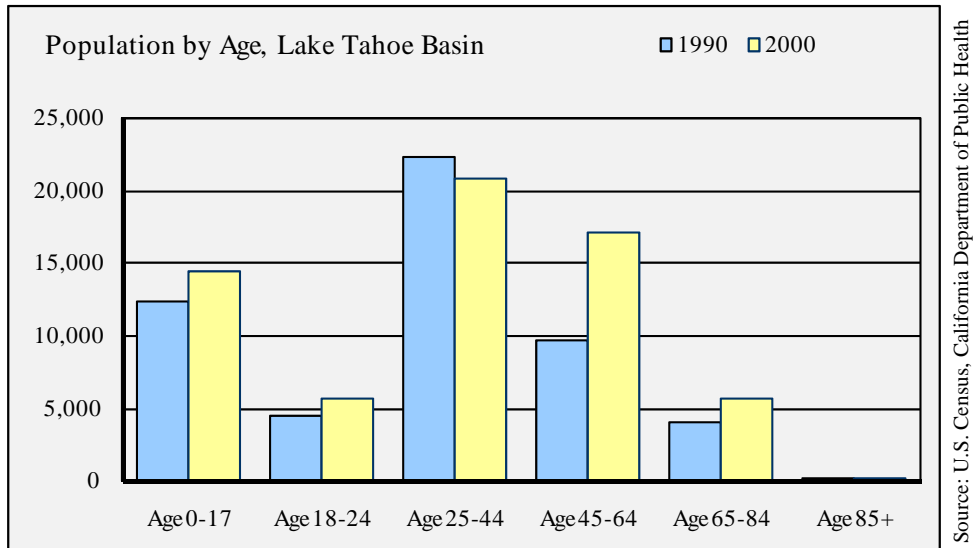
### 3.2 Analysis

The Project Team was tasked with the process of collecting data to model trends related to the selected sustainability measurements. The Project Team collected current and historic data up to a period of 20 years for each of the 14 sustainability measures. The data was collected at the community level (where available), county level and state level. The Project Team used the data to create graphics which displays the data and their trends for each of the Basin’s major communities, and is also compared to Basin-wide and state-wide averages.

## 4.0 Results

### 4.1 Community Subsystem Measures

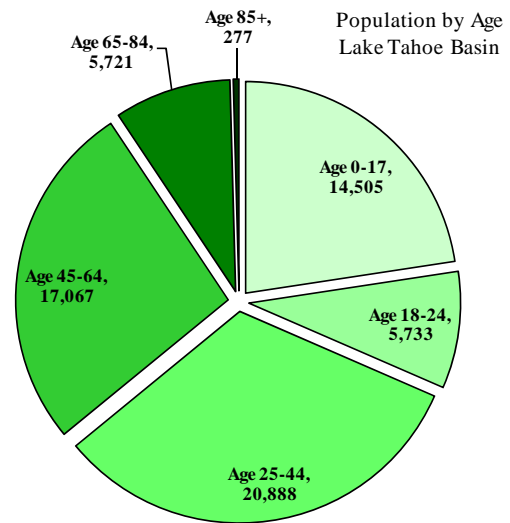
#### 4.1.1 Population Totals by Age for Lake Tahoe Basin Residents



**Figure 1. Population totals by Age in the Lake Tahoe Basin- 1990 and 2000.**

**Measure Description:** Population by age at the community level is estimated every ten years by the U.S. Census. State demographic research units make reliable population estimates at the county level at least annually, as does the U.S. Census Bureau, although no consistent and reliable estimates of population by age specific to communities which comprise small portions of a county are available. South Lake Tahoe is the only incorporated city in the Basin, and therefore, the only place with reliable annual population estimates. These estimates only cover the incorporated city boundary limits and do not include growth in the South Lake Tahoe area outside of the city limits. This measure includes only people who consider the basin to be their primary residence on April 1. This can include transient populations.

**Importance:** Changes in population may indicate several factors. Rapid growth can indicate a healthy economy, society, or environment that people are eager to join. This growth can be challenging to integrate without degrading the community aspects valued by newcomers. Population changes also affect

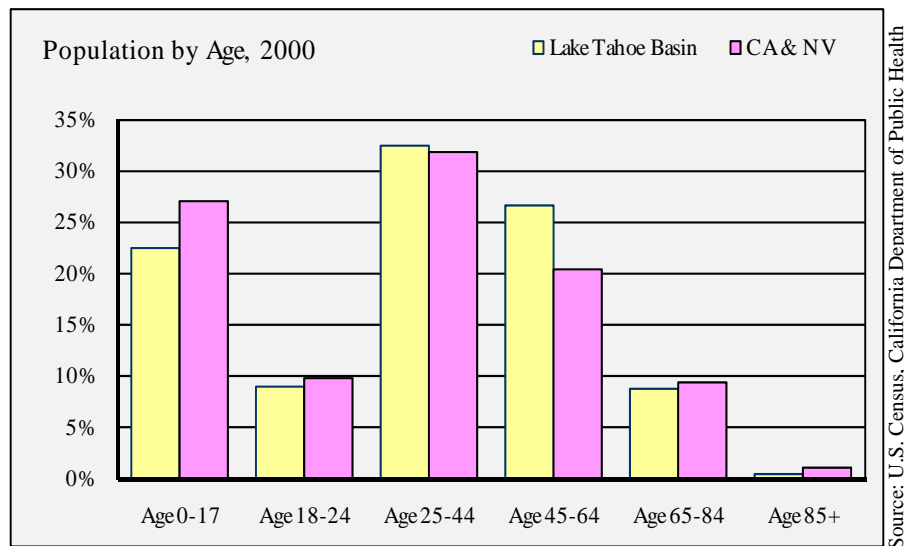


**Figure 2. Population distribution by age in the Lake Tahoe Basin**

Source: U.S. Census, California Department of Public Health

surrounding natural resources and infrastructure. Declining population levels can indicate a faltering economy or society and may lead to negligence of buildings or infrastructure, impacting both communities and the environment. Population levels slowly growing at a rate equal to that of a larger region are ideal for a sustainable community. Communities prepared to respond to gradual growth with reduced land conversion and balanced reliance on natural resources provides the most efficient method of accommodating new residents. Communities with sustainable population growth trends are also able to minimize the neglect of facilities while encouraging implementation of more efficient retrofits and technologies. Changes in population can be linked to other measures discussed in this Report, including school enrollment, employment, per capita income, as well as sales of homes, goods, and services.

Assessing only the overall trend of population growth does not provide a holistic picture or give enough information to project future growth trends. Whether population growth is positive, negative, or idle, key age groups experience growth and decline independently. Age distributions within a community can hint at patterns of growth. Differences in population growth by age show how each communities' composition is changing over time, and how rapidly. Age structure of the population also affects the kinds of goods and services sought by residents. Presence of good schools, employment opportunities, affordable health care, and reliable public transportation are pivotal factors in the location decisions of perspective residents, and key factors for maintaining current residents.



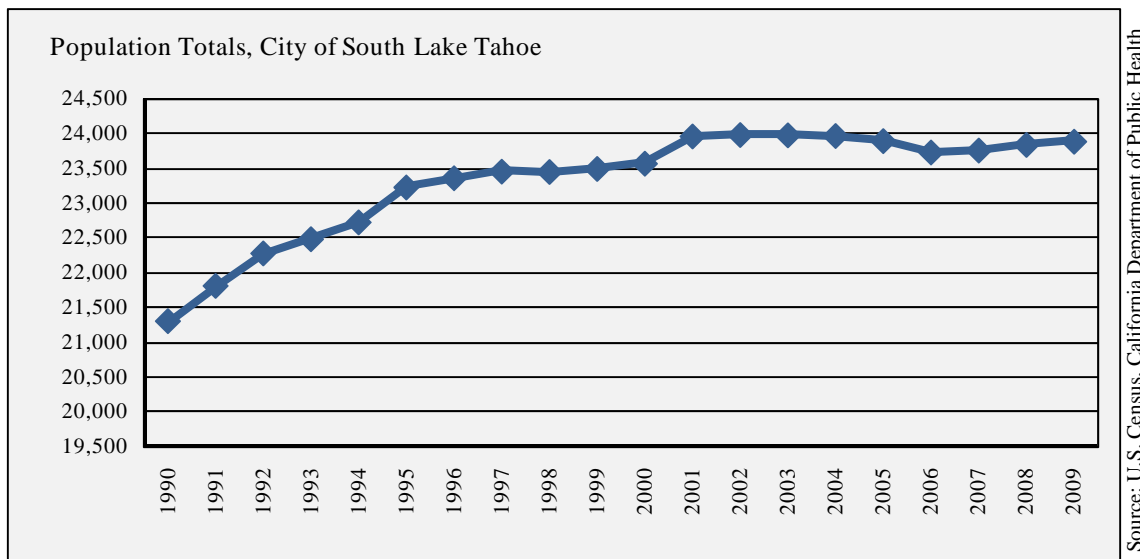
**Figure 3. Population totals by Age, comparing Lake Tahoe Basin to California and Nevada averages in 2000.**

Results/Discussion: The population of the Basin grew by 21 percent between 1990 and 2000. This high growth rate was more rapid than California and Nevada, which together, grew by 16 percent during this period. Compared with California and Nevada, the Basin has fewer children, college-age adults, and seniors. The basin has more working-age adults, especially older working-age adults age 45-64.

South Lake Tahoe’s population grew slower than the population basin-wide between 1990 and 2000, increasing 10.7 percent compared to the 20.6 percent growth basin-wide. Between 2000 and 2009, South Lake Tahoe’s population growth slowed to 1.3 percent (refer to Appendix A, Tables 1 & 2 for actual population totals). Existing data is insufficient to determine if population growth in the basin slowed like it did in South Lake Tahoe. Reliable population estimates by age or ethnicity for the City of South Lake Tahoe are only available from the centennial Census.

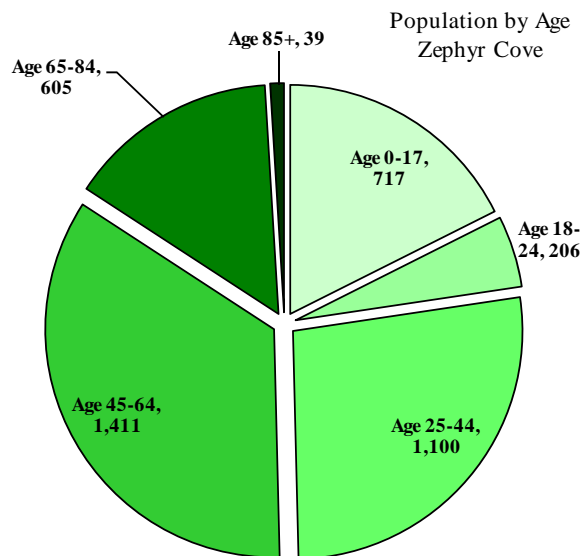
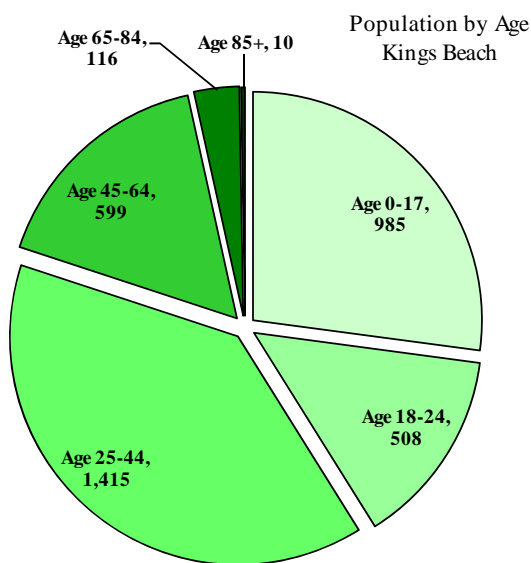
There are several unique concentrations of population by age in Basin communities. Kings Beach has the highest concentration of children and adults under 45, but the lowest concentration of adults between the ages of 45 and 84. Conversely, Zephyr Cove has the lowest concentration of younger adults (under 45) and some of the highest concentrations of older adults. Homewood has the lowest concentrations of both children and the elderly (age 85+), but the highest concentration of older working-age adults (age 45-64). Tahoe City has the highest concentration of younger working-age adults and Dollar Point has the highest concentration of seniors age 65-84.

Basin-wide, over 22% of the residents are under 17. Over 32% are in the working class. A very small portion, only about 9%, is over 65 (Appendix A, Table 1). These figures may indicate specific needs for amenities such as affordable day care, after school programs, walkable communities, and recreational opportunities in order to support the high percentage of families in the region. Low numbers in older age groups may indicate issues with health care, transit options, affordable living and decreased ability to tolerate cold climate and altitude.

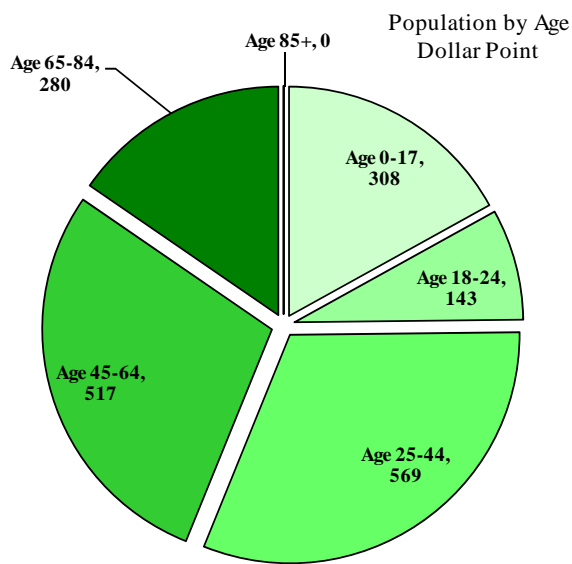
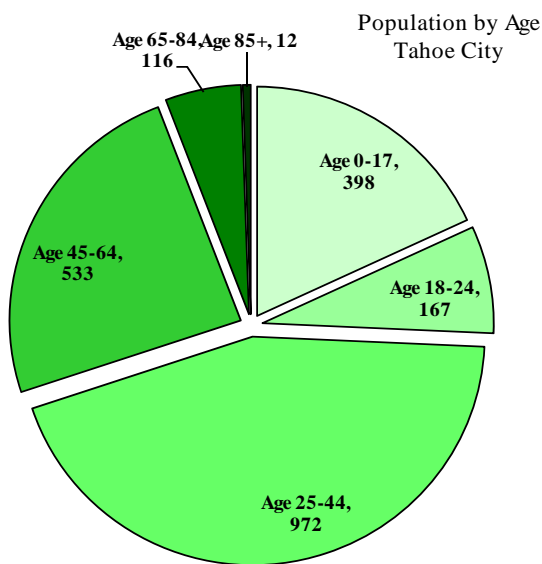


**Figure 4. Annual population totals in the City of South Lake Tahoe, from 1990-2009**





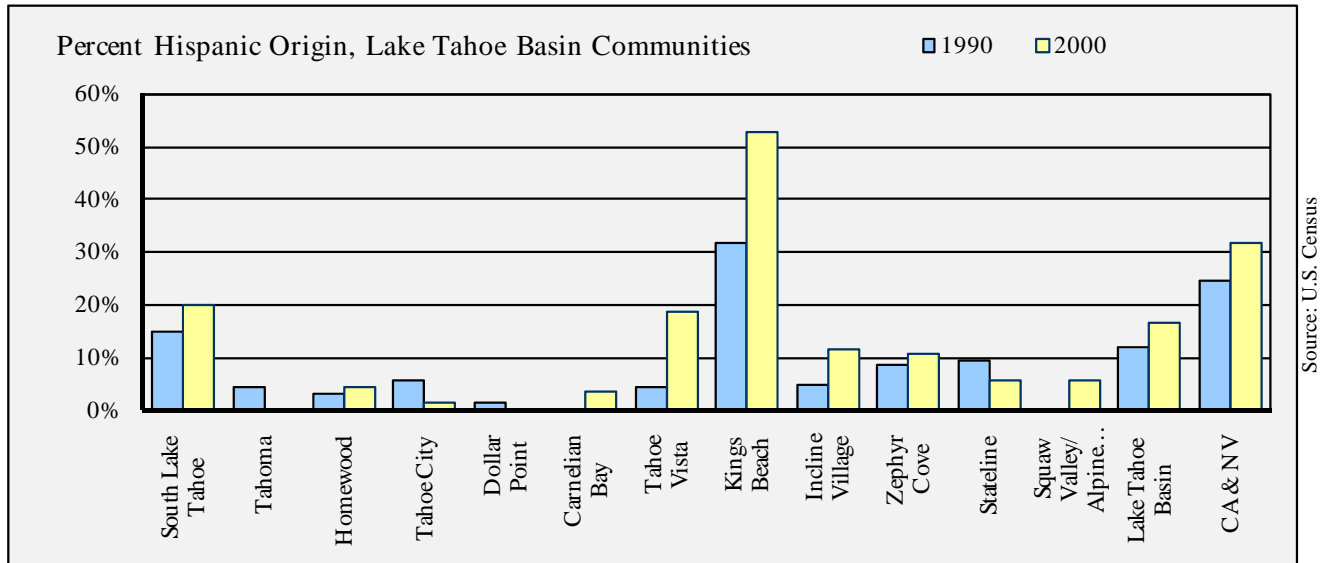
Figures 5 & 6. Age distribution extremes: Kings Beach (youngest population) vs. Zephyr Cove (oldest population)



