Final

Trans-Sierra Transportation Plan: Business Case

Prepared for

Tahoe Transportation District and Trans-Sierra Transportation Coalition

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CH2MHILL®

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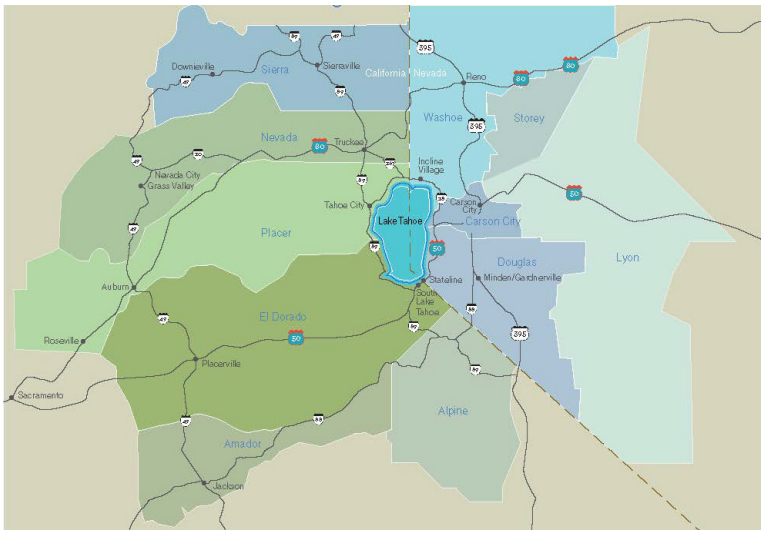
Executive Summary

Transportation is essential to our quality of life. It is the foundation of a vibrant economy and job creation. Safe commutes to work and access to the numerous attractions of the Trans-Sierra Region, while maintaining blue skies and clean water, depend on a well-planned, efficient transportation system. Our schools, police, fire protection, parks, and all the other amenities that make our communities great places to live and work depend on our transportation system. Likewise, the economic activities that generate the funding for these services and amenities also depend on our transportation system.



The communities of the Trans-Sierra Region, a geographic area spanning six California and five Nevada counties as shown at the right, have each worked to forge their own consensus transportation plans that support the goals and aspirations of their citizens. Each of these plans expresses a universal desire for a transportation system supporting economic prosperity while sustaining and enhancing the quality of life for current and future generations. Through a collaborative effort, the transportation plans developed by the various local, state, and regional transportation planning entities have been synthesized to create the Trans-Sierra Transportation Plan. The purpose of this Plan is to better understand the interconnections, commonalities, and opportunities that transcend jurisdictional boundaries. The Plan also documents the significant resources required to achieve and maintain the safe and reliable transportation system desired by the Trans-Sierra communities.

This business case identifies, and quantitatively and/or qualitatively assesses, the economic and non-economic benefits that could be realized by full implementation of the Trans-Sierra Transportation Plan.

The information assembled in this business case indicates that the additional $15.9 billion in investment needed through 2035 to move us from the transportation system possible with current funding to full implementation of the Trans-Sierra Transportation Plan would more than pay for itself. In fact, considering just the savings in travel/delay time, crashes, and vehicle operating costs, this additional investment would return an estimated $18.8 billion in user benefits, which amounts to a return of about $1.20 for every dollar invested.

> ***"Virtually every indicator tells us that the transportation system we have today is not acceptable. Our roads are deteriorating, congestion is increasing, our choice of travel options is severely limited, and the quality of life in our neighborhoods and communities is suffering. There is a vision for something better but it will also cost more than what we are investing today. Is the extra cost worth it?"***
>
> ***– Trans-Sierra Transportation Coalition, 2013***

In addition to these economic returns, this investment would create an estimated 10,000 well-paying construction jobs sustainable through 2035 and beyond, and generate $29.9 billion in economic output, including $11.3 billion in labor income. The integrated, multimodal transportation system built from this investment would give the Region's businesses a significant competitive advantage, spurring further economic growth and expansion. This expanded economic activity would create jobs for the residents of the Region and also provide billions of dollars in additional revenue. This revenue could, in turn,

be invested in the services and amenities that strengthen our communities and make them great places to live such as schools, parks, police, fire protection, libraries, and other vital public services. Expanded transportation options and improved interconnectivity will also provide for heathier, safer neighborhoods and greater civic cohesion.

This additional investment would also create the transportation system needed to sustain and expand the attractiveness of the Trans-Sierra Region as a year-round tourist destination with a multitude of recreational, leisure, artistic, and cultural venues and activities. A transportation system that can do all of this while protecting our fragile environment and natural resources will benefit businesses, residents, and visitors now and for generations to come.

The business case describes the immense array of benefits provided by the Trans-Sierra Transportation Plan to all citizens and interests in the region – safety, environment, family, tourism, economic, recreation – and offers everyone a reason to support it.

Contents

Page

Tables

Figures

SECTION 1

Context and Background

1.1 Importance of Transportation

Transportation is essential to our quality of life. It is the foundation of a vibrant economy and job creation. Safe commutes to work and access to the numerous attractions of the Trans-Sierra Region, while maintaining blue skies and clean water, depend on a well-planned, efficient transportation system. Our schools, police, fire protection, parks, and all the other amenities that make our communities great places to live and work depend on our transportation system. Likewise, the economic activities that generate the funding for these services and amenities also depend on our transportation system.

Good transportation systems don't just happen; building, operating, maintaining, and renewing our transportation systems takes long-term commitment and dedication. As the transportation needs of businesses, residents, and visitors evolve, so too must the transportation system. This requires thoughtful, on-going dialogue, planning, and execution in each of our communities, as well as regional collaboration and coordination.