Figures 7 & 8. Age concentrations: Tahoe City (age 25-44) vs. Dollar Point (age 65-84)

Sources: U.S. Census, California Department of Public Health

#### 4.1.2 Population Totals of Lake Tahoe Basin Residents by Race and Hispanic Origin

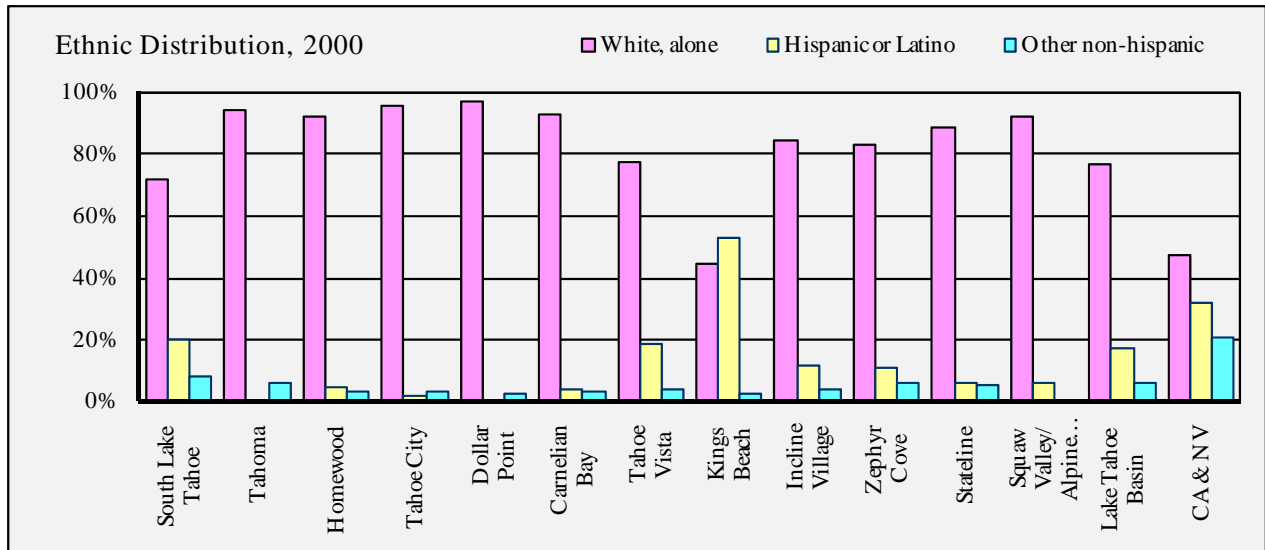


**Figure 9. Percentage of ethnic distributions in 2000 across communities**

**Measure Description:** Ethnic diversity refers to the inhabitation of multiple ethnic cultures within a community. Ethnic diversity is often assessed as a measure of cultural diversity, which is the variety of human societies or cultures in a specific region. Population by race or ethnicity at the community level is estimated every ten years by the U.S. Census. No consistent and reliable estimates of population by race or ethnicity for communities that comprise small percentages of a county are available outside of the decennial U.S. Census. The decennial Census altered the way in which it measured race/ethnicity between 1990 and 2000, moving from a question inquiring about the respondent’s primary race to one that asks for all individual racial origins. The specific ethnic category of Hispanic origin is only comparable between 1990 and 2000. This measure includes only people who consider the basin to be their primary residence on April 1. This can include transient populations.

**Importance:** Ethnic diversity can be linked with attracting human talent capable of generating high incomes<sup>4</sup>. Diverse communities augment cultural vitality by increasing capacity through incorporation of new skills and perspectives, strengthening connections to the global economic system. Trends in ethnic diversity across communities can also be a measure of social division— presence of isolated subgroups who seldom interact with other subgroups in the community. Coupled with higher average incomes, ethnic diversity tends to indicate the former, although coupled with lower average incomes, diversity often indicates the latter. The distinction is often found in average income levels.

<sup>4</sup> Florida, Richard. 2002. *The Rise of the Creative Class: And How it's Transforming Work, Leisure, Community and Everyday Life*, p. 79. Basic Books: New York



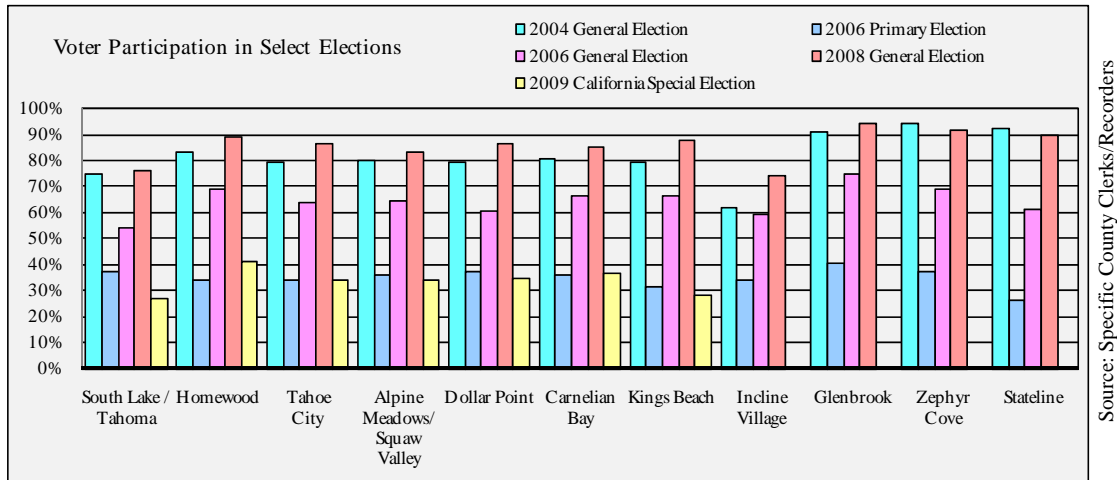
Source: U.S. Census

**Figure 10. Percentage of Hispanic origin in 1990 and 2000 across Lake Tahoe Basin Communities**

Factors related to cultural diversity influence the cultural experiences, backgrounds, and overall quality-of-life of individuals within a community. Presence and increases in diversity may indicate needs for bilingual programs in schools and community outreach.

Results/Discussion: Ethnic diversity varies widely between Basin communities, although basin-wide, diversity is less than in California and Nevada, combined. Kings Beach has by far the greatest diversity with over 50 percent Hispanic in 2000 (see Appendix A, Table 3-4 for total numbers). Neighboring Tahoe Vista saw the largest growth in Hispanic population, which grew to nearly 20 percent of the population. Trends in ethnic diversity reveal increases in Hispanic in two thirds of the communities assessed. Hispanics in South Lake Tahoe represented more than 20 percent of that community’s population in 2000. During the same time period, people who specified that they were either Hispanic or “White, alone” comprised 95 percent of the Basin population; therefore, ethnic diversity beyond Hispanic population is limited. Some communities, especially along the west shore, are more than 95 percent White, only. Although Squaw Valley/Alpine Meadows are not technically part of the Basin, they are included due to the strong social and economic association of these communities to the Basin.

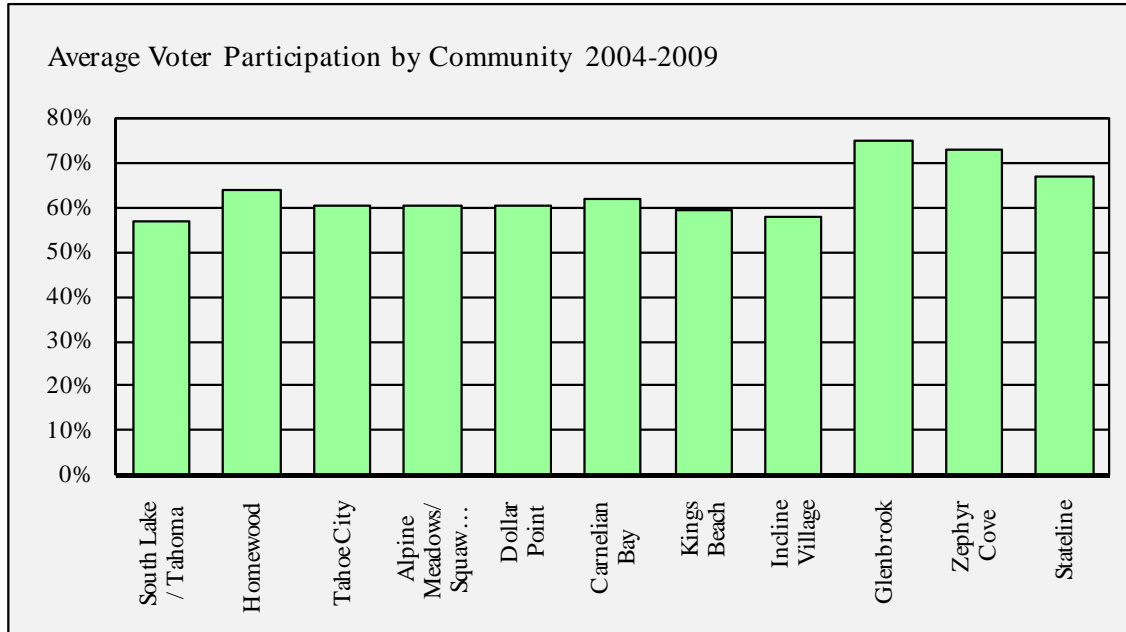
### 4.1.3 Percent of Registered Voters in the Lake Tahoe Basin Who Participate In Respective County-Level Elections



**Figure 11. Percentages of voter participation in various 2004-2009 elections, across communities in the Lake**

The percentage of registered voters in the Basin whom participate in their respective elections indicates the number of individuals actively involved in community and state elections. The data used to show voter registration and participation was obtained directly from each of the four county election departments and is a sample of elections that, at a minimum, are county-wide elections. Election officials in Douglas and El Dorado Counties were able to provide a breakdown of voter participation by age and party affiliation, which may provide additional insight to the demographic dynamics behind voter participation throughout the Basin.

Importance: Voter participation is an indicator of community social participation. Higher voter participation rates are linked with increased social participatory acts such as volunteerism, charitable donations, and civic participation. Voter participation is a simple and reliable measure. Civic participation is also linked with success in economic development and environmental protection. The voter participation is also representative as to what extent the registered public feels it is their responsibility to try and take some control over the affects of a change or lack of change within an office, or to support or refute a proposition that could have direct effects on the economy or environment. Thereby, socially participatory communities are more capable of action toward community development and preservation.



Source: Specific County Clerks/Recorders

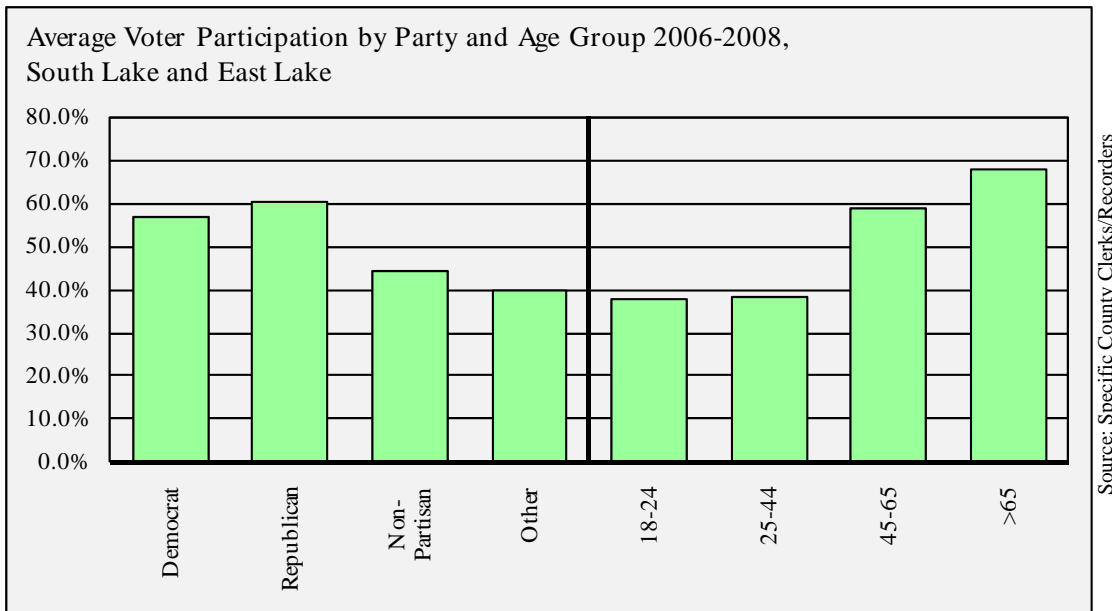
**Figure 12. Percentage of total voter participation by community, 2004-2009.**

Results/Discussion: Since 2004, voter participation has varied greatly depending on the type of election. Some elections have greater significance to a greater number of voters than do other elections. Elections with a higher voter turnout are elections that usually carry a greater significance among the general public. The time series explored encompassed two general elections in which the office of United States President was on the ballot. The voter turnout for these elections was considerably higher than the turnout in any other election.

Voter participation for the general presidential elections increased significantly from 2004 to 2008. Ten out of the twelve measured communities in the Basin had an increase in voter turnout in 2008 over 2004. The only two communities that saw a decrease in the percentage of registered voters actually voting were Zephyr Cove and Stateline, but the two communities still had the third and fourth highest voter participation percentage in 2008, respectively. Glenbrook had the highest voter participation in 2008 with 94 percent of registered voters participating and Zephyr Cove had the highest participation in 2004 with 95 percent. Incline Village had the lowest voter participation in both of the respective elections.

In the 2006 general election, participation varied considerably between communities, although in every community, the participation rate was higher than that of the 2006 primary; yet lower than the participation in the 2008 and 2004 general elections. Glenbrook had the highest voter participation for the 2006 general election at 75 percent.

The 2006 primary election and the 2009 California special election had similar low participation rates across the board. Average participation rates in Nevada are higher than California only because they did not participate in the 2009 California special election. The lowest average participation rates were in Tahoma and South Lake Tahoe (see Appendix A, Table 5).

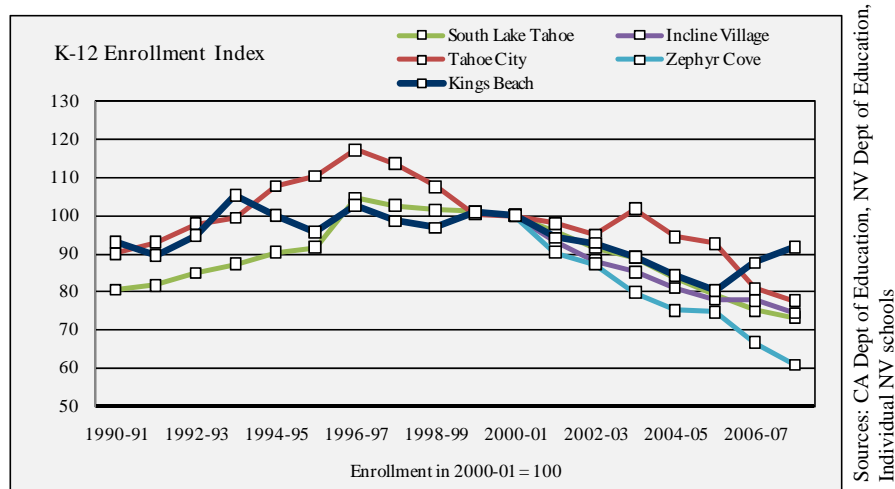


**Figure 13. Average voter participation by party and age group in South and East Lake, 2006-2008.**

Using the portion of Douglas and El Dorado counties within the Basin as a proxy, a weighted average was taken between three elections, General 2008, General 2006 and Primary 2006, to determine average voter participation by party affiliation and age group. As the graph shows, Republicans have the highest percentage of voter turnout with an average of 60 percent of all party registrants participating in the three elections. The graph also shows that Democrats vote more often than non-partisan registrants, and non-partisans vote at a higher rate than registrants of other parties.

Voter turnout by age shows that the older a registrant is, the higher probability they will participate in a given election. Turn out for registered voters between 18 and 24 were as low as 38 percent. For voters between 25 and 44 voter participation was on average just over 38 percent. There was a dramatic increase in voter participation for the age group between 45 and 65 which had participation of just over 59 percent. There was another large increase for voters older than 65, which saw over 68 percent of registrants participating.

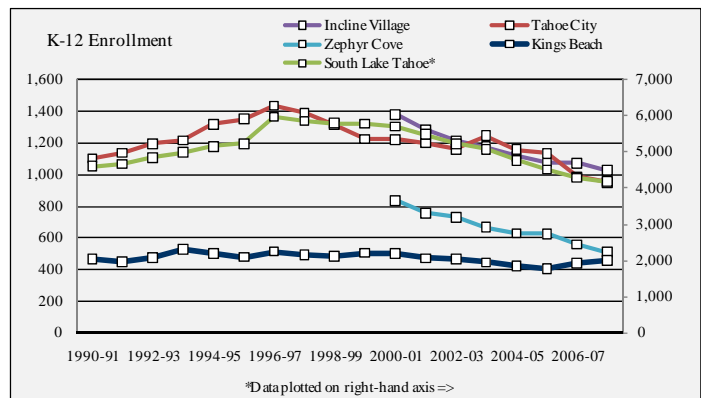
#### 4.1.4 Number of Lake Tahoe Basin Public School Students Enrolled in Grades K -12



**Figure 14. Enrollment index (K-12) normalized using 2001 numbers comparing changes across communities.**

**Measure Description:** Enrollment is a count of all students that were enrolled in a class at the beginning of the school year. School enrollment is a measure of the population of children and families in the community between and after decennial Census counts. Enrollment numbers were provided by the California Department of Education, the Nevada Accountability Report, and the Nevada Department of Education. California makes data readily available back to 1981, while Nevada does so back to 2000.

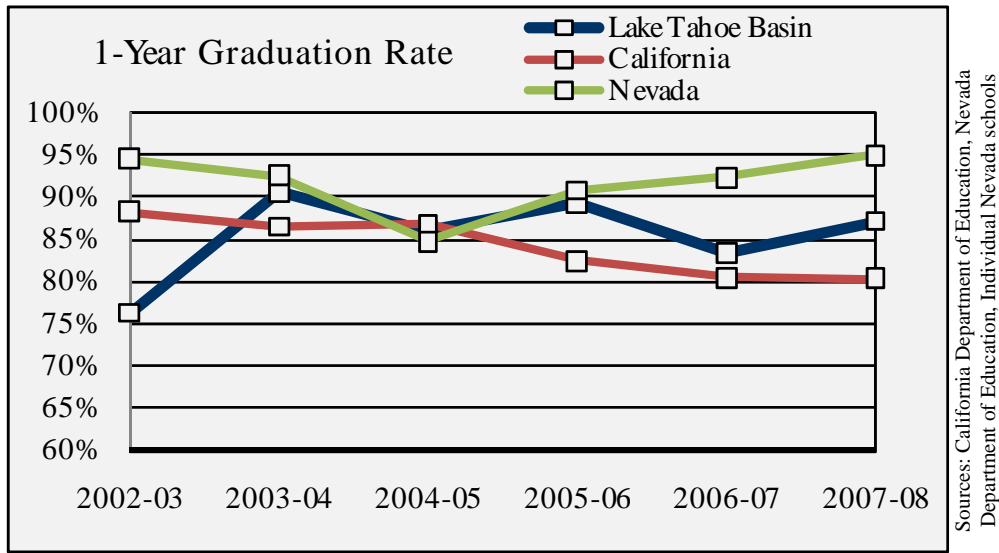
**Importance:** Enrollment in kindergarten, primary, and secondary education prepares the youth of the community to be self-sufficient, builds capacity to provide an economic contribution to the community, and enhances their ability to make effective decisions. Educational attainment provides skills for employment and opportunities for continued education. School enrollment is also a reliable measure of change in Basin populations at the sub-county level.



**Figure 15. Number of students enrolled in grades K-12 in specific Lake Tahoe Basin Communities from 2000-2008.**

**Results/Discussion:** School enrollment has declined in every Basin community since 2000. The greatest decline has been in Zephyr Cove, where enrollment declined by nearly 40 percent in only seven years. South Lake Tahoe had the greatest numerical decline, losing 1,500 students since 2000; a 25 percent decline, although this pace was average for the basin (see Appendix A, Table 6). School enrollment has recently rebounded in Kings Beach, which may coincide with its trend toward increasing family-age populations.

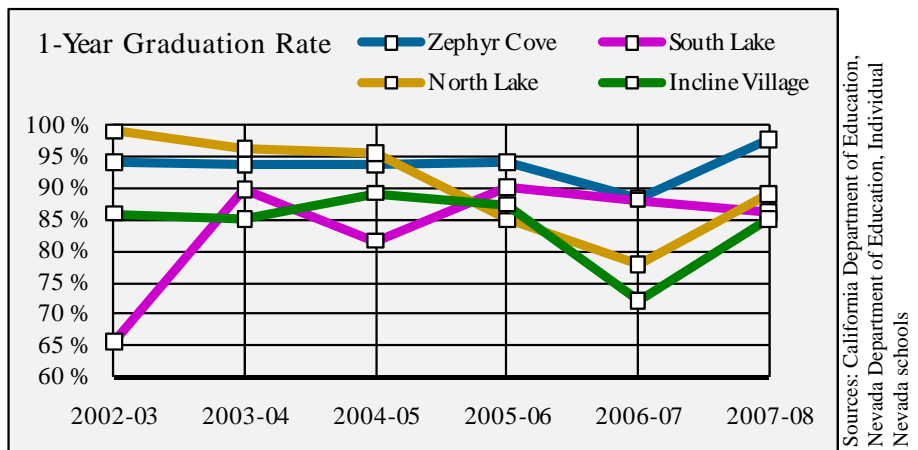
#### 4.1.5 Graduation Rates for Lake Tahoe Basin Public High Schools



**Figure 16. Percentage of students who graduated from high school, Basin-wide, compared to CA and NV averages, from 2002-2008.**

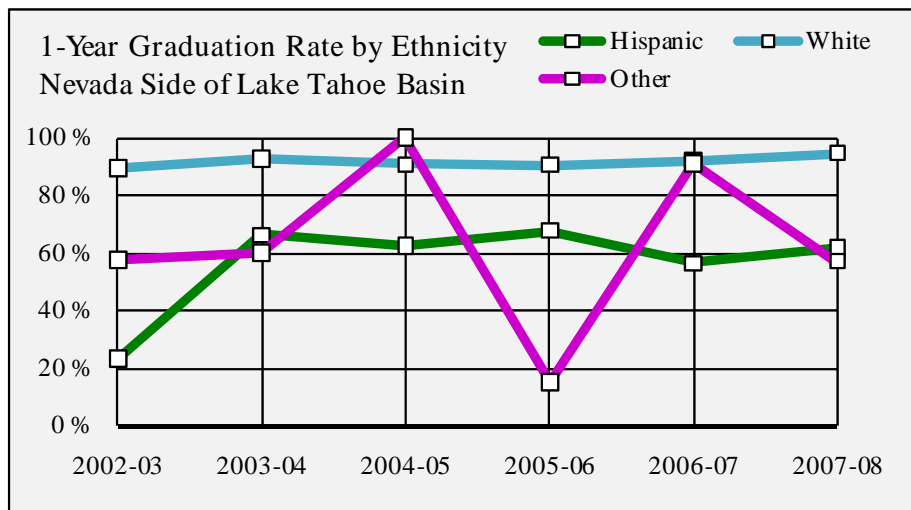
**Measure/Description:** High school graduation rates represent the number of high school students who graduated in a given school year divided by 12<sup>th</sup> grade enrollment near the beginning of the school year. Graduation rates can be measures of both school and parental performance. Graduation rates were provided by the California Department of Education, the Nevada Accountability Report, and the Nevada Department of Education.

**Importance:** Schools (including classmates) and parents who care about the success of their children and actively engage and support their education are likely to result in higher graduation rates. Graduation provides students with the opportunity to continue on to postsecondary education, access to higher lifetime earnings, and more stable employment prospects. Higher graduation rates can also be linked with economic opportunities for people with or without a high school diploma. Communities with a higher number of employers requiring a diploma for most well-paying jobs are likely to see higher graduation rates. Separating data by ethnicity provides insight on which races are more likely to graduate, giving communities the ability to develop and monitor student retention programs which encourage higher graduation rates.



**Figure 17. Percentage of students who graduated from high school, across communities, from 2002-2008.**





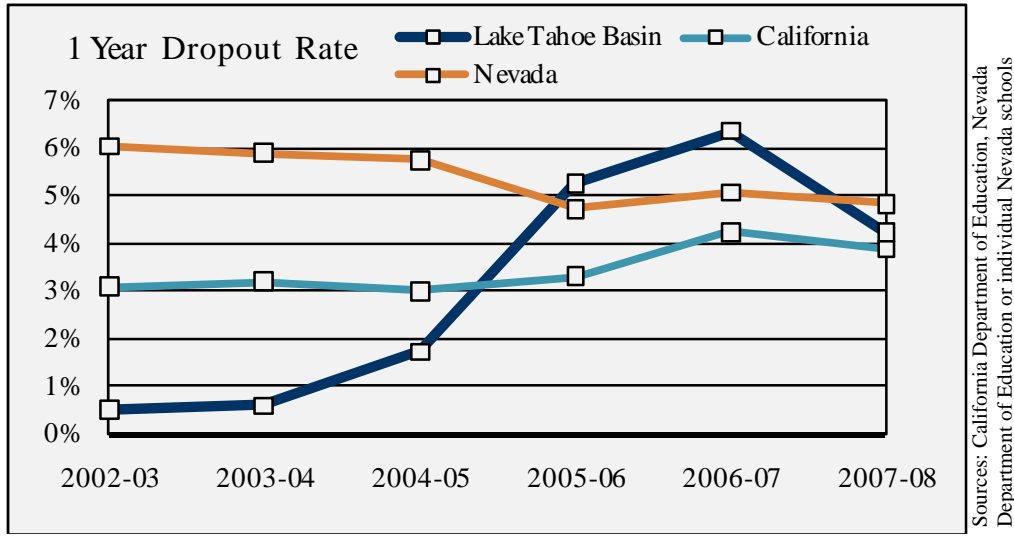
Sources: California Department of Education, Nevada Department of Education, Individual Nevada schools

**Figure 18. Percentage of students who graduated from high school, across communities, from 2002-2008.**

Results/Discussion: High school graduation rates in the Basin are in line with California and Nevada, hovering between 85 and 90 percent between 2003 and 2008. Graduation rates have been higher in Zephyr Cove since 2005 than in any other community with a high school. Rates in Incline Village have been the lowest since 2006. For graduation numbers and percentages by year, see Appendix A, Table 8.

Broken down by ethnicity, on average, white students are more likely to graduate than any other ethnicity, averaging a graduation rate of 90 percent. They are also the majority ethnic group. Hispanics were far less likely to graduate, with rates hovering around 60 percent since 2003. Other ethnicities were few in number, so, even combined, they were subject to wide fluctuations in their dropout rates with between zero and three dropouts every year since 2002. Refer to Appendix A, Table 9 to review total numbers of graduates, by ethnicity.

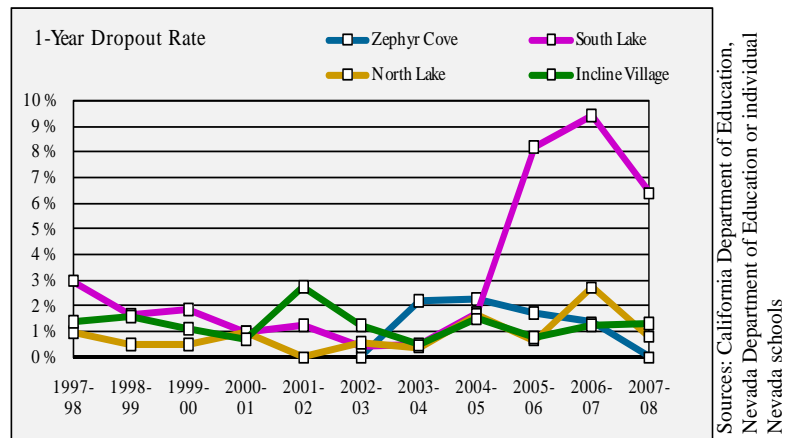
4.1.6 Percentage of Lake Tahoe Basin Public High School Students Who Drop Out



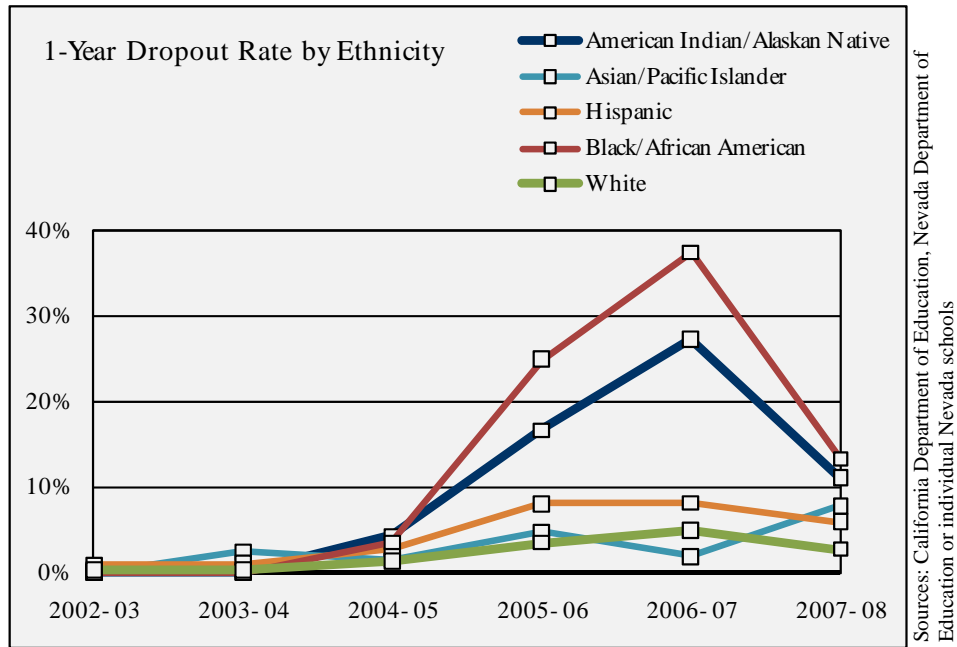
**Figure 19. Percentage of enrolled 9<sup>th</sup>-12<sup>th</sup> grade students permanently left school without graduating or transferring in the Basin compared to CA and NV averages, from 2002-2008.**

**Measure Description:** The high school dropout measure indicates how many enrolled 9<sup>th</sup> through 12<sup>th</sup> grade students left school permanently without graduating or transferring. It is challenging to keep track of some children who leave high school, especially when they move to another community and fail to notify the school, or the new school fails to notify the original, although the California Department of Education enforces tracking guidelines that produce an estimate with adequate reliability. High school graduation rates were provided by the California Department of Education, the Nevada Accountability Report, and the Nevada Department of Education.

**Importance:** Generally, high school dropouts have less earning potential than graduates, and communities with larger percentages of high school dropouts are less attractive for investment from businesses that require education and pay higher salaries. Dropout rates can serve as a measure of quality of schools, reflecting needs for further education and training in a community, and parental investment. As with graduation rate, an understanding of dropout rate by ethnicity serves as a baseline metric which can be used to develop and monitor effectiveness of student retention programs.



**Figure 20. Percentage of students who permanently left school without graduating or transferring across communities within the Basin, from 2002-2008.**

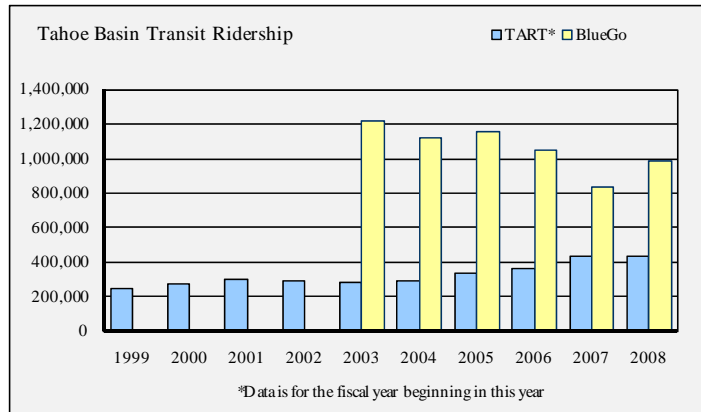


**Figure 21. Dropout rate by ethnicity for the Lake Tahoe Basin, from 2002-2008.**

Results/Discussion: Dropout rates in the Basin fluctuated more than either state’s during the study period. Rates were very low in 2002, the earliest year with consistent data basinwide, then rose above both California and Nevada levels by 2005 before falling below the Nevada level in 2007-08. Data by community shows that South Lake Tahoe was responsible for the basinwide rise in dropout rates starting in 2005.

Dropout rates for all ethnicities except Asian rose until 2006. African Americans and American Indians suffered the worst rates after 2005, rising to 38 percent and 28 percent, respectively in the 2006-07 school year. However, the percentage of school enrollees who are American Indian, African American, or Asian is low. Refer to Appendix A, Tables 10-13 to review total numbers of students who dropped out, by ethnicity.