1.2 Trans-Sierra Transportation Coalition

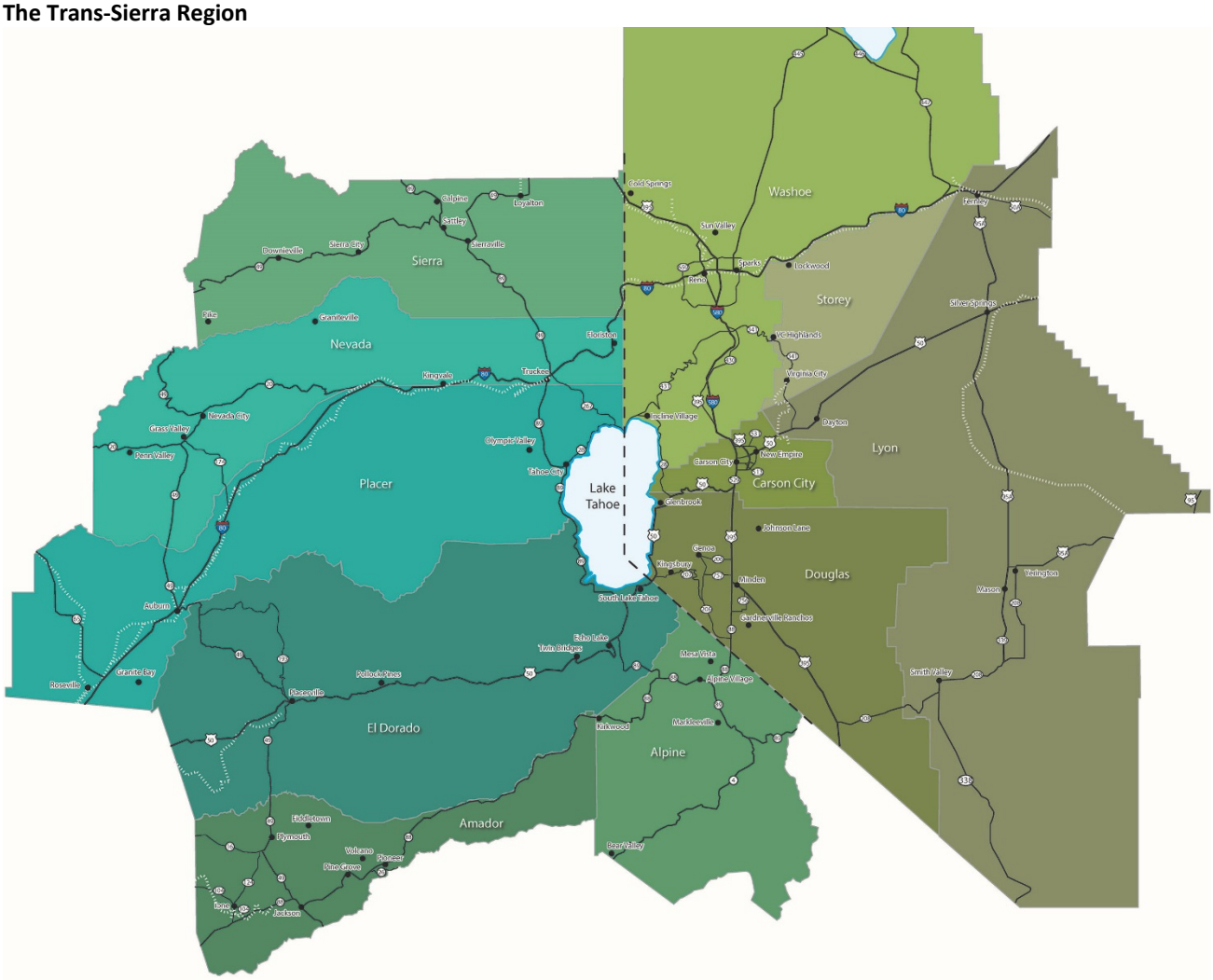
The universal importance of transportation in the region prompted the formation of the Trans-Sierra Transportation Coalition, a voluntary association of 11 counties, federal and state agencies, stakeholders, and citizens from Northern California and Northern Nevada committed to ensuring that the Region's transportation system continues to support our economic vitality while protecting our fragile environment and natural resources. This Coalition is dedicated to developing collaborative, innovative strategies to meet the unique transportation challenges and needs of the Trans-Sierra Region while sustaining and enhancing our quality of life for current and future generations.

1.3 Geography and Demographics of the Trans-Sierra Region

Covering 15,800 square miles, and encompassing six California counties (Alpine, Amador, El Dorado, Nevada, Placer, and Sierra) and five Nevada counties (Carson City, Douglas, Lyon, Storey, and Washoe), the Trans-Sierra Region as illustrated in Figure 1 is home to a sparse 1.2 million people. The relatively small population dispersed across a large geographic area makes the Trans-Sierra Region a place of wide open spaces that provides room for recreation and opportunities for solitude and tranquility to recharge the human spirit.

The Trans-Sierra Region of Northern California and Northern Nevada is unique in many ways. It is an enormous but lightly inhabited area of great natural beauty and vast cultural and geographic diversity. It is an area of exceptional environmental sensitivity that must be respected. Protecting the wonders of the landscape and the diverse, fragile ecosystems of the Region in the face of recreational and commercial activities is a matter of deep personal interest to our residents. While the Trans-Sierra economy is diverse, the lure of our natural and man-made attractions has made tourism and recreation arguably the Region's largest economic sector. The Region straddles the rapidly growing Northern California megapolitan area that reaches from San Francisco through Sacramento to Reno and is home to more than 15 million people. These characteristics combine to create unique transportation needs that demand unique transportation solutions.

FIGURE 1
The Trans-Sierra Region



The Region's transportation system must meet the typical needs of residents and businesses in most communities. Residents need safe, convenient, and reliable access to work, school, shopping, services, and amenities. Businesses need a system to bring supplies, materials, products, employees, and customers to and from their establishments. In addition to these typical local demands, the Region's transportation system experiences substantial impacts from tourists, visitors, and recreationists. Roads, highways, parking lots, transit vehicles, bike trails, and pedestrian ways that function well much of the time are overloaded during weekends, peak seasons, and special events.

Meeting these transportation needs presents significant challenges. The rugged topography and extreme environmental sensitivity of much of the Trans-Sierra Region severely limits the potential for expanding existing roadways or creating new ones. Where opportunities for expansion are feasible, the costs are often extraordinarily high due to environmental considerations and the need to keep existing facilities operating during construction due to the lack of alternate routes.

The ongoing challenges experienced by local and state transportation agencies within the Region in providing an effective and efficient transportation system that serves the needs of businesses, residents, and visitors will be further exacerbated by demographic trends. The population of 15 million in the Northern California megapolitan is expected to grow 25-30 percent by 2035. Accommodating a similar increase in visits from the megapolitan, while sustaining the quality of the experience, including the trip to, from, and

within the region, will be imperative. Visitation from the rest of the country and international visitors is projected to increase as well. In addition, the Region's population (a part of the Northern California megapolitan) is projected to grow from 1.2 million to 1.5 million by 2035. Sustaining the quality of life for the Region's growing population will also be dependent upon a good transportation system.

The nature of our residents and visitors is likewise projected to change in ways that will require our transportation system to evolve. The entire U.S. population is aging. While the total population is projected to increase by approximately 15 percent by 2015, the number of those 65 years and older is expected to increase by 62 percent. Local forecasts mirror this national trend. For example, in Placer County, California, the 2009-2019 forecast population growth is highest for the 60-69 age group (52 percent) followed closely by the 70-79 age group (45 percent), while the projected growth rate for the entire county population across all age groups is 23 percent (Center for Strategic Economic Research, 2011).

In El Dorado County, California, a similar trend is reported in the projected growth of the senior population. Reflecting the aging of the Baby Boom generation, the total number of seniors age 65 and above is expected to grow dramatically. From 2010 figures, the total senior population is forecast to grow 67 percent by 2020, 139 percent by 2030, and 156 percent by 2040. In total, the number of seniors in El Dorado County is forecast to grow from 22,956 in 2010 to 58,828 in 2040 (LSC Transportation Consultants Inc., 2013).

In Washoe County, Nevada, the total 2010 population is expected to grow from 426,333 to 603,918 by 2030, a 42 percent increase. The 2010 population of the 65-plus age group was 51,110 and is projected to grow to 99,983 by 2030, a 96 percent increase (Washoe County Development Department, 2010

At the other end of the adult spectrum, the so-called Millennials (born between 1980 and 1999) are just hitting their stride. Millennials currently comprise 24 percent of the U.S. population, which is on par with the current Boomer population. By 2030, U.S. Millennials will outnumber Boomers by almost 20 million. Of the top ten metropolitan markets with significant concentrations of Millennials, nine are in the western U.S. (Marketingcharts.com, 2014). These Millennials bring with them markedly different attitudes about mobility and travel, which will undoubtedly result in significant changes to our transportation systems over the next 30 years and beyond. From 2007 to 2011, the number of cars purchased by people aged 18 to 34 fell almost 30 percent, and according to a study from the AAA Foundation for Traffic Safety, only 44 percent of teens obtain a driver's license within the first year of becoming eligible and just 54 percent are licensed before turning 18. This is a major break with the past when most teens of the two previous generations raced to get their license or permit on the day of their 16th birthday (Coexist.com, 2014). For many Millennials, it appears that the attraction of the car has been replaced by laptops, smartphones, tablets, and social media. While Millennials will continue to use cars, many have expressed a preference for spending travel time texting or using social media instead of sitting behind the wheel.