#### 4.1.7 Levels and Frequency of Transit Ridership on TART and BlueGo



Sources: Tahoe Area Regional Transit, BlueGo

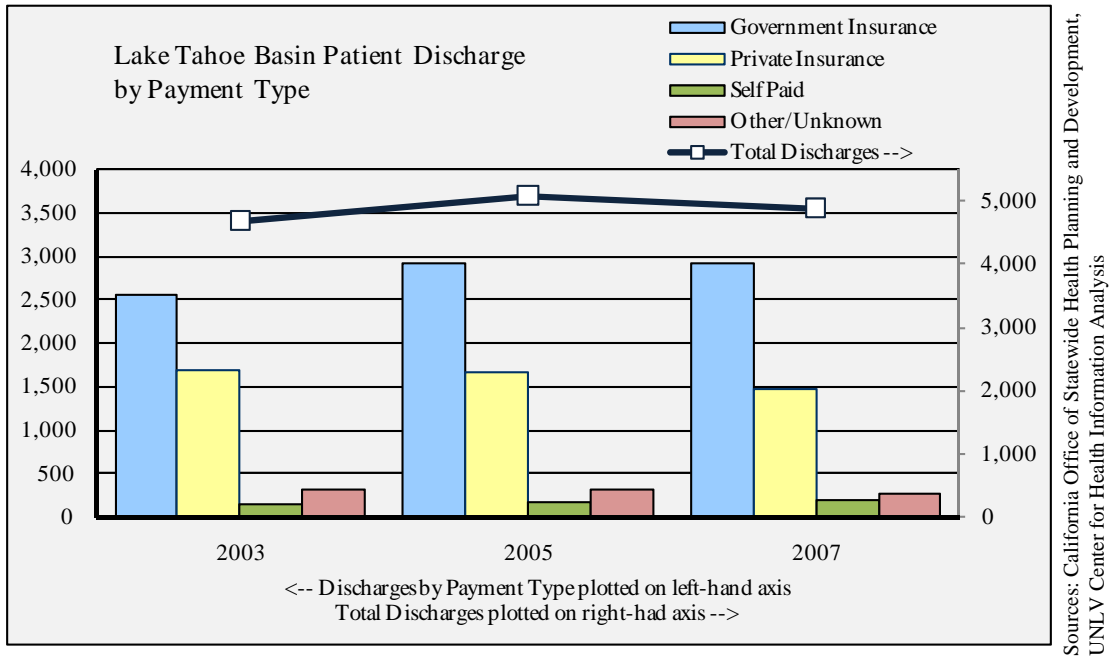
**Figure 22. Transit Ridership 1999-2008.**

**Measure Description:** North Lake Tahoe is principally served by the Tahoe Area Regional Transit (TART) which connects north Tahoe residents with the Truckee Train and Intermodal Depot and is used by employees, residents and visitors. South Lake Tahoe is served by BlueGo, which also connects residents with Carson City and the Carson Valley in Douglas County. BlueGo was incorporated in 2003, linking smaller transit systems into one comprehensive system. Ridership is the number of users of the system, including paid and complementary users, whether they are on a fixed route or demand-response. Districts measure ridership over 12 month periods for reporting purposes. Data was collected from BlueGo and TART, directly.

**Importance:** Public transit systems offer a reliable and affordable alternative to automobile transportation. Factors such as scheduling convenience, frequency, speed, and the ability to go exactly where the traveler wants, greatly affect the number of individuals who regularly use public transit. Increased transit ridership can mean slight reductions in vehicle miles traveled (therefore, automobile emissions), but it can also be associated with falling incomes and increased unemployment. Use of public transit is usually an economic choice as opposed to a choice of environmental conservation, however, when the inconvenience factors are reduced, public transit use can increase as a convenient environmentally friendly alternative.

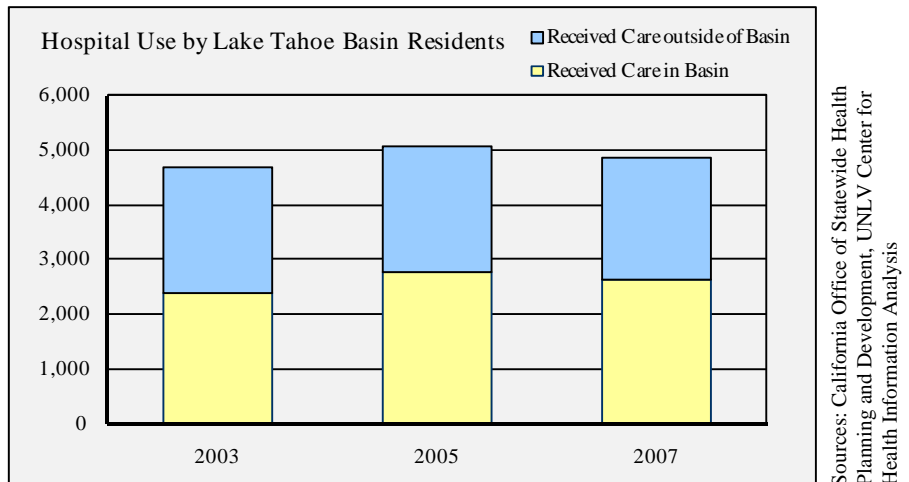
**Results/Discussion:** Transit ridership on TART has been increasing steadily nearly every year since 1999 although there has been a drop more recently. BlueGo serves more riders, not only because it serves an area with a larger population than TART, but also because BlueGo's service is concentrated between casinos in Stateline and nearby hotels, so it serves visitors frequently. BlueGo had a dip in ridership recently, although that may be due to switching from less demand-response service to more fixed routes (for total numbers, reference Appendix A, Table 14). This decreases the cost of operating the system, although it also decreases convenience by affecting frequency, speed, and access. Decreases in usage may also be related to population decline, especially in the younger and older age distributions, in which individuals do not have access to a driver's license. The recent decline in TART ridership is being attributed primarily to lower employment levels, including fewer international workers hired by region area resorts.

#### 4.1.8 Payers for Hospital Services in the Lake Tahoe Basin



**Figure 23. Residents discharged from Lake Tahoe Basin hospitals, broken down by type of payer (government, private insurance, self pay, and other/unknown), compared to total discharges, 2003-2007.**

Measure Description: Data on hospital use in the region can be used to indicate trends in the number of residents who stay within the community to receive care, as opposed to seeking care outside of the region. Patient discharge by payment type is broken down and compared to total patients discharged, each year from 2003-2007. Capture of hospital services tracks the percentage of patients seeking medical care from a community. California data is from the California Office of Statewide Health Planning and Development and Nevada data is purchased from the Center for Health Innovation Analysis at the University of Nevada, Las Vegas. Whether hospital services were received in Basin hospitals or elsewhere are also provided in this measure.

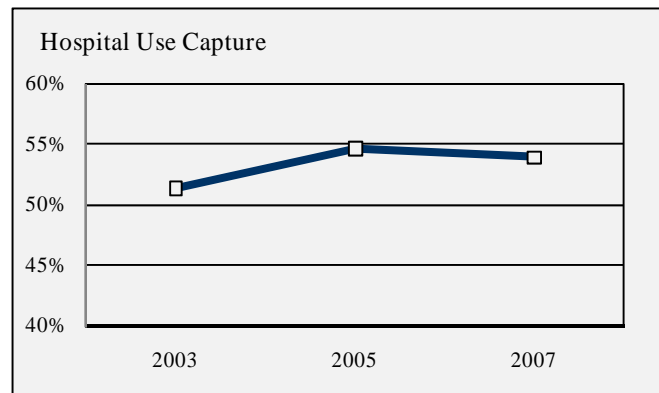


**Figure 24. Number of residents in the Lake Tahoe Basin receiving care in and outside of the Lake Tahoe Basin from 2003-2007.**

**Importance:** The distribution of payers for hospital services can be a measure of wealth levels of local residents. Only local residents are the users measured here (as opposed to visitors using Basin hospital services). Higher dependence on government insurance can indicate an inability of residents to pay for hospital services on their own.

Hospital discharges can be a measure of changing personal health over time. Increases in hospitalizations can also indicate an aging population in an area, which is common due to the so called “baby boomers” reaching retirement age (please see the “Population Growth by Age” measure). The number of discharges tends to rise and fall annually (economists call this “noise” in the data, which is defined as normal statistical variance), although over the long term, trends in health levels can be identified. The degree to which services were provided locally in the Basin is a measure of spending leakage in health care, and can be a measure of spending leakage in other sectors of the economy. Spending leakage is defined as income earned in a subject geographical area and spent in another geographical area. For specialty care and advanced medical services, residents may be more likely to travel to urban areas. Communities lacking the economic ability to offer a full range of health services may drive residents seeking care to urban areas. Capture of hospital services and type of payment are important measures to consider when determining whether or not hospitals in the region are affordable and accessible to local citizens. A decreasing trend may reveal that more community members are seeking better or more affordable healthcare outside of the region.

**Results/Discussion:** Dependence upon government insurance is on the rise in the Basin, while utilization of private insurance is declining. The number of hospital discharges rose between 2003 and 2005, but fell between 2005 and 2007. The increase in government insurance as a payer was observed almost entirely between 2003 and 2005, while the decline in private insurance use was observed almost entirely between 2005 and 2007. Much of the change in use over the time period was attributed to use of local hospitals—use of non-local hospitals remained relatively unchanged during the study period. Basin capture of hospital services followed a similar trend, rising between 2003 and 2005, and then falling between 2005 and 2007. Noise in the data makes community level analysis unreliable in the short term, although data collected over a longer term in the future may reliably show disparities among communities. Reference Appendix A, Table 15 to view total numbers of residents seeking hospital care.

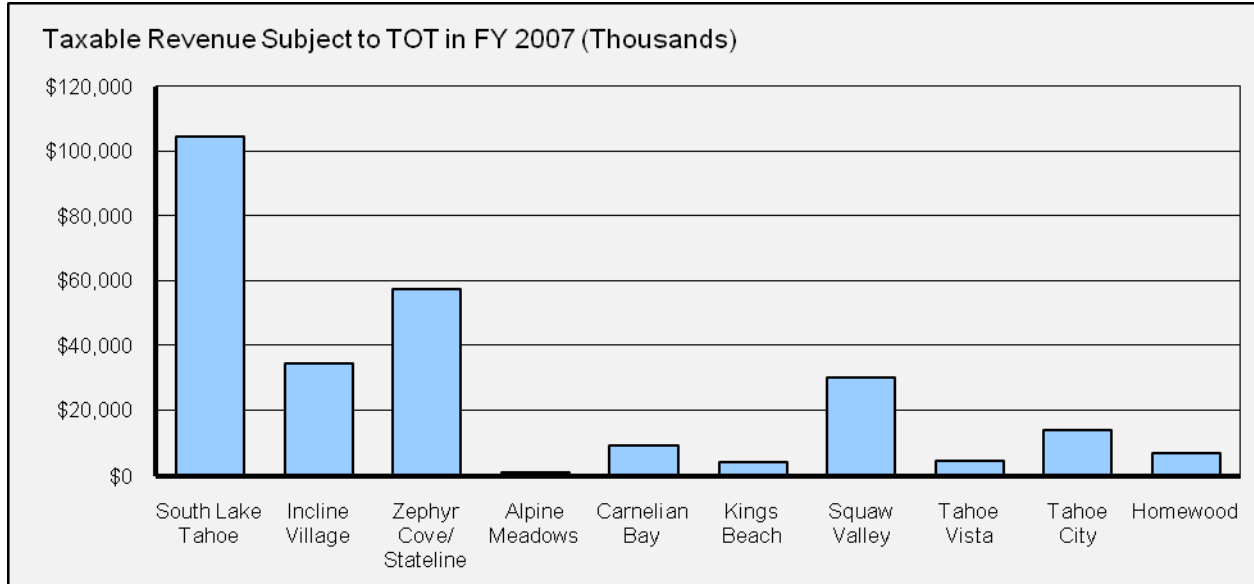


**Figure 25. Basinwide capture of Hospital Use**

Sources: California Office of Statewide Health Planning and Development, UNLV Center for Health Information Analysis

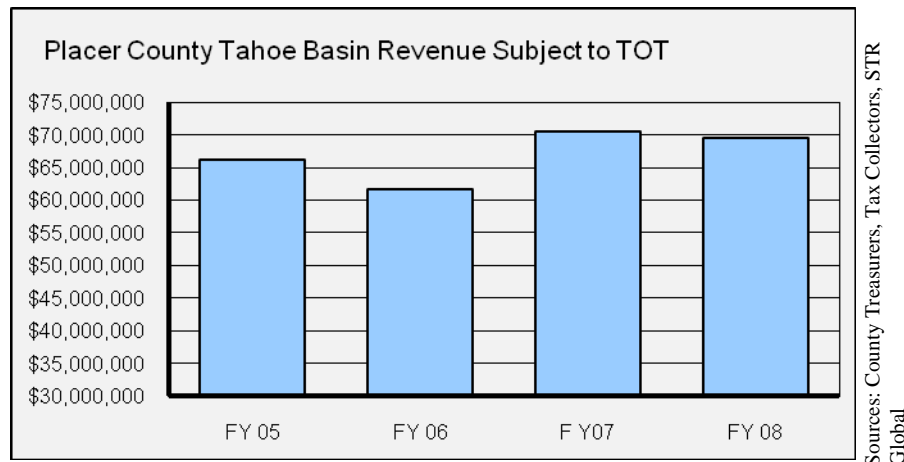
## 4.2 Economic Subsystem

### 4.2.1 Tourist Accommodation Room Nights and Transient Occupancy Tax Collections for the Lake Tahoe Basin<sup>5</sup>



**Figure 26. Taxable Revenue Subject to Transient Occupancy Tax across Basin Communities, 2007.**

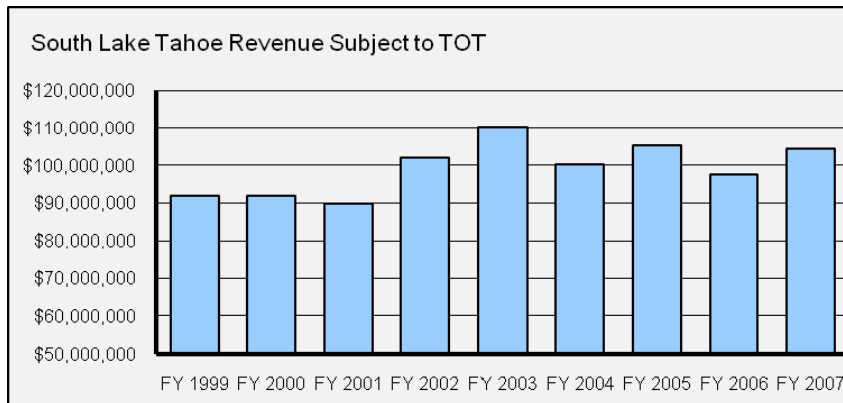
**Measure Description:** Transient Occupancy Tax (TOT) is taxes collected by the local government for overnight lodging. Jurisdictions charge different tax rates and rates can change over time, so the revenue subject to the tax is used as a consistent measure across all jurisdictions. The data comes directly from the city and county governments represented in the Basin.



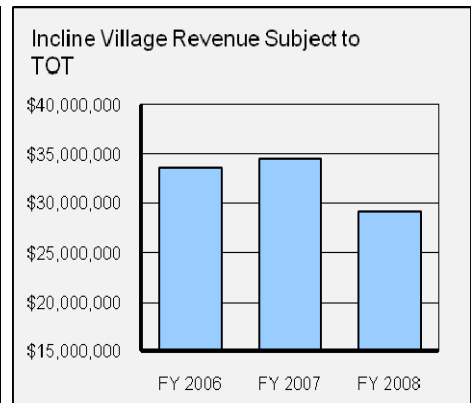
**Figure 27. Taxable sales revenue subject to TOT in Placer County, 2005-2008**

<sup>5</sup> In all cases for the TOT measure, “year” refers to the Fiscal Year (FY), or financial year- beginning on October 1<sup>st</sup> and ending on September 30<sup>th</sup>.

**Importance:** Visitor services are one of the most significant economic base activities in the Basin. TOT revenues are a measure of travel-related economic activity in the Tahoe Basin, as such, measuring visitor activity is critical to monitoring the economic health of the area. Tracking visitor revenue is costly because of the detailed data that would need to be collected through a survey and challenging because collecting more data in a survey leads to less response and less reliability in the final result. Lodging revenue is something that is more easily collected through TOT records.