1.4 The Trans-Sierra Transportation Plan

As a foundation for cooperation and collaboration across the Trans-Sierra Region, the Trans-Sierra Transportation Coalition has created a Trans-Sierra Transportation Plan that can be accessed at www.tahoetransportation.org. This Plan honors and draws upon the individual comprehensive plans developed by the participating state and local transportation planning agencies for their respective communities. All of the projects and services included within these individual plans, including those that are not currently funded, are incorporated into the Trans-Sierra Transportation Plan. The strong commonalities found across all of these community plans were combined into the following transportation vision for the region:

> ***"The Trans-Sierra Region will be served by an integrated multimodal transportation system that is built, operated, and maintained efficiently and sustainably. The Trans-Sierra transportation system will promote a strong economy by supporting approved land use plans and meeting the mobility needs of residents, visitors, and goods movement. This***

system will be safe and support environmental protection of our region's outstanding natural assets by reducing congestion, vehicle emissions, and roadway surface pollution."

The individual transportation plans developed by the agencies in the Trans-Sierra Region speak to the goals and objectives of each community, and the transportation projects and services necessary to achieve these goals. Collectively, these plans create a path for realizing the transportation vision of the Trans-Sierra Transportation Coalition. If these plans are fully resourced and implemented, they would create a regional transportation network that can be sustainably operated, maintained, renewed, and expanded to meet the needs of the Region's businesses, residents, and visitors. This system would be the fully integrated, multimodal transportation system desired by each community and articulated in the transportation vision for the Region.

1.5 Current Transportation Investment and the Status Quo

The funding needed to fully implement the Trans-Sierra Transportation Plan (full investment), levels of transportation investment possible with existing funding (constrained investment), and the difference between needed and existing funding, are summarized in Table 1.

The outlook with existing funding is mixed. Generally, the condition of our roadway system continues to decline, and the backlog in maintenance, repair, and rehabilitation increases. While there is some improvement in overall travel-time delay, significant bottlenecks and traffic congestion remain. Real investments in transit are generally in decline or, at best, lackluster. Fiscal constraints severely curtail improvements to our bicycle and pedestrian facilities. While not everything suffers, the constrained investment scenario is inadequate to meet the needs and desires of communities across the region. The result of these constraints is system that impedes economic productivity and regional competitiveness, hinders efforts to sustain and improve our quality of life, and increases transportation costs for our businesses, residents, and visitors.

TABLE 1
Estimated Region-wide 2015-2035 Transportation Funding Needs, Revenue, and Shortfalls by County (2014$)

County	Full Investment Needs	Existing Funding	Shortfall
Alpine	$132,525,446	$51,926,100	($80,599,346)
Amador	$414,494,719	$146,330,000	($268,164,719)
Carson City	$667,767,150	$268,520,600	($399,246,550)
Douglas	$1,026,208,038	$80,814,000	($945,394,038)
El Dorado	$2,919,400,000	$2,155,800,000	($763,600,000)
Lyon	$242,071,645	$112,835,544	($129,236,101)
Nevada	$1,102,391,445	$274,630,000	($827,761,445)
Placer	$13,990,549,680	$6,945,400,000	($7,045,149,680)
Sierra	$382,758,664	$155,795,000	($226,963,664)
Storey	$128,174,610	$31,278,006	($96,896,604)
Tahoe*	$2,375,572,327	$1,591,534,268	($784,038,059)
Washoe	$11,826,790,488	$7,506,466,000	($4,320,324,488)
Total	$35,208,704,212	$19,321,329,518	($15,887,374,694)

*Tahoe category contains portions of Carson City, Douglas, El Dorado, Placer, and Washoe Counties

Funding for transportation investments in the Trans-Sierra Region comes from a variety of sources at the federal, state, and local levels. Federal transportation funding is primarily generated by federal motor fuel taxes which were last increased in 1993. Federal transportation funds are redirected to the states through a complex system of grant programs established by Congress with each state currently receiving a minimum of 95 percent of its contributions to the federal Highway Trust Fund (fuel taxes are the primary contributor) back. Nationally, taxable gallons of motor fuel peaked in 2007. This was due in part to the economic downturn, but increasing fleet fuel economy was also a factor. Inflation, particularly in highway construction costs, has seriously eroded the purchasing power of the federal dollars that are collected. The combined impacts of inflation and increasing fuel economy mean that in real dollar terms, the federal government is collecting from the federal gas tax about 75 percent less per mile driven today than it was in 1993. While there have been proposals to increase the federal motor fuel taxes in virtually every session of Congress for the past 20 years, there has yet to be any Congressional action taken, and the outlook for the near term is not encouraging. Meanwhile, mandated increases in new vehicle fuel economy will continue to accelerate the decline of federal motor fuel revenues. Despite these trends, federal guidance to transportation agencies assumes that federal contributions will continue at today's levels, with modest increases for inflation, for the foreseeable future. Maintaining this level of funding without an increase in federal motor fuel tax rates will require significant increases in federal general fund contributions to transportation, which already account for approximately $1.00 out of every $5.00 of federal transportation funding.

At the state level, motor fuel taxes are also the primary funding source for transportation in Nevada and California. According to federal statistics, in FY2012 California had fuel tax revenues of $7.4 billion, which accounted for about 70 percent of the $10.6 billion collected from highway users. In addition, the general fund contributed almost $2.0 billion, and other taxes and miscellaneous revenues accounted for approximately $1.0 billion. While California's fuel tax revenues are protected to a large degree against inflation, they are still inadequate to meet the needs of its citizens, and this trend is worsening. Competition for dwindling state transportation funds is fierce and expected to intensify in the future under the status quo.

Nevada's last increase in the state portion of fuel taxes was in 1993. Since then, the same impacts of increasing fuel economy and inflation have significantly eroded the amount of real dollars collected for each mile driven on the state's highway system, and the decline in state motor fuel tax revenues will continue to accelerate in the future with increasing vehicle fuel economy standards. Nevada's legislature has discussed increasing state motor fuel taxes for more than a decade, but no increases have been enacted and the outlook for increasing transportation funding at the state level is not promising. Nevada's resources are inadequate to effectively maintain the existing system and meet increasing demand as the state's population grows.

Over the past two decades, total transportation funding has increased across the nation. However, the substantial majority of this increase has come from the local level. Between 1999 and 2014, there were approximately 475 local and 48 statewide transportation funding questions on ballots across the nation, 72 percent of which were approved by voters. California and Nevada have been leaders in this regard. In these states, local money accounts for more than 50 percent of all transportation funding. This estimate is conservative, as it does not include the investment of local funds used to build streets in residential and commercial subdivisions, which account for a majority of the roadway inventory in most communities. In California, voters in a number of counties and cities have approved sales taxes dedicated to transportation. In addition, many local governments have levied transportation impact fees to address the capacity impacts of new development. Some communities have also made sizeable investments in transportation from their general funds. Local governments in Nevada have also been active. Voters in Nevada's cities and counties have approved a variety of sales taxes, developer impact fees, local fuel taxes, and property taxes for transportation. Much of the activity in both states has been motivated by the growing realization that neither the federal nor the state governments have the capacity to fully fund local transportation needs, and that any increases in federal and state levies to do this would largely be paid by the users in our

communities. By going to these users directly, local communities increase their level of control, accountability, and efficiency in the use of these funds, and can take a decisive role in determining their own economic destinies.

The transportation plans of the communities in the Trans-Sierra Region assume the continuance of funding from existing sources at the federal, state, and local levels. While transportation funding at the federal and state levels has been largely stagnant for the past two decades, these funds are still very important in the overall financial picture. Even though increases in funding at these levels may not be likely in the near term, it is essential that efforts be made to ensure that existing revenue mechanisms are maintained. Significant changes in the existing federal and state programs could have negative impacts to anticipated revenues from these sources and increase projected shortfalls.

SECTION 2

Purpose of the Business Case

Full realization of the Trans-Sierra Transportation Plan will bring significant benefits across the region to businesses, residents, and visitors. Implementing the projects, activities, and services identified in the plan will require a considerable investment of public resources beyond the investment levels possible with current funding. The purpose of this business case document is to provide information on the benefits and the costs of making this additional investment.

2.1 Approach to "Making the Case"

There never seems to be enough money to fund all the things that our communities would like to provide, and competition for these limited resources is fierce. Ultimately, the decision of how these resources are invested is based upon a public consensus on the "value" these investments will provide. Making the case for investments in our transportation system is no different. The public must be convinced that that the "value" provided by transportation investments warrants the money spent on them.

An appreciation of the distinction between "value" and "benefit" is important to this discussion. A Benefit is a "good done or received" (Grolier, 1974). As such, benefits can be objectively described and quantitatively and/or qualitatively assessed. Value, defined as "the worth, merit, usefulness, or importance of a thing," (Grolier, 1974) is based upon the preference of the individual. For example, while people would agree that reduced traffic congestion and clean air are benefits, the "value" of these things is individual. For some, reduced traffic congestion might be very important (high value), while for others this is of less importance (low value).

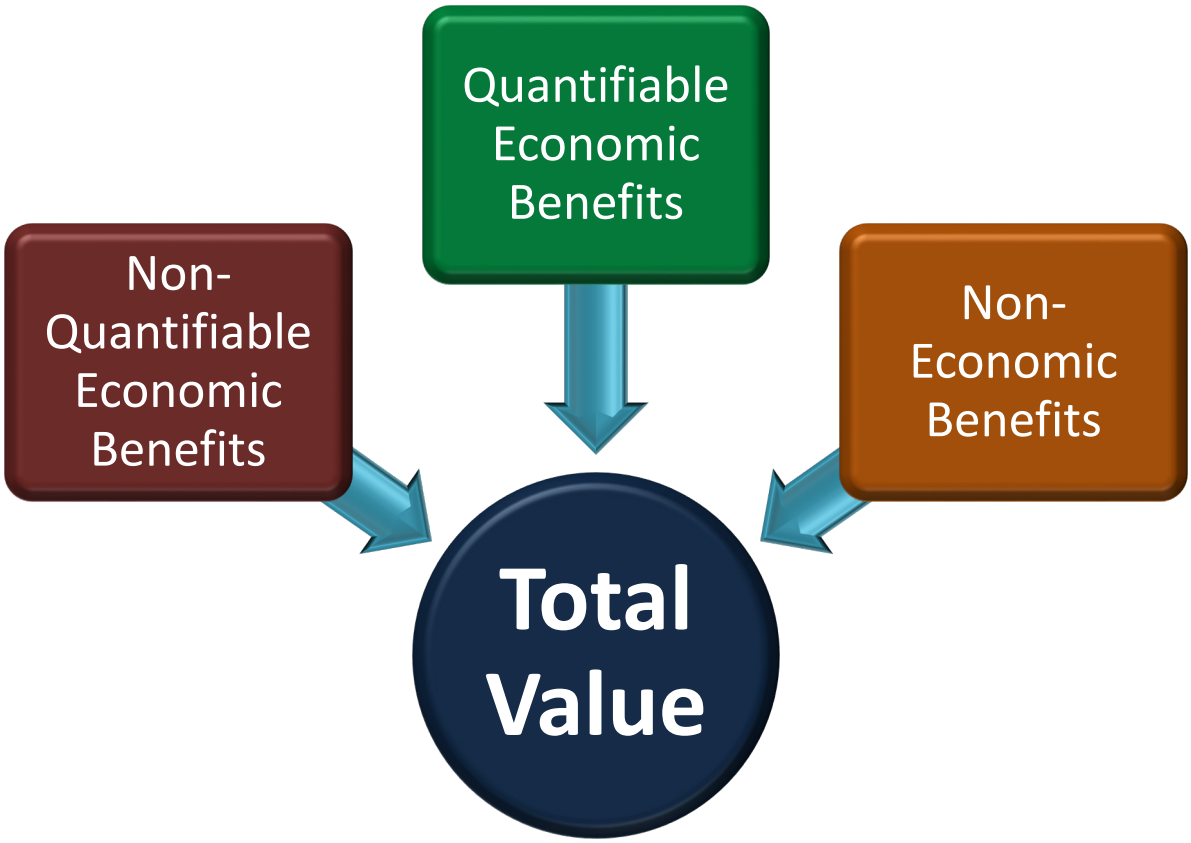
The business case will:

- Identify economic and non-economic benefits of full realization of the Trans-Sierra Transportation Plan (full investment scenario)
- Provide quantitative and qualitative data on these benefits
- Identify additional resources necessary for the full investment scenario

With this information, citizens in the Trans-Sierra Region will have a basis for assessing the total value created by the full investment scenario. This process is shown graphically in Figure 2. If enough people perceive that there is sufficient total value to justify the investment, this provides the basis for moving forward with the actions necessary to identify and allocate resources and make the investments identified in the plan. It is not necessary for all people to attach the same value to all the benefits, just that each individual sees enough total value to merit their support.

It should be kept in mind that the projects, activities, and services captured in the Trans-Sierra Transportation Plan collectively create an integrated, multimodal transportation system. Each piece of this system is designed to work with all the others to produce results that fulfill the vision of individual communities and the region. It is the nature of systems that the whole is greater than the sum of its parts. Thus, eliminating any one component decreases the likelihood that the desired results will be achieved, often to a degree disproportionately greater than the perceived "savings."

FIGURE 2
Assessing "Total Value"



SECTION 3

Benefits of Full Investment in the Trans-Sierra Transportation Plan

Traditionally, analysis of the benefits of transportation investment has been narrowly focused. Indeed, some economists held the view that the sole benefit of transportation investments is to lower the cost of transportation. This perspective has evolved, and it is now widely recognized that, in addition to the economic benefits, investments in our transportation infrastructure provide important social, community, and environmental benefits. In fact, experience has shown that the value given to non-economic benefits by citizens may be of particular importance in efforts to achieve social/political support for transportation investments. While many benefits can be readily assessed using quantitative techniques, there are many, particularly in the social and community arena, that are not amenable to quantitative analysis and thus qualitative assessment is used.

Benefit information can be organized in a number of ways. For this business case, the benefits are organized by three broad groups of benefit recipients: businesses, residents, and visitors. This structure enables us to answer the universal question: "What is in it for me?" Of course, many benefits accrue to more than one group, although the perspective of each group may be somewhat different; descriptions and assessments of benefits attempt to capture this nuance.

3.1 Benefits to Businesses

3.1.1 Greater Economic Competitiveness, Diversity, and Stability

Among nations, there is a clear correlation between investment in transportation infrastructure and level of economic activity. The developed economies of North America, Europe, and Asia provide object lessons in this relationship. The high levels of investment in transportation infrastructure in the emerging economies of China, Brazil, India, and Russia indicate these lessons are well understood. Efficient transportation systems provide businesses with a competitive advantage. Transportation systems with capacity, reliability, or safety deficiencies create a drag on economic activity, wealth creation, individual prosperity, and quality of life. The message is clear: Good transportation is not an adjunct to great economies and great communities, it is fundamental.