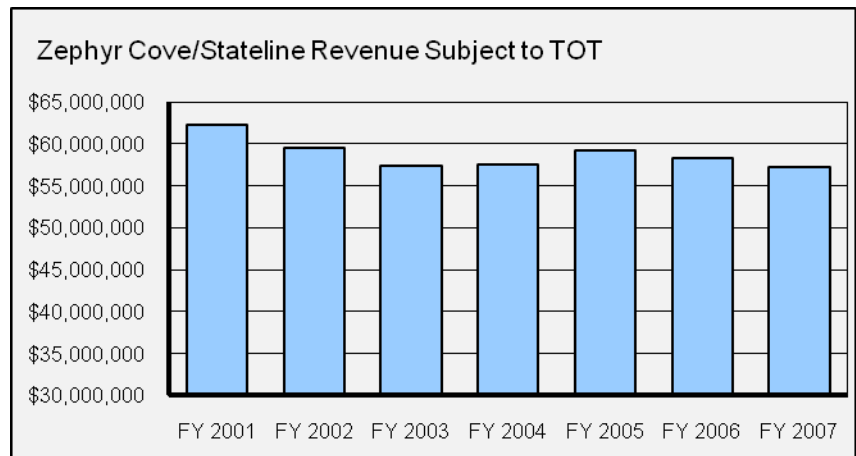
**Figure 28. Taxable sales revenue subject to TOT in South Lake Tahoe, 1999-2007**



**Figure 29. Taxable sales revenue subject to TOT in Incline Village, 2006-2008**

Sources: County Treasurers, Tax Collectors, STR Global

**Results/Discussion:** South Lake Tahoe is the community that generates the most revenue subject to TOT. South Lake Tahoe captures much of the overnight lodging revenue generated from visitors to casinos in neighboring Stateline. Revenue over time shows different patterns in different communities measured. South Lake Tahoe saw tremendous growth in lodging revenue between 2001 and 2003, although their pattern has been



**Figure 30. Taxable sales revenue subject to TOT in Zephyr Cove/Stateline, 2001-2007**

unstable since that time. Incline Village, for which only data from 2006 to 2008 was available, saw a large decrease in 2008 after the start of the national recession. In Zephyr Cove and Stateline, lodging revenue has been declining steadily since 2001, with only a small uptick in 2005. Only four years of data were available for the Placer County side of the Basin, which saw a large increase in 2007 and a small decrease in 2008. In 2007, more than \$27 million in TOT was collected for local government general funds (see Appendix B, Table 1). Although Squaw Valley and Alpine Meadows are not technically Basin communities, they are included due to the strong economic association of these communities to the Basin.



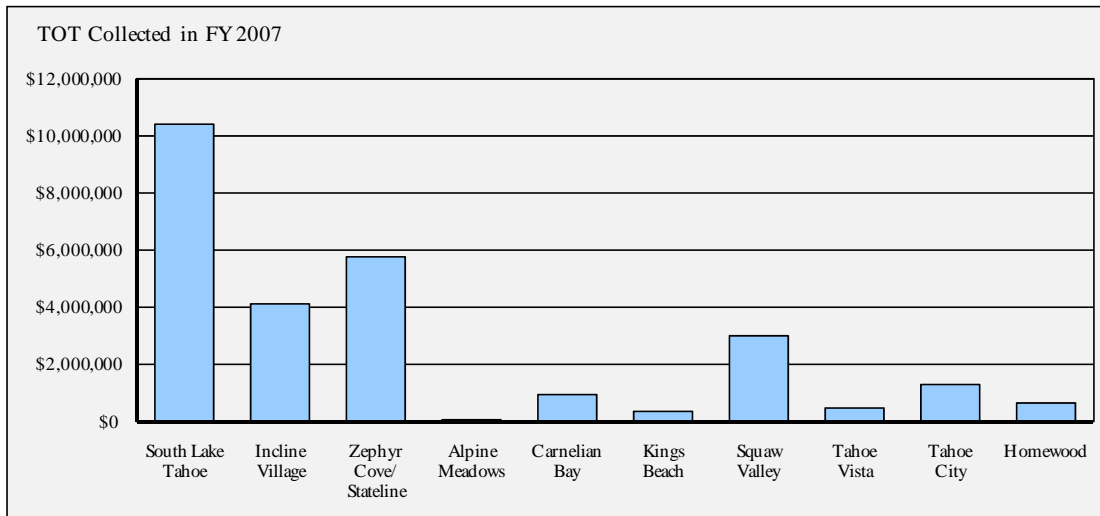


Figure 31. TOT Collected in FY 2007

#### 4.2.2 Retail Sales Tax and Sales Tax Collections for the Lake Tahoe Basin

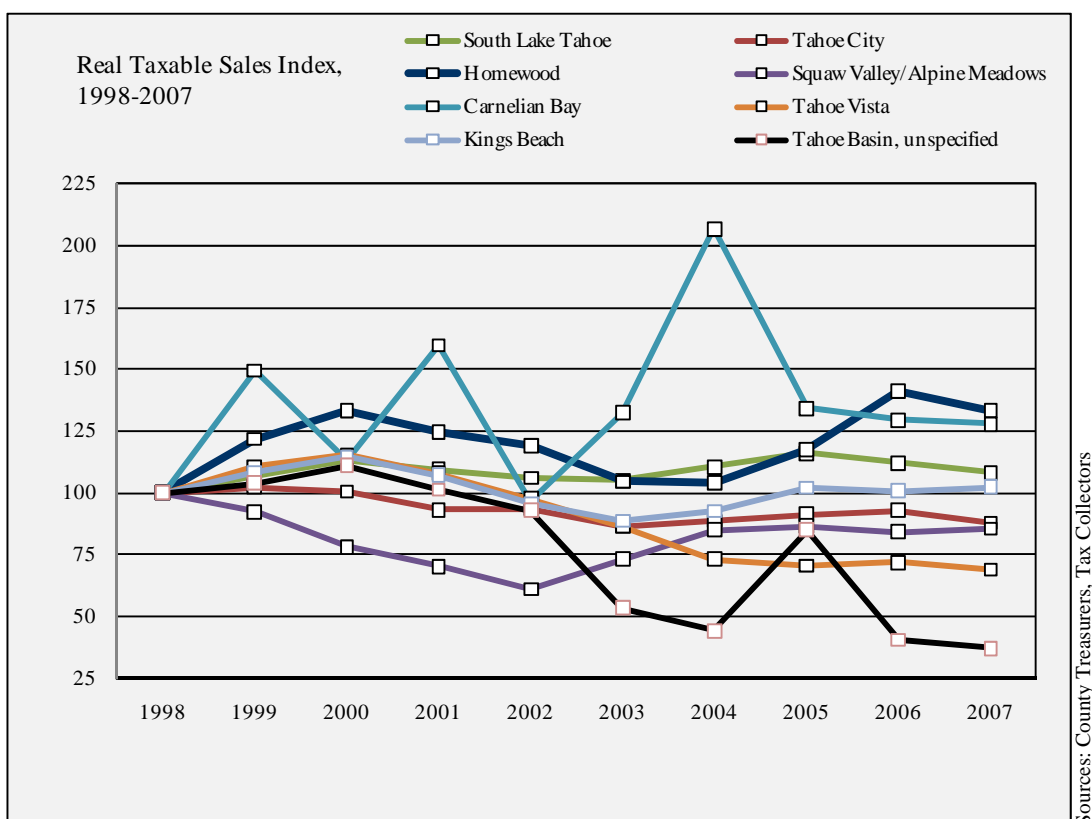
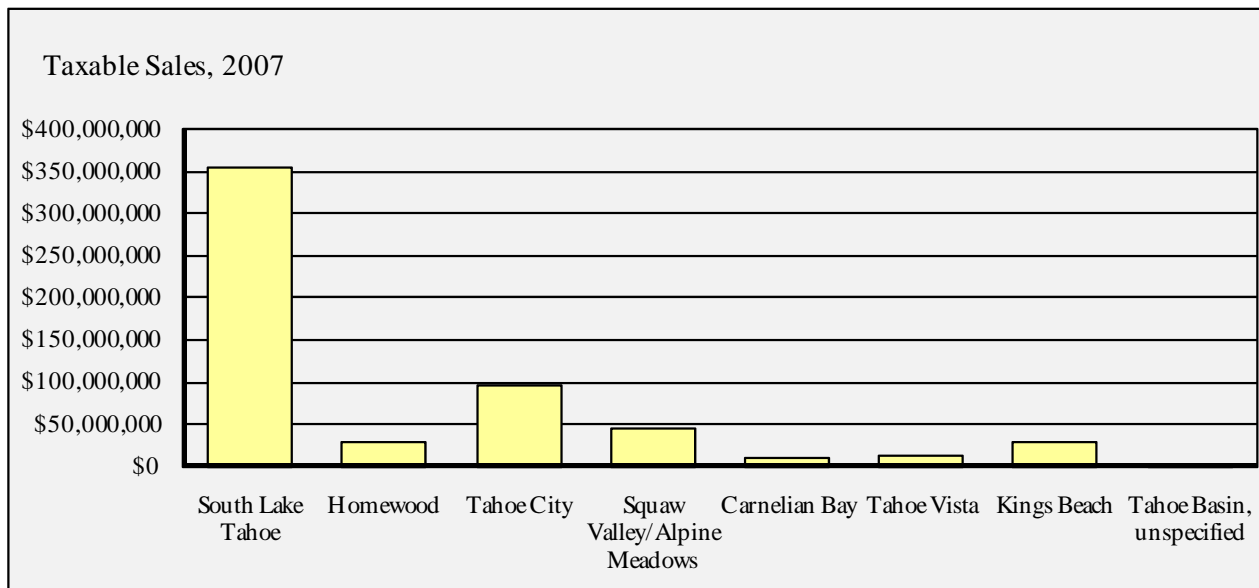


Figure 32. Retail Taxable Sales Index across Basin communities, 1998-2007.

**Measure Description:** Sales tax is a consumption tax charged at the point of purchase of consumable items, with the exception of items considered basic for human survival, such as unprepared foodstuffs. Sales tax is a specific percentage set by the local government charging the tax. For South Lake Tahoe, the data is from the California Board of Equalization and for Placer County communities, from the county’s budget analyst. The Nevada Department of Taxation indicated that they were unable to provide subcounty data, and so data for the Nevada side of the Lake Tahoe Basin is not available.

**Importance:** Taxable sales are a measure of consumer retail activity in the community. Taxable sales fund government expenses such as police and road maintenance. They are also a major source of support for local businesses. Trends in taxable sales reveal the economic health of a region, creating the framework for understanding other measures such as employment and housing. Low income people tend to spend a greater percentage of their income in taxable sales than higher income individuals. By comparing taxable sales to per capita income, data may indicate a lower quality of life for low income individuals in areas with higher sales tax percentages.

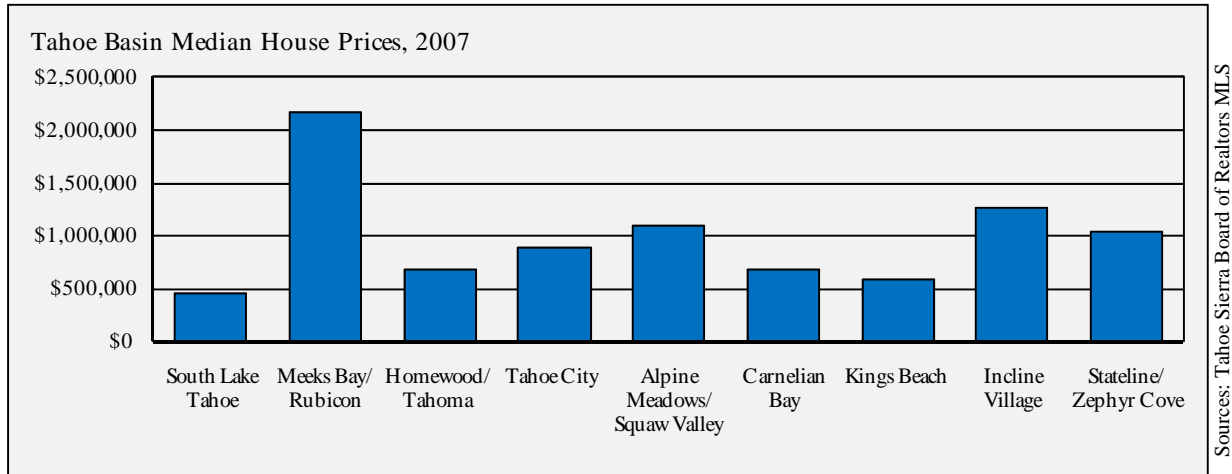


Sources: County Treasurers, Tax Collectors

**Figure 33. Retail Taxable Sales across Basin Communities, in 2007**

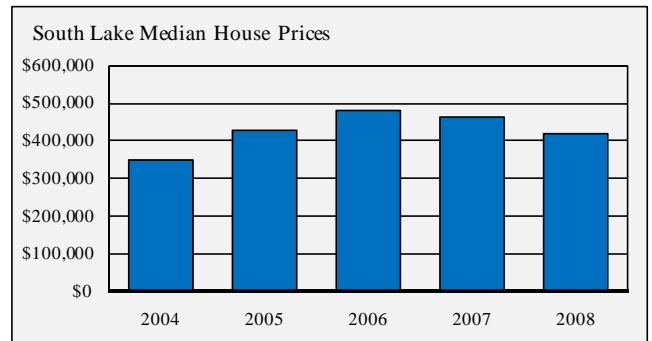
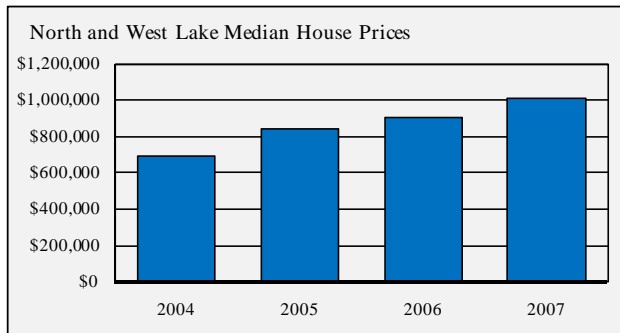
**Results/Discussion:** As a retail center, South Lake Tahoe generates the most taxable sales of all Basin communities. As a minor retail center, Tahoe City generates the second-most sales on the California side. Only four of the eight communities generated more taxable sales (adjusted for inflation) in 2007 than in 1998. Homewood experienced the greatest growth during this period and Tahoe Vista showed the most declines. Carnelian Bay experienced the greatest variation of the Basin communities during this period. For actual numbers, refer to Appendix B, Tables 2 & 3. Although Squaw Valley and Alpine Meadows are not technically Basin communities, they are included for due to the strong economic association of these communities to the Basin.

### 4.2.3 Median House Prices in the Lake Tahoe Basin

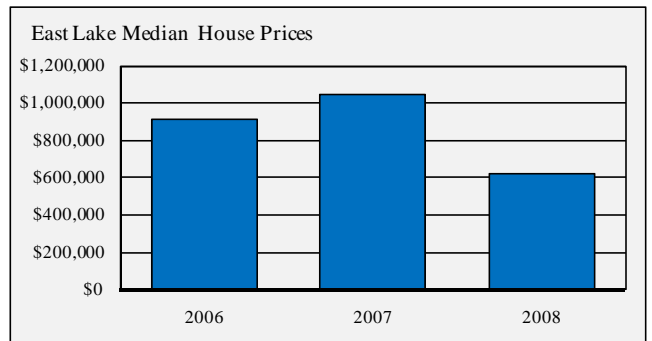


**Figure 34. Median house prices across Basin communities, 2007**

**Measure Description:** The median home price is the average price paid to purchase an existing home. The data comes from local boards of realtors. The realtor association representing the Douglas County side of the Basin considers their data to be proprietary and refused to provide any data for this report.



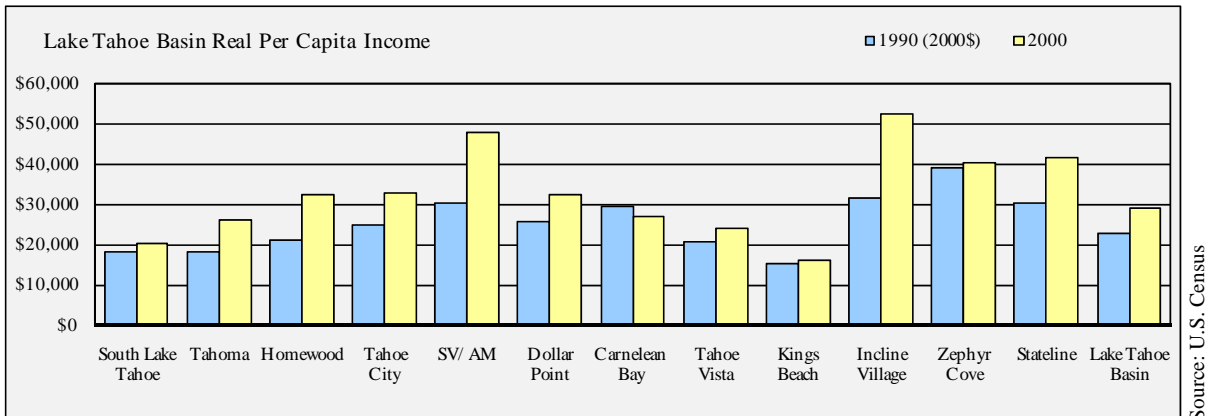
**Importance:** Trends in home prices, especially when compared to trends in income levels, indicate housing affordability in the region. In the Basin, it is not uncommon for part-time residents and second-home buyers to purchase homes in the region. Rises in demand for the existing housing stock driven by part time residents and second homeowners may cause trends in housing costs to increase. Ratio of house prices to per capita income may also reveal the need for more affordable building options in specific communities in the region.