Transportation investments benefit businesses in many ways. Improved transportation networks allow businesses to access a wider labor pool, as well as a wider universe of input suppliers and customers. A Federal Highway Administration study estimated that for every dollar invested in roadways, U.S. industries save on average 18 cents annually in their production costs, an amount that rises when analyzing the return on investment specifically for highways (U.S. Department of Transportation [USDOT], 2014).

With growth in international trade and online shopping, reeling in distribution and shipping costs becomes more important to a larger number of businesses. Access to faster and more reliable transportation allows businesses to implement just-in-time delivery systems and reduce inventory costs as goods spend less time sitting on shelves (Lakshmanan and Chatterjee, 2005). This benefit is particularly relevant to the Nevada counties of the Trans-Sierra Region, where there is a high concentration of industrial and distribution activity, due largely to the lower operational costs in the area and the logistical access to the Western U.S. market. Additional transportation investment will help the region build on what is already a competitive advantage in the distribution sector. In addition to the benefits to individual businesses, transportation investments benefit local and regional economies as a whole. Better transportation networks allow businesses to export greater distances and serve a broader customer base, which increases competition. Competitive pressures lower prices and promote innovation and quality, creating real benefits for consumers. Improved access also increases land values and opens up new land for development and economic activity (Rodrigue, 2013).

Transit investments can bolster downtown areas, providing cost reductions for businesses that cluster together. Cambridge Systematics estimated that a sustained program of transit capital investment can add $2 million in business output in the short term and $0.8 million in personal income for every $10 million invested (Cambridge Systematics, 2002). In Denver, the Regional Transportation District estimates that every public dollar invested in the FasTracks public transit program generates $4 in local economic development over 20 years and creates more than 6,200 jobs per year (Urban Land Institute, 2013). Transportation investments can also benefit rural areas in profound ways by connecting them to larger regional economies. A widely regarded national study concluded that the current return to U.S. businesses from the nation's investments in highways, roads, and public transit produces more than $4 in direct benefits for each $1 in direct costs and that "the prosperity, wealth and free movement that Americans enjoy today could not exist without decades of public investments in highways, roads, and bus and rail systems" (Shapiro and Hassett, 2005).

3.1.2 Job Creation

Transportation investments create jobs. One study estimated that every $1 billion invested in public transportation results in 36,000 new jobs, consisting of jobs related to construction and operation of transportation facilities, as well as jobs supported by those workers' wages (Economic Development Research Group and Cambridge Systematics, 2009). Not considered in this analysis is the additional expanded economic activity from the efficiency gains that transportation investments provide to businesses, enabling them to grow and employ more workers.

The number of jobs that would be created by the investments under consideration in the Trans Sierra region was estimated using IMPLAN, an Input-Output (I/O) analysis framework that considers direct, indirect, and induced effects on industry production, employment, and employee compensation.

- **Direct impacts** refer to economic activity within the immediately affected industry, which in this case consists of construction expenditures for transportation. Construction jobs are especially important for a diverse economy as they provide middle class wages without substantial education requirements.
- **Indirect impacts** result from inter-industry transactions required to satisfy the direct effect. In this case, those transactions would involve the purchase of construction materials, engineering, services, etc.
- **Induced impacts** represent economic effects that result from household spending attributable to the direct and indirect construction-generated employment activity in the region.

Existing funding would limit transportation-related construction spending to $19.3 billion in 2014 dollars. This investment would generate 259,400 job years (or an annual average of roughly 13,000 jobs over 20 years) in the Trans-Sierra region through direct, indirect, and induced impacts, as seen in Table 2.

The same construction investment would generate $38.4 billion in total economic output throughout the region, including $14.7 billion in labor income (which includes wages and benefits to employees as well as proprietor income). When proprietor income is excluded, the average employee compensation for the construction jobs generated is $43,650 annually. Even when factoring in the jobs created by indirect and induced impacts (typically lower paying, service and manufacturing jobs), the average annual employee compensation is $41,405. These transportation investments clearly have the capacity to provide blue-collar jobs that pay middle class wages, the kind that are increasingly hard to come by in today's economy.

If full funding for the Trans-Sierra Transportation Plan were available, this would result in an additional $15.9 billion in transportation spending for a total of $35.2 billion from 2015 to 2035. As shown in Table 3, the incremental investment increase of $15.9 billion would create an additional 201,900 job years of employment. This equates to about 10,000 additional well-paying middle class jobs on an annual basis[1], an increase of 78% over the constrained scenario. This investment would boost the regional economic output an additional $29.9 billion, including an additional $11.3 billion in labor income.

[1] Assuming a 20-year construction timeframe.

TABLE 2

Economic Impacts of Transportation Construction Activity – Full Investment

Reprint of Table A-1 in Appendix A

	TOTAL IMPACTS (DIRECT, INDIRECT AND INDUCED)												
	California						Nevada					Tahoe Regional Planning Agency Projects	Total Trans-Sierra Region Projects
Impact	Alpine	Amador	El Dorado	Nevada	Placer	Sierra	Carson City	Douglas	Lyon	Storey	Washoe		
Total Construction Costs	**$51,926,100**	**$146,330,000**	**$2,155,800,000**	**$274,630,000**	**$6,945,400,000**	**$155,795,000**	**$268,520,600**	**$80,814,000**	**$112,835,544**	**$31,278,006**	**$7,506,466,000**	**$1,591,534,268**	**$19,321,329,518**
County Impacts													
Industry Output	$60,684,622	$192,789,050	$3,073,704,555	$395,665,292	$10,884,315,316	$189,698,804	$383,504,436	$108,095,115	$156,202,577	$50,440,876	$12,105,404,127	$2,567,878,565	$30,168,383,334
Multiplier	*1.17*	*1.32*	*1.43*	*1.44*	*1.57*	*1.22*	*1.43*	*1.34*	*1.38*	*1.61*	*1.61*	*1.61*	*1.56*
Labor Income	$29,183,800	$46,553,400	$1,082,139,600	$123,389,700	$4,481,781,500	$49,315,800	$133,985,000	$30,122,600	$36,760,200	$19,771,300	$4,744,939,600	$986,322,100	$11,764,264,600
Labor Income per $1 Output	*0.48*	*0.24*	*0.35*	*0.31*	*0.41*	*0.26*	*0.35*	*0.28*	*0.24*	*0.39*	*0.39*	*0.38*	*0.39*
Employment (Job Years)	325.7	1,504.6	21,285.9	3,009.7	68,981.9	1,496.0	2,490.7	788.2	1,192.9	343.8	78,398.1	16,743.2	196,560.9
Income per Employee	*$89,600*	*$30,900*	*$50,800*	*$41,000*	*$65,000*	*$33,000*	*$53,800*	*$38,200*	*$30,800*	*$57,500*	*$60,500*	*$58,900*	*$59,850*
Remainder - Trans-Sierra Region Impacts													
Industry Output	$3,277,126	$4,904,314	$70,947,114	$35,466,339	$319,933,337	$7,441,603	$100,089,753	$28,595,765	$21,938,223	$31,679,169	$7,602,741,840	$32,678,995	$8,259,693,579
Multiplier	*0.06*	*0.03*	*0.03*	*0.13*	*0.05*	*0.05*	*0.37*	*0.35*	*0.19*	*1.01*	*1.01*	*0.02*	*0.43*
Labor Income	$1,101,500	$1,451,000	$24,176,500	$11,966,200	$101,849,300	$2,549,900	$33,836,200	$9,542,800	$7,232,800	$11,530,100	$2,767,119,300	$8,482,000	$2,980,837,600
Labor Income per $1 Output	*0.34*	*0.30*	*0.34*	*0.34*	*0.32*	*0.34*	*0.34*	*0.33*	*0.33*	*0.36*	*0.36*	*0.26*	*0.36*
Employment (Job Years)	24.3	32.8	457.3	225.6	2,287.5	61.1	687.4	184.7	142.8	243.0	58,306.8	199.6	62,852.9
Income per Employee	*$45,400*	*$44,200*	*$52,900*	*$53,000*	*$44,500*	*$41,800*	*$49,200*	*$51,700*	*$50,600*	*$47,500*	*$47,500*	*$42,500*	*$47,426*
Total Trans-Sierra Region Impacts													
Industry Output	$63,961,749	$197,693,365	$3,144,651,669	$431,131,631	$11,204,248,653	$197,140,408	$483,594,189	$136,690,880	$178,140,800	$82,120,044	$19,708,145,966	$2,600,557,560	$38,428,076,913
Multiplier	*1.23*	*1.35*	*1.46*	*1.57*	*1.61*	*1.27*	*1.80*	*1.69*	*1.58*	*2.63*	*2.63*	*1.63*	*1.99*
Labor Income	$30,285,300	$48,004,400	$1,106,316,100	$135,355,900	$4,583,630,800	$51,865,700	$167,821,200	$39,665,400	$43,993,000	$31,301,400	$7,512,058,900	$994,804,100	$14,745,102,200
Labor Income per $1 Output	*0.47*	*0.24*	*0.35*	*0.31*	*0.41*	*0.26*	*0.35*	*0.29*	*0.25*	*0.38*	*0.38*	*0.38*	*0.38*
Employment (Job Years)	350.0	1,537.4	21,743.3	3,235.4	71,269.3	1,557.1	3,178.2	972.9	1,335.8	586.8	136,704.9	16,942.8	259,413.8
Income per Employee	*$86,500*	*$31,200*	*$50,900*	*$41,800*	*$64,300*	*$33,300*	*$52,800*	*$40,800*	*$32,900*	*$53,300*	*$55,000*	*$58,700*	*$56,840*