**Figures 35-37. Median house prices in Lake Tahoe, 2004-2007**

Results/Discussion: Home prices in the north and west shores of Lake Tahoe continued rising through 2007. This is largely the effect of Incline Village, which had not yet seen a drop in prices up to that year. The Meeks Bay/Rubicon area had the highest median home prices in 2007, although this figure is based on far fewer sales than in any of the other communities. Incline Village led median home prices among communities with more than 20 sales per year, while Squaw Valley/Alpine Meadows led the California side in this category. The lowest prices were in South Lake Tahoe and Kings Beach. Some communities had data tabulated for 2008 which, in most cases, showed a decline of between 10 and 20 percent in home prices since 2006. Regionally, home prices have fallen 20 to 30 percent over the past few years, by comparison. Incline Village had not yet experienced a price decline in 2007, the latest data available for this report, showing that not all Basin communities are experiencing the effect of the housing bubble equally. Refer to Appendix B, Tables 4 through 6 for actual numbers describing median house prices in the Basin. Although Squaw Valley and Alpine Meadows are not technically Basin communities, they are included due to the strong economic association of these communities to the Basin.

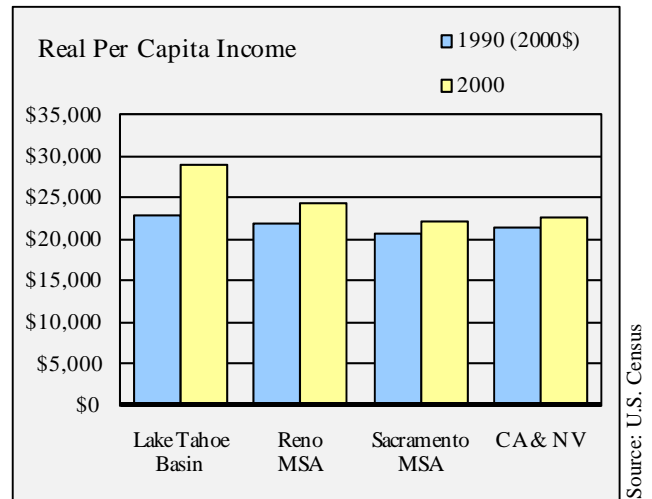
#### 4.2.4 Annual per Capita Income of Lake Tahoe Basin Residents



**Figure 38. Per Capita Income in Lake Tahoe Basin Communities, comparing 1990 to 2000 data**

**Measure Description:** Per capita income is the total personal income of all residents divided by population. The estimates of both population and their total personal income only include people for whom the area is their “primary residence,” therefore; second home-owners are not included in the estimate. Total personal income includes wages, transfer payments (social security, welfare, disability, and unemployment) and capital payments (interest, dividends, and rental income). Per capita income is measured annually at the county level, although the only reliable sub-county measure is from the decennial Census. Income levels for this measure have been normalized to the value of the dollar in 2000, so change cannot be attributed to inflation.

**Importance:** Per capita income is a measure of the financial well-being of community residents. Per-capita income is a reliable measure, showing how income grows over time per person and adjusting for growth in the population of the community. Financial well-being is commonly linked with higher social and community participation, educational attainment, and quality of the natural environment. Households with higher income tend to choose areas with more positive attributes, including environmental and social amenities. Higher per capita income also tends to increase the options available to individuals and families and strengthen the financial capital of the entire community. The Tahoe Basin is unique in that many individuals are willing to forgo higher incomes in return for the non-financial compensation individuals and families derive from living in a place with such a high quality of life.



**Figure 39. Per Capita Income in Lake Tahoe Basin, Reno, Sacramento, and Statewide, comparing 1990 to 2000 data**

Results/Discussion: Income levels in the Basin are higher than in California and Nevada and have been increasing at a much faster pace—26 percent increase for the Basin as compared to 5 percent in California and Nevada over the ten year period analyzed. This is likely due to immigration of higher-income households during this period, or more second home-owners now considering the Basin their primary residence. Incomes are also higher and faster-growing than in the Reno and Sacramento Metropolitan Statistical Areas (MSA).

The highest average incomes in the Basin are found on the Nevada side. All three Nevada communities were among the top four in terms of average income in the Basin. Income growth in Incline Village was the highest, increasing 65 percent between 1990 and 2000 in real terms. On the California side, there is a distinct geographical pattern to income distribution. Average incomes tend to decrease as you approach South Lake Tahoe and Kings Beach, and increase as you approach Tahoe City and Squaw Valley/Alpine Meadows in 2000. Table 7 of Appendix B provides per capita income figures for various communities in 1990 and 2000. All though Squaw Valley and Alpine Meadows are not technically Basin communities, they are included due to the strong economic association of these communities to the Basin.

4.2.5 Totals for Lake Tahoe Basin Residents Ages 16+ That Are Civilian Employed/Unemployed

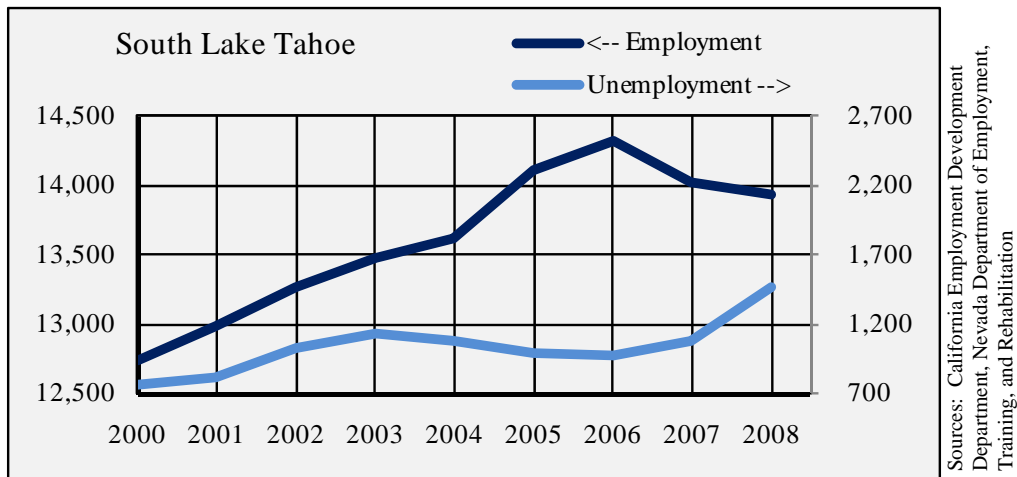
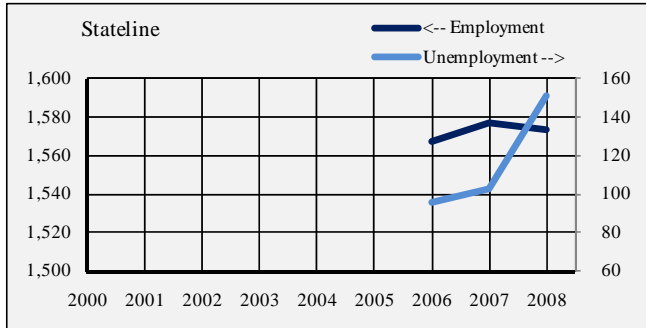
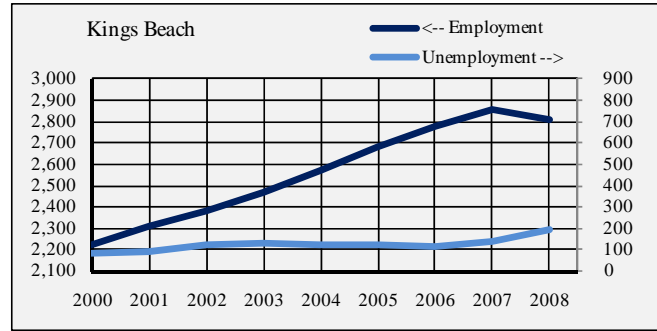
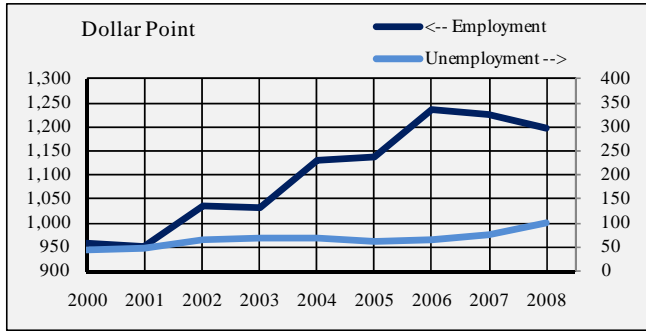
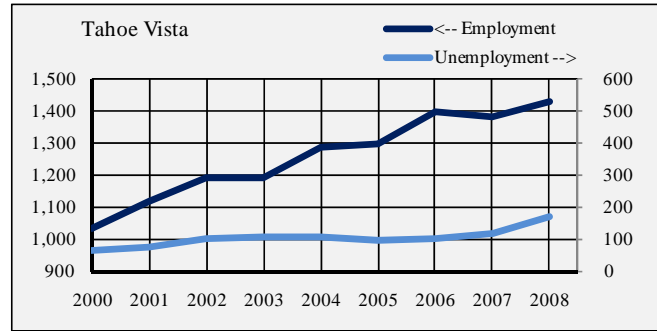
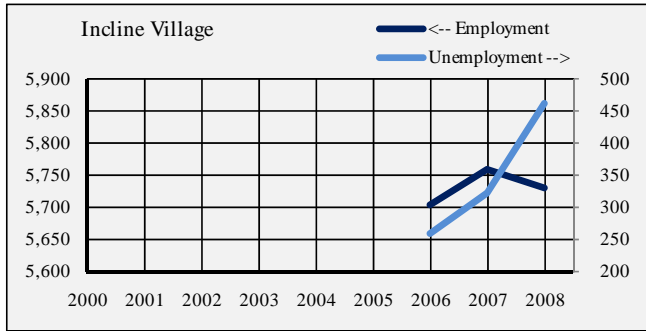
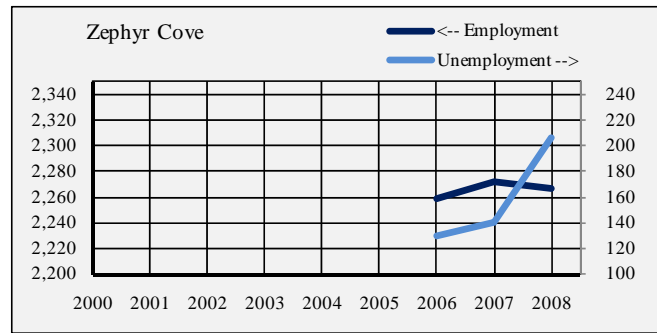
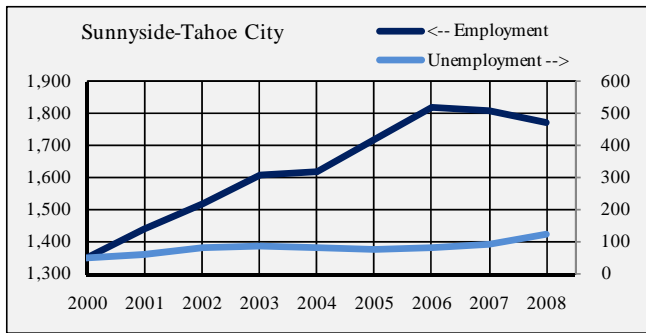


Figure 40. Unemployment and Employment rates in South Lake Tahoe, 2000-2009

**Measure Description:** Employment is the estimated number of persons living in an area who are either self-employed or employed by another proprietor or corporation. Unemployment is the estimated number of people who are not employed, but actively seeking work each week. The labor force is the sum of employment and unemployment. Economists often use the unemployment rate, which is unemployment divided by the labor force, as a regional economic measure; however, unemployment rates for communities are deceptive because both employment and unemployment can rise and fall together, causing unemployment rates to change counter to economic and job growth trends. Employment and unemployment for Census places in California is estimated by the California Employment Development Department. The Nevada Department of Employment, Training, and Rehabilitation estimated data in Nevada at the Census Tract level.

**Importance:** Employment is required for workers to earn a living. There are other income sources in the community, such as transfer payments and returns on investment described in the *Per Capita Income* indicator, but employment happens when wealth is created in the community through work. Trends in employment and unemployment reveal a number of factors. Falling employment coupled with rising unemployment indicates recessionary levels of economic activity in the community. Alternatively, rising employment with falling unemployment indicates significant economic expansion. Sometimes, employment and unemployment both rise or both fall, which indicates an unsettled pattern. Communities that host many seasonal jobs have high annual unemployment even if levels are low during peak months. In such areas, creating more year-round jobs can reduce annual unemployment rates. Employment and unemployment numbers can be compared to population, age distribution, and per capita income to indicate how job increases and losses are affecting the communities and overall quality of life.



**Figures 41-47. Unemployment and Employment rates in various Tahoe Basin communities, 2000-2009**

Results/Discussion: Most Basin communities had falling employment and rising unemployment by 2008. This is consistent with the recessionary period experience by the nation beginning in December 2007. The lone exception was Tahoe Vista, which was estimated to have had rising employment between 2007 and 2008. Some communities started experiencing recessions after 2006, including South Lake Tahoe, Tahoe City, and Dollar Point. The three Nevada communities, along with South Lake Tahoe, saw dramatic increases in unemployment that were much higher than the decrease in employment this past year. For exact numbers, refer to Appendix B, Tables 8 and 9.



## 4.3 Environmental Subsystem

### 4.3.1 Tahoe Deep Water Clarity

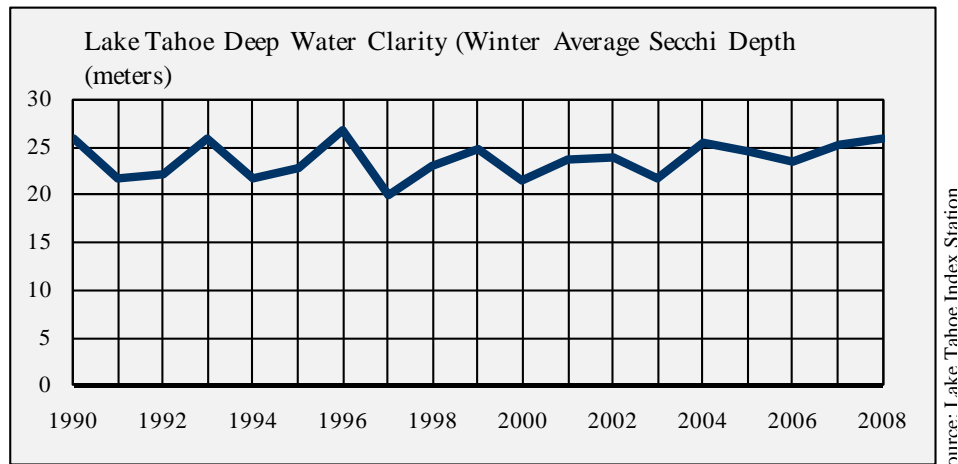


Figure 48. Secchi depth measurements of Water Clarity in Lake Tahoe, winter months, from 1990-2008.

Source: Lake Tahoe Index Station

**Measure Description:** In an effort to prevent continued degradation of the Lake Tahoe Basin (Basin), in 1969 the states of California and Nevada approved the Tahoe Regional Planning Agency (TRPA) bi-state agreement, which subsequently received the consent of the Federal Government (Public Law 91-148, 83 Stat. 360) to become known as the Tahoe Regional Planning Compact. The Compact was revised in 1980 (Public Law 96-551, 94 Stat. 3233) and TRPA continues to operate under that authority. The Compact required TRPA to adopt environmental goals and standards for the Basin known as environmental threshold carrying capacities. The Compact defines “environmental threshold carrying capacity” as “an environmental standard necessary to maintain a significant scenic, recreational, educational, scientific or natural value of the region or to maintain public health and safety within the region.” The thresholds address nine environmental values of the Tahoe Region including Water Quality, Soil Conservation, Air Quality, Vegetation, Wildlife, Fisheries, Scenic Resources, Noise, and Recreation. Winter Average Secchi disk measurement is the most widely recognized indicator used by TRPA to measure the health of the water quality threshold. While the Winter Average Secchi Depth measure will likely migrate to the more technically superior Average Annual Secchi disk depth measure with an update to the TRPA Regional Plan, the Secchi depth will remain the single most widely and consistent measure of environmental gain or loss in the Basin. Data on average annual secchi depth has been collected by UC Davis since 1968 and is presented in the State of the Lake Report (2009).

**Importance:** While many measures and thresholds are used to gauge environmental health of the Basin, Secchi depth is the most widely held and long term data set. Secchi depth then has become a useful single proxy for all measurements of progress in the restoration of watershed health. While environmental health is of great importance in the Basin, significant debate is underway on how that health should be measured. The Regional Plan Update may adopt

changes in threshold indicators by which TRPA measures trends. The Secchi depth was selected as an environmental measure not only for its long history, but also for the high probability that except as noted above, it not likely to be changed by TRPA.

Results/Discussion: The clarity of Lake Tahoe has declined 30% since 1968, however since 2001 scientists believe that water clarity in Lake Tahoe is not declining as fast as it was in recent history. The Secchi depth reached lows of below 22 meters in 2000 and 2003, but reached their highest since 1996 in 2008 at 26 meters. Refer to Appendix C, Table 1 to review exact depth measurements from 1990-2008.

## **5.0 LINKAGES**

### **5.1 Overview of Measure Groups for Policy Consideration**

Due to the interrelationship and linkage of multiple measures included in this Report, it was identified early in the measure data collection and analysis process that measures should be analyzed in groups for the purpose of evaluating social and economic trends within the Basin. Through grouping of multiple measures into an area of analysis, greater depth into the underlying social and economic condition is obtained for future social and economic policy consideration, than could be obtained from analyzing the measures individually. Four groups of measures were recommended by the Project Team for additional policy consideration including: housing, education, transportation and business. After considerable discussion and input these four groups of measures were approved for analysis by the Project Steering Committee.

### **5.2 Recommended Measure Groups for Policy Consideration**

Through the use of measure groups, individual measure data can be evaluated in combination to provide a more in depth understanding of existing conditions and trends than could be assessed through evaluation of a single measure alone. This evaluation can support a determination regarding the areas in which social and economic trends show a need for policy implementation. Measure groups are intended to qualitatively and quantitatively describe whether or not the region is capable of attracting new residents, families, businesses and visitors, ultimately affecting the amount of state and Federal funding resources available to the region. These measures serve to function as a bridge between knowledge and policy.

With an understanding of these four groups and a thorough comparison of the measures within these groups, this Report provides insight on how the implementation of certain policies may affect trends in the Basin and the Sierra Nevada region. In the Project Team's experience, trends in these four areas, when combined with environmental measures already being monitored by the TRPA, will provide accurate and measureable outcomes that accurately describe the quality of life in the Basin communities. Monitoring these trends will also provide insight in areas where policy might positively affect future outcomes.

### **5.3 Evaluation Criteria: Selection of Measure Groups for Policy Consideration**

The measure groups defined for policy analysis were selected using evaluation criteria. These criteria were developed to assess the ability of the measures to meet both general and project-specific goals and outcomes related to policy in the Basin. In general, measures/measure groups should be policy-relevant, resonant, scientifically valid, and measurable. These criteria were applied in the initial stages of the project in order to select the set of measures to be included in the Report. The Project Team developed more specific criteria in order to determine what measures are ripe for policy consideration with opportunity to impact current and future policy decisions.

Criteria used included:

- *Relevance to policy:* The ability to use the measure to evaluate key outcomes of policy decisions or implementation measures already established in the region. Does it measure an aspect of the system on which the community can have a positive impact through public or private decision-making processes?
- *Importance:* The extent to which the measure illustrates an aspect of the system that a diverse group of people within the community agree is important to achieve the community's vision of system success. Does it illustrate change in a way that compels interest with the intended audience?
- *Outcome-focused:* The ability to use the measure to illustrate a specific outcome or an actual condition of the system that is responsive to change with the application of policy.
- *Reliability/Accuracy:* The extent to which the measure can illustrate the change in an aspect of the system with reliability, using standard methodologies with known accuracy.
- *Validity:* The ability of the measure to illustrate change in an aspect of the system that the community or the intended audience can recognize as analytically valid, having a solid foundation in reality, and capable of bringing about the change envisioned.
- *Credibility:* The extent to which the measure can illustrate an aspect of the system in a way that a broad cross-section of constituents can recognize as believable, intuitively understood, and worthy of trust, and as coming from a reliable source.
- *Goal-oriented:* The extent to which a measure can illustrate an agreed-upon goal for improvement in the system, as established by the community, an institutional entity or legislative process.
- *Responsive:* The ability of a measure to illustrate an aspect of the system that is responsive to change and can be demonstrated in a clear fashion, such as through trend analysis.
- *Understandable:* The extent to which a measure can illustrate an aspect of the system in a way that most people using the measure can easily understand or interpret in relation to their own life or decisions.
- *Reproducible:* The extent to which the data being measured is readily available and will continue to be on a regular basis.
- *Affordable:* The extent to which the data being measured is affordable to acquire without the need for extensive unique research to support policy recommendations.
- *Positivity:* The ability of the measure to illustrate an aspect of the system in a way that it projects a long-term positive change in the system or a community asset; and to inspire people to have confidence that such a change can be achieved.
- *Relational:* The extent to which the data is related to other changes being measured, and whether it can be aggregated to illustrate linkages and relationships with other measures.
- *Comparability:* To what extent can changes in the measure be compared with other areas of the Sierra Nevada, state, or nation.

All measures included in this report were evaluated using the criteria above. This evaluation resulted in the selection of four measure groups for analysis. Measure groups recommended by the Project Team and approved by the Project Steering Committee are described in Table 4.

**Table 4. Recommended measure groups**

<b>Measure Group</b>	<b>Individual Measures Included</b>
Housing and Affordability	Median House Price Per Capita Income Population Totals by Age Population Totals by Race
Education	Enrollment Drop-out Rate Graduation Rate Graduation by Ethnicity Population Totals by Age Population Totals by Ethnicity
Transportation	Levels and Frequency of Transit Ridership
Business	Per Capita Income Transient Occupancy Tax Retail Sales Tax

#### **5.4 Local & Regional Policy Document Review**

The Project Team performed a literature review in which linkages between the selected measures and local and regional policy documents were identified. This review, in conjunction with stakeholder interviews, provided resources for the Project Team to evaluate existing policy and identify trends within the data.

Several jurisdictions serve the communities within the Basin. These include Placer and El Dorado Counties and the City of South Lake Tahoe in California, and Douglas and Washoe Counties in Nevada. In addition, the TRPA has been given authority by the two states over development within the Basin, superimposing a regional authority unique to this area. Each of the local jurisdictions has developed Plans for their portion of the Basin, and has worked with TRPA to develop Community Plans and a Regional Plan that covers the entire Basin.

Due to limited resources it was not possible to review every existing policy document. For the purposes of this analysis pertinent elements including goals, policies and alternatives related to the four recommended measure groups, were reviewed in the following documents:

- The Washoe County Comprehensive Plan (adopted August 1994)
- The Douglas County Master Plan (adopted January 2007)
- The Placer County General Plan (adopted August 1994)
- The El Dorado County General Plan (adopted July 2004)

- The TRPA Goals and Policies (adopted September 1986)
- The Regional Plan Update for the Basin Draft Alternatives Summary Report (as of June 2009)
- The City of South Lake Tahoe General Plan Policy Document Public Review Draft (as of September 2009)

Included as Appendix D, the Policy Analysis Matrix provides a method for identifying base conditions, determine which policies are already in place, and analyze whether or not these policies have or could have an impact on measured trends. These existing linkages are incorporated in the policy analysis portion of the report. They are used to describe opportunities to influence the decision-making process, identify recommendations for policy outcomes, and determine the ability of the proposed policies to address the issues identified through assessment of the measure groups.

## **5.5 Description of Policy Matrix**

The Policy Matrix included as Appendix D consists of the following attributes by column:

- Column B: a planning document code identifying the location of the policy within the document
- Column C: identification of the policy document reviewed
- Column D: identification of which measures(s) the policy is primarily related to
- Column E: identification of related measures or likely areas where measures may be considered together
- Column F: the primary regulatory agency with jurisdiction over the policy
- Column G: the generally accepted process to update or amend the policy
- Column H: the timing of the cycle for review of the policy
- Column I: a list of potential opportunity areas for use of the recommended measures relative to the specific policies, intentionally left blank for future users

After identifying the most pertinent policies, a subset of those policies were selected to conduct a more thorough evaluation of potential linkages based on the results of the stakeholder interviews, input from the Project Steering Committee and the project team’s experience regarding which measures are commonly used in policy evaluation.

## **6.0 POLICY RECOMMENDATIONS**

### **6.1 Policy Analysis Process**

Utilizing the data and information collected as part of this process, the project team and the Steering Committee will identify potential public policy goals and alternatives that will achieve the given set of objectives for each selected measure group. The process will include four steps:

- 1. Identification of stakeholders whose actions may be affected by selected measures/measure groups.** It is important that all affected stakeholders are identified and considered when policy initiatives are identified. By involving such stakeholders in discussions about sustainability goals, it will be easier to identify and overcome differences in order to agree upon desired outcomes.
- 2. Identification of the situation or base conditions for change.** By performing a situational analysis, we can identify a set of policy objectives and implementable strategies that define the issues and problems that need to be addressed. We also incorporate the linkages identified in current local and regional policy documents. Using this process, we determine how the measures accurately and objectively measure progress towards sustainable development goals. This analysis answers questions that help identify the problems, extent of the problems, the target population, the location, other characteristics of the target population, and immediate underlying causes of the problem. Through this process, the Report addresses the public-sector policy that currently exists in the Basin. Due to the fact that public policy is often a major driver of private policy in the Basin, existing private policies are not specifically addressed in this Report.
- 3. Comparison of policy alternatives.** Using the data trends, established evaluation attributes and current local and regional policies, measures that are and are not benefited by current policies can be identified, the appropriate alternative policies can be determined, and the ability of the proposed policy to solve the underlying problem/cause can be assessed.
- 4. Identification of top priority implementation activities.** Policy implementation is a critical step in the policy analysis and recommendation process. A review of policy alternatives is the starting point for activity by the Steering Committee and stakeholders/partners to develop and prioritize policy recommendations. This step also requires the identification of specific agencies, governments, organizations, or other sectors responsible for policy that should consider action on the proposed policy recommendations.

## **6.2 Stakeholder Analysis Process**

In order to conduct effective policy analysis, a select group of stakeholders including individuals or representatives of organizations that have a social relationship to a specific measure group were identified for interviews. Interviews were conducted to include the insight of these stakeholders in the policy analysis and recommendation process. Appendix E includes the questionnaire with narrative consistently provided to each interviewee as well as a narrative of the responses provided by interviewees.

## 6.3 Situational Analysis

In order to consider which policy changes are necessary to improve social and economic conditions related to the four measure groups, a clear understanding of the existing conditions and policy situations within each measure group is required. Three sets of data will be utilized to assess the existing condition and policy situation for each of the four measure groups. The first will be the results of the data in each Measure Group. The second will be the results of the Stakeholder Interview Questionnaire. The third will be existing related policies contained within the identified plans. In each recommended measure group a situation statement describing the existing condition and trend is presented utilizing the data in Section 4 above, policy issues or matter of public concern are identified, and a method is described with respect to how the measure groups may be used to indicate progress. In the next section potential actions that could be taken to help address the policy issues or matters of public concern are identified. Looking at the measure groups in light of the policy issues should give future users a clearer understanding of the context in which the measures can be used and the constraints on their use.

### 6.3.1 Housing and Affordability

Situation Statement and Scope: Population and wages are projected to continue to rise in the region driving increases in housing prices and leading to future shortages of affordable housing by a wide range of residents. This shortage will be felt most acutely by working adults, working class residents, and Hispanic residents. Significant impediments to achieving housing affordability exist including, lack of consistent policies across state lines, lack of access to capital, outdated or difficult to understand regulations, height and land coverage restrictions, community opposition to projects, and insufficient organizational infrastructure. The scope of the problem is expected to expand and continue to be difficult to address.

Measures: The four measures indicative of changes in housing and affordability (Median House Price, Per Capita Income, Population Totals by Age and Population Totals by Race) show home prices in the Basin are likely to continue to increase in the long-term, with short-term declines in median home prices during the current mortgage crises tracking at about half the rate of decline affecting the states of California and Nevada. Some areas of the region, such as Incline Village, have seen very little reduction. At the same time that long-term housing prices are expected to rise, per capita income is increasing at a rate significantly higher than surrounding state averages. It is believed that this is largely due to in-migration of high-income residents. Overall population in the region grew by 21 percent between 1990 and 2000, 25 percent faster than the surrounding states. Anecdotal evidence for the years since the 2000 census indicates that populations have been falling in the last ten years, which could be partly due to housing affordability issues in addition to national demographic changes, including the aging of the American population. The region has more working age and older adults and fewer children than the California and Nevada averages. 32 percent of the region's residents are considered working class. Although ethnic diversity varies widely throughout the region, diversity is increasing in two-thirds of the communities in the Basin. Almost all of the increases in ethnic diversity are through increases in the Hispanic population.



Interviews: Results of the interviews indicate current housing policies are not achieving the goal of increasing affordability, and in many cases may actually be counter-productive. For example, parking standards requiring dedicated parking instead of allowing for shared parking may create a constraint to mixed-use development by creating unachievable parking requirements. Significant impediments to achieving housing affordability exist including lack of consistent policies across state lines, lack of access to capital, outdated or difficult to understand regulations, height and land coverage restrictions, community opposition to projects, and insufficient organizational infrastructure. The scope of the problem is expected to expand and continue to be difficult to address.

Policy Linkages: Review of policies in the core planning documents indicates little conformity between policies across jurisdictions. There is disparity on housing affordability between Nevada and California policies. Past land-use planning policies separated uses in communities increasing dependence on the automobile. Policies are emerging in every jurisdiction to encourage the mix of land uses necessary to support infill development, commercial mixed-use development and pedestrian oriented development. In many communities policies that would allow for form-based codes are emerging. These policies are often disconnected from policies in surrounding communities. Many housing and land use policies are also disconnected from their transportation components, creating unnecessary complexity. The most linkage between existing policies and housing affordability occurs in California, where the state regulatory policy requires a set percentage of affordable units within each jurisdiction, and regular updates of Housing Elements in General Plans are required. California land use practices are also subject to emerging implementation policy relating to AB 32 and SB 375, which could provide mechanisms to normalize policy between jurisdictions; however, Nevada has not adopted similar climate change legislation, exacerbating the divide between state policies. Finally, these policy questions are being conducted in an environment where the TRPA has partial regulatory authority, but a disconnect exists between the implementing policies at a local level which is driven by the local jurisdictions, and the TRPA.

Issues: A number of significant issues were identified that could be rich topics for community discussion and where the measures could help inform decisions. One issue is a consistently identified lack of equity regarding allocation and affordability of housing across jurisdictional lines, and particularly across state lines. Another issue is the need to modify land use policies regarding segregated land uses to create incentives for commercial mixed-use development in appropriate areas. There is an identified need for a basin wide process for addressing access to capital to fund housing. Many stakeholders anticipated the need to link the housing affordability issues to the transit availability issues and concurrently address both issues.

Use of Measures: Median Home Prices is a good measure of progress toward achieving housing affordability since it has a direct relationship to affordability. The measure can also be relatively uniformly applied across jurisdictions and the methodology for collecting the data is standardized. There are data gaps in our report that make some comparisons between communities difficult, including in Douglas County, where data was unavailable. The

combination of Median Home Price with Per Capita Income gives a good indication of long-term trends and shows changes in specific communities, if the data can be consistently disaggregated at the community level. It may be very useful to be able to target the communities where housing needs can be addressed first. Median Home Price coupled with population totals by age and ethnicity could help identify sub areas within the region where specific product types are needed first or are likely to emerge. It must be noted that population totals are less reliable and only consistently measured every 10 years, and are not necessarily a reliable measure of growth trends. Layering the four indicators aggregated together in the housing and affordability area, may help smooth out some of the unreliability of the population data, and provide a much more accurate indicator of trends by community.

### 6.3.2 Education

Situation Statement and Scope: The Basin has seen a steady and precipitous decline in school enrollment, but has managed to stay roughly even with California and Nevada in dropout rates and graduation rates. There is a general sense that school enrollment in the region are declining and that these issues are being indirectly affected by local planning policies, including restrictions on the availability of land for development and the availability of affordable housing.

Measures: K-12 school enrollment has declined in every Basin community since 2000. The average decline has been roughly 25 percent over this period. At the same time, dropout rates have fluctuated roughly around the state averages for both California and Nevada for the past 6 years, with an average dropout rate of approximately 8 percent per year. Dropout rate information can be unreliable due to some transfers out going unreported. Graduation rates are in line with California and Nevada averages, at between 85 -90 percent, however the Hispanic graduation rate has hovered at about 60 percent since 2003. Population total by age and ethnicity shows that population grew significantly (21 percent) between 1990 and 2000, but anecdotal evidence indicates population growth has slowed and may have actually declined since 2000. In general, the population has aged and the number of school age children has declined, resulting in a decline in K-12 enrollment. Kings Beach has the highest percentage of school age children, per capita (refer to Appendix A, Table 1). Zephyr Cove has seen the steepest decline in school enrollment. The percentage of Hispanic population in the region is growing. The measures could be directly used to measure the impact of new land use and transportation policies on school enrollment.