imp_sum_constrain

Source: IMPLAN.

NOTE: Estimates shown in this table reflect economic impacts associated with construction activity based on total construction budgets, and do not reflect annual impacts. To derive annualized impacts, total impacts shown above should be divided by the estimated construction timeframe (years).

TABLE 3

Economic Impacts of Transportation Construction Activity – Incremental Investment

Reprint of Table C-1 in Appendix C

	TOTAL IMPACTS (DIRECT, INDIRECT AND INDUCED)												
	California						Nevada					Tahoe Regional Planning Agency	Total Trans-Sierra Region
Impact	Alpine	Amador	El Dorado	Nevada	Placer	Sierra	Carson City	Douglas	Lyon	Storey	Washoe		
Total Construction Costs	**$80,599,346**	**$268,164,719**	**$763,600,000**	**$827,761,445**	**$7,045,149,680**	**$226,963,664**	**$399,246,550**	**$945,394,038**	**$129,236,101**	**$96,896,604**	**$4,320,324,488**	**$784,038,059**	**$15,887,374,694**
County Impacts													
Industry Output	$94,194,213	$353,305,639	$1,088,728,426	$1,192,573,418	$11,040,635,566	$276,355,152	$570,208,869	$1,264,538,763	$178,906,544	$156,261,591	$6,967,229,827	$1,265,014,877	$24,447,952,885
Multiplier	*1.17*	*1.32*	*1.43*	*1.44*	*1.57*	*1.22*	*1.43*	*1.34*	*1.38*	*1.61*	*1.61*	*1.61*	*1.54*
Labor Income	$45,298,900	$85,313,900	$383,301,700	$371,908,400	$4,546,148,800	$71,843,800	$199,214,000	$352,385,600	$42,103,400	$61,249,700	$2,730,936,100	$485,892,200	$9,375,596,500
Labor Income per $1 Output	*0.48*	*0.24*	*0.35*	*0.31*	*0.41*	*0.26*	*0.35*	*0.28*	*0.24*	*0.39*	*0.39*	*0.38*	*0.38*
Employment (Job Years)	505.5	2,757.4	7,539.6	9,071.6	69,972.6	2,179.4	3,703.3	9,221.1	1,366.3	1,065.1	45,121.8	8,248.2	160,752.0
Income per Employee	*$89,600*	*$30,900*	*$50,800*	*$41,000*	*$65,000*	*$33,000*	*$53,800*	*$38,200*	*$30,800*	*$57,500*	*$60,500*	*$58,900*	*$58,323*
Industry Output	$5,086,734	$8,987,658	$25,129,983	$106,898,985	$324,528,213	$10,841,000	$148,817,218	$334,524,539	$25,126,926	$98,139,373	$4,375,735,765	$16,098,664	$5,479,915,057
Multiplier	*0.06*	*0.03*	*0.03*	*0.13*	*0.05*	*0.05*	*0.37*	*0.35*	*0.19*	*1.01*	*1.01*	*0.02*	*0.34*
Labor Income	$1,709,700	$2,659,000	$8,563,500	$36,067,300	$103,312,100	$3,714,700	$50,308,900	$111,635,000	$8,284,100	$35,719,100	$1,592,607,400	$4,178,500	$1,958,759,300
Labor Income per $1 Output	*0.34*	*0.30*	*0.34*	*0.34*	*0.32*	*0.34*	*0.34*	*0.33*	*0.33*	*0.36*	*0.36*	*0.26*	*0.36*
Employment (Job Years)	37.7	60.2	162.0	680.1	2,320.3	89.0	1,022.1	2,160.2	163.6	752.6	33,558.3	98.3	41,104.4
Income per Employee	*$45,400*	*$44,200*	*$52,900*	*$53,000*	*$44,500*	*$41,800*	*$49,200*	*$51,700*	*$50,600*	*$47,500*	*$47,500*	*$42,500*	*$47,653*
Industry Output	$99,280,946	$362,293,297	$1,113,858,409	$1,299,472,403	$11,365,163,779	$287,196,152	$719,026,087	$1,599,063,302	$204,033,470	$254,400,965	$11,342,965,592	$1,281,113,541	$29,927,867,942
Multiplier	*1.23*	*1.35*	*1.46*	*1.57*	*1.61*	*1.27*	*1.80*	*1.69*	*1.58*	*2.63*	*2.63*	*1.63*	*1.88*
Labor Income	$47,008,600	$87,972,900	$391,865,200	$407,975,700	$4,649,460,900	$75,558,500	$249,522,900	$464,020,600	$50,387,500	$96,968,800	$4,323,543,500	$490,070,700	$11,334,355,800
Labor Income per $1 Output	*0.47*	*0.24*	*0.35*	*0.31*	*0.41*	*0.26*	*0.35*	*0.29*	*0.25*	*0.38*	*0.38*	*0.38*	*0.38*
Employment (Job Years)	543.2	2,817.5	7,701.6	9,751.7	72,292.9	2,268.4	4,725.4	11,381.3	1,529.9	1,817.7	78,680.1	8,346.5	201,856.4
Income per Employee	*$86,500*	*$31,200*	*$50,900*	*$41,800*	*$64,300*	*$33,300*	*$52,800*	*$40,800*	*$32,900*	*$53,300*	*$55,000*	*$58,700*	*$56,151*

imp_diff

Source: IMPLAN.

NOTE: Estimates shown in this table reflect economic impacts associated with construction activity based on total construction budgets, and do not reflect annual impacts. To derive annualized impacts, total impacts shown above should be divided by the estimated construction timeframe (years).

Under current conditions (i.e., without any of the proposed transportation investments), the region is expected to add 317,000 jobs from 2015 to 2035 according to Woods and Poole. Jobs associated with the construction of all proposed transportation improvements could increase this figure by 7 percent[2], a significant impact on job creation when viewed in the context of overall employment projections for the region.

Appendices A through C present summaries for the constrained, incremental, and full investment scenarios, respectively, for each of the 11 counties.

3.1.3 Expanded Economic Activity

Investments in Transit-Oriented Development (TOD), Complete Streets, and the reworking of busy arterials bisecting downtown areas can produce opportunities for new and expanded businesses by creating "places" where people gather to shop, dine, seek entertainment, and socialize, as well as venues for community events. In Portland, Oregon's Pioneer Courthouse Square, investments in transit and transit facilities created a "downtown living room" with good access and a place for community activities. This contributed to a revitalized downtown and increased economic activity, fueling an increase from 50,000 downtown jobs in 1975 to more than 86,000 today. In addition, these investments led to improvements in air quality due to increased transit usage for commuters and people returning to downtown to live (TCRP, 1997).

Somerville, Massachusetts saw similar downtown revitalization resulting from its investments in transit and transit facilities that created a "front yard" for local businesses and a place for community events. This contributed to an influx of new restaurants, theaters, and entertainment-related businesses, as well as significant new office space with virtually 100 percent occupancy. As a result, Somerville's downtown has now become an attractive place to live (TCRP, 1997).

It is not unreasonable to expect similar impacts from a number of the investments included in the Trans-Sierra Transportation Plan, such as the proposed relocation of US Highway 50 in Stateline. This project is expected to stimulate more than $1 billion in private sector development in upgraded and expanded shopping, dining, entertainment, and lodging facilities. According to the developers, the road relocation, which will create a more inviting place that is friendly to pedestrians and served by multimodal transportation, is a primary factor in their future investment plans and decisions.

An increasing number of the nation's leading companies are attempting to reduce their environmental impacts, including Google, Microsoft, FedEx, Oracle, Hewlett Packard, and Amazon, all of which have facilities within the Trans-Sierra Region. Google has been carbon neutral since 2007 and Microsoft made a commitment to become carbon neutral beginning in 2013. These efforts consider the carbon footprint and environmental impacts of all company activities, including business travel and employee commutes. Full implementation of the Trans-Sierra Transportation Plan will reduce emissions and fuel consumption associated with travel, and offer expanded multimodal options. This would make the Trans-Sierra Region a natural fit for companies intent on reducing their environmental impacts as they consider locating new facilities or expanding existing facilities.

3.1.4 More Effective Work Force Recruitment and Retention

Interconnected, multimodal transportation systems, such as the system that would be realized by implementing the Trans-Sierra Transportation Plan, enhance a community's quality of life. Businesses making major location and expansion decisions often undertake community assessments, including assessments of quality of life, which is crucial to recruitment and retention of a skilled work force (Cothran, 2012).

[2] The full investment scenario is projected to generate 23,000 jobs over a 20-year timeframe, which equates to roughly 7 percent of the total job growth expected for the region from 2015 to 2035 under current conditions.

In fact, the Joint Economic Committee of the U.S. Congress reports that a city's quality of life is more important than purely business-related factors when it comes to attracting new businesses, particularly in the rapidly growing high-tech and service industries (National Park Service [NPS], 2014).

Quality of life for employees was the third most important factor in locating a business, according to an annual survey of chief executive officers conducted by Cushman and Wakefield in 1989 (NPS, 2014).

National studies have documented the need for employers to pay higher wages to attract workers in congested areas (Weisbrod, Cutler, and Chandler, 2014). Transportation investments that reduce travel and delay time benefits employers by reducing this congestion "wage premium." Employees benefit because they spend less of their personal time and have less stress when commuting, and they spend less on vehicle operating costs. In instances where the transportation system offers convenient alternatives to the automobile, the employee may also benefit by using the commute time for other pursuits or for exercise.

3.1.5 Sustained and Expanded Visitation and Tourism

The wide open spaces and attractions of the Trans-Sierra Region straddle what has been dubbed the Northern California megapolitan, the fast-growing urban area stretching from San Francisco, through Sacramento, to Reno. The Northern California megapolitan is home to some 15 million people today, and this number is expected to increase by an estimated 25-30 percent by the year 2035. The natural beauty, year-round recreational opportunities, and solitude of the Trans-Sierra Region are a relatively short drive from these urban areas. This proximity makes the Trans-Sierra Region a key contributor to the overall quality of life for the millions that live and work in the Northern California megapolitan. The transportation system of the Trans-Sierra Region is already having difficulties meeting current demands of tourists and recreationists. To retain our existing market and to capture new visitors, the Region must offer a high-quality experience and an array of attractions surpassing our competitors' offerings.

Transportation will figure prominently in accomplishing both of these things. Journeys to, from, and within our region must be easy, low-stress, and reasonably swift from home to destination and back again. Spending long hours stuck in traffic, getting lost because of inadequate signage, being bruised by potholed pavements, and wasting long hours due to missed or poor modal connections can be real deterrents to repeat business. Lack of parking or safe, alternative ways of getting to and from attractions by transit, walking, or bicycling can also degrade the visitor experience. The Trans-Sierra Transportation Plan's comprehensive, multimodal system achievable through the full investment scenario can help ensure a high-quality experience for our visitors by mitigating congestion, improving safety, keeping our roads smooth, and offering integrated transportation alternatives.

The enhanced access this system would provide to the multitude of natural and manmade attractions in the Trans-Sierra Region will give us a year-round competitive advantage by offering our visitors more to do and making it easier to do it. The importance of transportation investment is not lost on our competitors. At a recent meeting of the Southeast Tourism Society, which comprises 12 southern states, addressing the nation's aging highway infrastructure because of its negative impact on tourism was cited as a top priority (TheTandD.com, 2014).

The Trans-Sierra Transportation Plan includes expanded modal choices, alternative fuel vehicles, and expanded walking and biking travel opportunities as part of a sustainable system serving the entire region. Thus, realization of this plan can also support sustained and expanded tourism by appealing to the increasing number of travelers who consider the environmental impacts of their recreation. According to a 2012 survey by TripAdvsior, nearly one-third of travelers (30 percent) would choose a travel destination because it is considered eco-friendly. The same survey found that the 'green' travel trend is gaining momentum among TripAdvisor members, as 71 percent said they plan to make more eco-friendly choices in the next 12 months as compared to 65 percent that did so in the past 12 months (Center for Responsible Travel, 2014).

3.1.6 Enhanced Attractiveness for Special Events (Olympics, X-Games, Bike and Foot Races)

Signature special events, such as the Olympics, X-Games, USA BMX Races, Ironman Triathlons, and USA Cyclist Road National Championship Races, are highly sought by many communities because of their prestige and economic impacts. The organizers for many of these events have made such things as "environmental sustainability" and "green transportation" factors to be considered in determining which community will host an event. Full implementation of the Trans-Sierra Transportation Plan would make a positive contribution to efforts in the Region to attract such events. The Trans-Sierra Transportation Plan would create a robust backbone system capable of effectively and reliably moving large numbers of spectators to and throughout the region. The integrated, interconnected mix of roads, transit, pedestrian, and bicycle facilities and services would clearly demonstrate the region's commitment to efficient, sustainable transportation. The special regard and care taken to protect our air, water, and fragile environment in the construction and operation of the transportation system would also be a strong selling point.