Interviews: Results of the interviews indicate that educators believe that the greatest impact local policy has on education is relative to population growth. Since education in both states is closely tied to per pupil per day payments, total population, and population of school aged children and/or active adults, has a direct impact on school finance. Policies that limit economic development and the ability to attract new residents affect enrollment, drop out rates and graduation rates. Housing prices have the most drastic effect on forcing families off the hill, resulting in declines in school aged children, and in turn fewer students transferring from the high school to the college in South Lake. Additionally, housing prices force faculty and staff off the hill, usually to Nevada (Carson City, Minden, etc.), because even a healthy middle class

income is not enough to afford to live in the Basin. As a result, money that comes into the community from the state for these positions is not captured in the Basin, and is instead spent in a different state, outside the Basin. Affordable housing for college students is also an issue, but perhaps not as important as the two above. At the community college level lack of affordable housing is a direct impediment to enrollment since full time students cannot qualify for low income housing assistance.

Policy Linkages: There are fewer direct policy linkages in education than in any other area included in this report. However, the indirect policy linkages are striking. For example, policy that limits the number of part time service jobs makes it less likely that people will attend community college, since the ancillary employment necessary is not available. Policies affecting transportation, housing and business will all have an indirect impact on education, and all of the other measures collected but not analyzed in depth in this report will affect education as well. In the case of housing and affordability the potential for indirect policy linkages is also striking. For example, a policy that encourages the redevelopment of existing urban cores (PTOD), and focuses development on increasing access to affordable housing, could have a dramatic impact on school enrollment. If a community that was previously in the lower tier of school age children suddenly has housing for working families with children, school enrollment is likely to increase.

Issues: A review of the policy planning documents for surrounding schools districts, coupled with review of similar districts in high-end communities, indicate that these communities have a unique set of issues. Socio-cultural changes resulting in wealthier people buying housing property has a tendency to reduce housing stock for existing residents, in many cases residents who had planned on raising children and enrolling them in local schools. As the average income increases family size decreases, which leads to declining enrollment, and the informal eviction of lower income residents due to increasing rents, house prices and property taxes. This dynamic also leads to significant difficulty attracting and retaining teachers as they are priced out of the home buying market. Social interviews with the Jackson Hole Chamber of Commerce and the Vail Chamber of Commerce indicate that this dynamic has been identified as a significant problem in their communities. This dynamic also led the Mammoth School District to invest in a local affordable housing implementation organization.

Use of Measures: The combination of school enrollment, drop out rate, graduation rate, and population by age and ethnicity is a reasonably good indicator of what is happening in enrollment and why it is happening. School enrollment could be used to measure ability to attract and retain families with school age children, or direct planning assumptions about clients of urban core development or affordable housing development. Drop out rates are an imperfect measure due to the potential for some data not being collected accurately or consistently. This grouping of measures is not to be confused with a measure of student achievement, which is more appropriately tracked through individual school district's student assessment processes.

### 6.3.3 Transportation

Situation Statement and Scope: The Basin has seen a steady increase in transit ridership since 1999 although there have been decreases more recently attributed primarily to lower employment in the region. Increasing transit ridership is a critical component of meeting almost every jurisdiction's land use and housing affordability goal, and may be so linked to achieving them that they cannot be evaluated separately. Encouraging increased densities in the urban core areas, coupled with a focus on transit-oriented development, pedestrian orientation, and implementation of California state policy to reduce vehicle miles traveled, will increase demands on transit services. Currently capacity is limited, with poor service to surrounding public lands for recreational users, and insufficient frequency to serve many working users. According to the TRPA Compact<sup>6</sup>, the primary focus of transportation planning agencies has been on increasing transit capacity through public transportation and public programs and projects, including transit in and out of the Basin, and revising policies to encourage more bicycle and multi-purpose trails, and pedestrian facilities, including sidewalks. However, the available public financial resources necessary to improve transit are in decline and the process of changing pertinent transportation and land use policies has been slow. For these and other reasons, the scope of Lake Tahoe's transportation and mobility problem is expected to expand.

Measures: The current measure for transportation is Levels and Frequency of Transit Ridership on TART and Bluego. The data shows that levels of ridership on TART are increasing (until recently) and levels of ridership on BlueGo are decreasing with the exception of a slight increase in 2008 ridership levels over 2007. The recent dip in ridership is probably due to a combination of changes to create a fixed route system and changes in the demographics of the region. It is difficult to determine if fluctuation in ridership could be due to changes in economic activity and an increase in the number of unemployed residents. Use of a single transportation measure may be imperfect due to the number of people commuting by bicycle in the summer months and the increasing popularity of ridesharing due to higher fuel prices and reduced work hours.

Interviews: Results of the interviews indicate a heavy emphasis on increasing transit capacity in the region, including both the capacity to expand service, and the capacity to speed service, through funding roadway and transit infrastructure improvements. Further increasing transit opportunities out of the Basin was mentioned prominently, but there was little direction indicating how these additional opportunities could be captured. There is also a clear disconnect between transit needs for visitors and residents to improve access to recreation and involvement by the United States Forest Service in transit planning and implementation.

Policy Linkages: Review of policy linkage opportunities in the core planning documents finds consistency between policy language in many of the jurisdictions, particularly associated with encouraging expansion of transit opportunities and focusing transit on increasing opportunities for land use linkages, but little consistency between jurisdictions on implementation. Significant opportunity for policy linkage exists with an emerging emphasis on increased mobility for Basin

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<sup>6</sup> [http://www.trpa.org/documents/about\\_trpa/Bistate\\_Compact.pdf](http://www.trpa.org/documents/about_trpa/Bistate_Compact.pdf)

residents. The new TRPA Proposed Regional Plan Alternative 2 focuses policy development around linking land-use, transportation, and the attainment of air and water quality goals. A key strategy in Alternative 2 includes creating Pedestrian Transit Oriented Development (PTOD) overlays in urban core areas, which would facilitate the concentration of development in these areas and decrease dependence on the automobile. As residential density increases it is anticipated that transit ridership would increase. This policy is coupled with an envisioned investment of \$234 million in the updated Regional Transportation Plan, including approximately \$5 million per year for pedestrian and bicycle improvements. As the mobility in urban areas increases, it is anticipated that increases in transit ridership would occur due to ease of access and increased density of employment in urban core areas.

Issues: Three primary issues emerged in the transportation area. The first is the perceived inadequacy of the current system to measure Level of Service, which only measures the adequacy of roadway capacity for automobile use rather than capacity for various modes of transit. The second is the lack of participation and coordination of activity with the United States Forest Service, which could play a significant and welcomed role in the region around developing transit options. Finally, the size of the Tahoe Metropolitan Planning Organization (TMPO) in relationship to other MPO's, is identified as an impediment to accessing funds; the Tahoe MPO is the only MPO in the country which is not eligible to receive an annual formula allocation of federal transit operating funds. Lake Tahoe's legislative advocates are working to address this inequity. In other resort areas without a substantively constrained land base, and outside the MPO, such as Truckee, access to funding is driving the location of new development. In the Basin redevelopment is a major contributing factor driving the need for increased transportation services.

Use of Measures: Levels and Frequency of Transit Ridership is a good measure of only one type of transit use. To the extent that data can be localized and direct measurement of ridership in relationship to redevelopment of existing urban core areas can be achieved, it could be a very good long-term measure of sustainability. It could also be used to measure specific performance on individual projects or groups of projects within urban centers to evaluate planning assumptions on future projects. Ultimately, additional measures will be needed since ridership does not measure the success of the Pedestrian Transit Oriented Development strategies that are emerging as major policy initiatives in the region. A more comprehensive mobility measurement may be needed.

#### 6.3.4 Business

Situation Statement and Scope: Although per capita income in the Basin is high compared to California and Nevada, the cost of living, housing, and doing business at Lake Tahoe is also high. Business related tax revenues are flat or declining, even without the impact of the current recession. Business retention is low and gaming is shrinking as an economic driver. Anecdotal evidence, including observations conducted at commercial locations within the Basin, indicates a declining permanent resident population, confirms a high commercial vacancy rate and many business closures. This report documents a continued overall decline in school enrollment. Even

with the potential for a return to strength of the Lake's traditional tourism base, the scope of concern for the future of Tahoe's economic and related community sustainability is broad and persistent.

Measures: Per capita income in the Basin, at \$30,000 per year, is higher than it is in California and Nevada, and has been increasing at a faster pace, recording a 26 percent increase over ten years compared to an average of 5 percent in the states. This is likely due to the in-migration of higher income wage earners to Tahoe as their primary residence. Transient Occupancy Tax (TOT) receipts (at \$27 million in 2007), have been inconsistent in recent years. South Lake Tahoe is the largest contributor to TOT, closely followed by the Stateline/Zephyr Cove area. On the North Shore, Placer County is the largest generator of TOT. Inflation adjusted Retail Sales Tax collections are down in the Tahoe Basin, and only 4 of 8 measured communities collected more retail sales tax in 2007 than they did in 1998.

Interviews: The interviews indicated that the complicated nature of approval and permitting processes in the Basin creates a significant barrier to private sector investment, including entry into the marketplace. A typical permitting process requires compliance with multiple plans and multiple environmental analyses, including TRPA plans, codes and environmental review, (along with state and/or federal environmental documents in some cases), community plans (a combination of TRPA and local government plans for commercial areas), local government general plans, and zoning ordinances, in addition to any specific permitting a business may require. A lack of coordination between regional and local government planning, processes and documents, and the lack of consistent and complimentary interpretation of codes, creates an additional barrier to investment, including investment in identified environmental improvements, consistent with the Lake Tahoe Environmental Improvement Program (EIP).

Linkages: Substantive linkage exists within and between the Tahoe Basin's local jurisdictions with direction to facilitate and promote economic development. Overlapping policies exist at multiple jurisdictions that, if activated, direct and support the facilitation and participation in regional cooperation. In some cases at the local level, the existing economic development element of the general or master plan (City of South Lake Tahoe and Douglas County), or the officially designated Business Networks (El Dorado County), that are necessary to direct policy cooperation are already in place. In some areas they are implied (Placer County, Washoe County). Beyond the more general linkage in the Compact, the specific TRPA linkage in place is embedded within TRPA Regional Plan Update (RPU) Land Use Alternative 2, which describes Agency's intention to promote commercial core/urban reinvestment and revitalization to strengthen economic centers and community gathering places consistent with the need for private sector investment in the EIP and community input, as identified in the PATHWAY Place Based planning process.

Issues: Several participants in the interviews expressed the desire and need for significantly improved coordination and efficiency of the Tahoe project review process, including the permitting and approval process, pointing out that this would require a coordinated effort on the part of TRPA and local government jurisdictions. The need for a coordinated approach to such

issues as affordable housing, redevelopment, and community economic sustainability was discussed. Ideas ranged from formation of a council of governments or other entity that could facilitate the needed coordination and action steps, including coordination with TRPA in preparing the Regional Plan Update (RPU). The need for coordinated action to implement recommendations of the Lake Tahoe Prosperity Plan was noted. It was recognized that both the Regional Plan Update and Lake Tahoe Prosperity Plan are currently in development. Such a coordinated local government entity could play a role to facilitate the attraction of business and investment, consistent with the RPU and Prosperity Plan and act as a central point to coordinate local government investment, grant funding and private investments. There was a clear desire to see a connection between the Sustainability Measures and the Prosperity Plan, with the Sustainability Measures potentially playing a performance management role. Those interviewed also identified significant opportunities to re-purpose gaming facilities through redevelopment to focus on resort amenities that appeal to new markets while reducing their environmental footprint. Another key issue identified was the need for adjustment of the TRPA Tourist Accommodation Unit policy (TAU) to reflect market conditions. Overarching the entire discussion was the issue of a gradual decline in the Tahoe Basin's permanent population. According to data analyzed by the TRPA/TMPO TransCAD model, the Basin's permanent population declined from approximately 63,000 in 2000 to just over 53,000 in 2008. Perceptions are that the population decline is due to several factors, including the in-migration of second homeowners and limited business development opportunities, coupled with local opposition to development and redevelopment projects.

Use of Measures: The combined measurement of Per Capita Income, Transient Occupancy Tax and Retail Sales tax is a strong indicator of business health. There are some constraints on the use of the data, such as the fluctuation that occurs within the per capita income figure due to transfer payments. With that caveat, the data could be used to directly measure the effectiveness of business retention strategies, business attraction strategies and business cluster efforts. To the extent that the data can be disaggregated it could be scaled to the community level to measure outcomes on specific projects or groups of projects, or measure performance of multiple economic development strategies in different communities. Retail sales tax could also be broken down to measure the effect of different strategies on individual business sectors.

## **7.0 CONCLUSIONS/RECOMMENDATIONS**

### **7.1 Recommended Policy Outcomes & Implementation Measures**

#### 7.1.1 Housing and Affordability:

A combination of stakeholder interviews and literature review indicate several policy initiatives that could be considered. At the macro level, changes in zoning policy to allow for infill, compact, commercial mixed-use and transit-oriented development could be valuable. Such an effort could include emerging concepts to address climate change adaptation and new land use planning concepts such as community specific form based zoning and pedestrian oriented development. Changes in policy could also include a renewed effort to create incentives to

increase density in urban core areas. Policy direction to maintain primary responsibility for increasing affordability of housing to the local level already exists, but it is seen as complicated to implement due to the overlay of TRPA approval processes. A system of prioritization is necessary to effectively improve coordination of projects and timelines with grant cycles. There is also a need to increase access to funding for affordable housing which could be accomplished in a variety of ways, including simply making the region more competitive for existing funds such as HOME funds, aggregating affordable housing mitigation funding, or speeding adoption of AB 32 and SB 375 implementation programs. Finally, encouraging affordable housing requires financial incentives. There is consistent comment supporting the creation of a basin wide housing authority or entity to help local jurisdictions and private or non-profit developers address the complexity of issues related to entitling affordable housing, encouraging a mix of affordable and market rate housing, and securing financing. Such an authority could also serve to help address the equity of allocation and location issue that is complicated by working in multiple jurisdictions.

### 7.1.2 Education

Several policy recommendations for education emerged, but most of the initiatives were tied to other indirect policy opportunities. The primary focus was on the provision of affordable and mid-range market rate housing, the provision of student housing, and creating incentives to try to retain parents of school age children in the region. Another idea was encouraging more focus on student internships to get community college students involved in the business community and encourage retention in the local communities.

### 7.1.3 Transportation

Several high-level policy recommendations emerged from the research into transit policy linkages. The first was to encourage the development of the PTOD model as a means of revitalizing urban cores and increasing transit ridership. Another strategy identified in the Proposed Regional Plan Alternative 2 was to increase commercial floor area ratio in core areas if specific environmental improvements, such as air quality attainment and energy efficiency goals, can be demonstrated. This would tend to increase ridership as well. A third strategy was to support the overall TMPO and TRPA efforts to encourage their “Sustainability through Mobility”, components of the TRPA regional plan. There has been discussion of altering the current traffic and air quality mitigation fee system to establish a separate traffic congestion mitigation component. The development of such a dedicated regional revenue source would tend to increase regional competitiveness and attract grant funding as well as attracting additional funding from local governments by meeting match requirements. Significant emphasis has been placed on increasing pedestrian mobility and bicycle ridership. Focusing on development of those assets would also tend to support mobility. Finally, regional leaders may consider a concerted effort to bring the United States Forest Service (USFS) to the table to participate more fully in regional transit planning with an emphasis on increasing access for recreational users to trails and amenities.



#### 7.1.4 Business

There overarching strategy for business development, retention, and attraction is the development of a regional Prosperity Plan, with broad participation and buy in from local governments, designed to run parallel to the implementation of the Tahoe Regional Plan Update. The implementation of the Prosperity Plan would be overseen or directed by a basin wide Economic Development entity that would have specific powers designed to aid implementation, assist new businesses as an ombudsman, act as a central location for funding efforts, and encourage business development and retention.

### **7.2 Conclusion**

The Lake Tahoe Watershed Sustainability Measures Project (Project) was designed to assist with the implementation of a set of measures of sustainability that can be monitored and analyzed to help shape public- and private-sector policy and community awareness to integrate a healthy environment, economy and community in the Basin.

The Lake Tahoe region's creative and innovative residents, its unique communities, exceptional beauty, and world class recreational opportunities, can and should be better positioned to attract investment, entrepreneurs, and additional creative talent. Our towns, the Lake, and our schools and businesses are not just nice amenities; they are essential elements of business retention, investment, personal prosperity and community sustainability.

A growing number of community leaders, decision makers, investors and residents recognize that the creation of wealth (economic, social and environmental capital) is dependent upon more than just financial capital. They aspire to a more inclusive definition of wealth - prosperity - that includes and accounts for social and environmental values and community well-being. By preparing this snapshot of community measures and trends and a system to measure these trends over time, it has been our goal to provide Lake Tahoe with a tool to help increase overall prosperity for communities throughout the region.