> ***"For the host city selection process, environmental sustainability is an important criterion and is specifically addressed in the candidature documentation. Bid cities are asked to provide an overview of their existing environmental health, as well as a detailed description of how they plan to promote green and sustainable Games. This process contributes to a city's long-term development plans, even if that city is not selected to host the Olympic Games in the end."***
>
> ***– International Olympic Committee, 2011***

3.2 Benefits to Residents

The economic benefits created by implementing the Trans-Sierra Transportation Plan at the full investment scenario for the Region's residents are enormous. Such investments provide the foundation for broad-based, sustained economic activity that can provide increased incomes, expanded opportunities for employment and business creation, new jobs for current residents and future generations, and improved stability through economic diversification. Perhaps of equal significance are the impacts these investments would have on our quality of life. As noted in a recent national assessment:

> *"Investments in our nation's transportation infrastructure can yield important community and social benefits. They can increase mobility and access, provide a greater choice of travel modes, improve safety, enhance the visual appearance of our communities, cities, and natural landscapes, and increase community cohesion. In short, transportation investments can improve the quality of life. While social benefits are more difficult to quantify than economic and environmental benefits, they are nonetheless every bit as important. Making a neighborhood, city, or region more livable can spur economic development by making it more attractive for businesses and residents to relocate there." (National Cooperative Highway Research Program [NCHRP], 2002a).*

3.2.1 Greater Economic Prosperity, Competitiveness, and Opportunity

Residents can take advantage of transportation investments to access a wide variety of high-paying jobs or to start their own businesses in locations that become more accessible to both themselves and their customers. Residents can also gain access to additional educational opportunities and healthcare services, and they can choose from a broader selection of housing options and consumer goods that become within reach through investments in transportation. These benefits all contribute to increases in disposable income for residents; and as residents have more to spend, their increased consumption generates ripple effects throughout the economy, including increased retail sales.

Transportation investments greatly benefit those who are "transportation disadvantaged." A study in Alameda County found that residents in low-income communities are less likely to own a car and one-third

as likely to have a grocery store in their neighborhoods. When public transit options are inadequate, they shop at local convenience stores that typically stock unhealthy, overpriced food. These residents also need good public transit availability to access medical care, retail shopping, and jobs (Iton, 2008). Providing public transportation options for those who are disadvantaged can potentially lessen welfare dependency by eliminating barriers to work, while reducing social and economic inequality.

3.2.2 Increased Public Resources to Strengthen Communities

The public services and facilities that help make our communities great places to live are paid for by taxes and fees levied on economic activity and land value. The healthier the economy, the greater our resources to build strong communities by providing such things as:

- Schools and educational programs
- Parks, recreation facilities, and sports fields
- Police, fire, and emergency medical services
- Programs for seniors
- Youth activities
- Cultural and civic events
- Public art
- Environmental protection and restoration programs

The investments in the projects and services in the Trans-Sierra Transportation Plan ripple through the regional economy, multiplying their impacts. Further, these investments will make businesses more competitive, allowing them to expand and create additional jobs and generate still more economic activity. While every jurisdiction has chosen a specific mix of revenue-collecting mechanisms, the most significant mechanisms that could be positively impacted by full realization of the Trans-Sierra Transportation Plan are discussed below.

Increased Sales Tax Revenue

Economic activity catalyzed by transportation infrastructure helps generate sales tax revenue by improving consumer and business access as well as increasing disposable income and associated spending. Better transportation networks open up opportunities for new retail and service businesses to locate in previously inaccessible locations, and also allow existing businesses to draw more traffic and sales. This success can reinforce itself and multiply within the local economy, as businesses use their extra income from sales revenue to purchase goods at other local businesses, or hire new employees who in turn use their wages to purchase other local goods.

While transportation investments can improve access by reducing the distances and costs of commuting from faraway locations, they can also make local destinations more accessible and appealing to residents through transportation improvements within existing downtowns. In the City of Livermore, California, a $12.5 million streetscape improvement project converted a four-lane highway into a two-lane, pedestrian-focused commercial district that “effectively gave Main Street back to the city.” (National Trust for Historic Preservation, 2009) The project was completed in 2006, and within 3 years, retail sales downtown increased 15 percent, while commercial vacancies decreased significantly. Within the Trans-Sierra Region, an analysis of the proposed revitalization of Fanny Bridge found that both effective roadway realignment and pedestrian improvements could conservatively increase retail sales by 5 to 10 percent for tourist-oriented businesses in the area (Economic and Planning Systems, 2013).

In New York City, one study showed that the addition of a separated bicycle lane in Manhattan resulted in a 49 percent increase in retail sales in the surrounding neighborhood. Across the bridge, in Brooklyn, a parking lot that was converted into a plaza led to a more than 170 percent sales increase (New York City Department of Transportation, 2012).

The transportation investments proposed for the Trans-Sierra Region will most certainly bring sales increases. As an example of what this can mean to local jurisdictions, a 1 percent increase in taxable retail

sales in the region would generate an estimated additional $15.1 million in gross sales tax revenue, while a 5 percent increase could generate nearly $76 million in additional gross sales tax revenue. Appendix D presents estimated sales tax revenue by county. A portion of this revenue would be available to fund local government services.

Increased Property Tax Revenue

As previously discussed, transportation improvements open up new land for development or intensify investment on parcels with existing development. In either case, this results in increased property tax revenue. Transportation investments can also increase existing commercial and residential property values even when there are no additional investments being made on the parcels themselves.

Business owners are willing to pay more to operate in locations that are easily accessible to their customers. In Santa Clara County, California, for instance, proximity to light rail and commuter rail stations was found to bring a 23 percent to 120 percent premium on commercial land values (Cervero and Duncan, 2002).

Residents also are willing to pay more for housing closer to public transit, thereby reducing commute times. A study in Alameda County showed that a home's value increased $2 for every meter it was closer to a Bay Area Rapid Transit (BART) station. A home within a short walk to BART was found to sell for 38 percent more than the same house several miles away (Diaz, 1999). Similarly, homes in the Chicago area within a half mile of Metra stations were found to sell for $36,000 more than homes not within walking distance to Metra (Active Transportation Alliance, 2012). Other studies have found that homes located near bike paths are priced 10 percent higher (Urban Land Institute, 2013a).

Within the Trans-Sierra Region, there are limits to how much property taxes may increase for a given property owner. Due to Proposition 13 in California, a property's assessed value may not increase by more than 2 percent in any one year. In Nevada, a homeowner's property tax bill may not increase more than 3 percent in a given year, while commercial property taxes are capped at 8 percent annually. In both states, however, the property tax caps are removed when there is a transfer of ownership, at which time the assessed value is reset based on the transaction price. To the extent that property values appreciate beyond statutory limits, as property transfers occur, local jurisdictions will realize increased property tax revenue. Beyond existing development, the proposed transportation investments in the Trans-Sierra Region also may generate significant additional property taxes as improved transportation access increases land and finished real estate values and facilitates new construction activity that may not have otherwise occurred.

Based on existing property tax rates, an increase in total assessed value of 0.5 percent in the region would result in an estimated increase of $7.8 million in gross property tax revenue, while an increase of 1.5 percent would generate $23.5 million additional gross property tax revenues. Appendix E presents estimated property tax revenues by county.

Increased Income Tax Revenue

In jurisdictions that collect revenue through income taxes, transportation improvements can increase income taxes in multiple ways. Residents gain access to a wider pool of employment opportunities, allowing them to find jobs that better match their skills and provide higher wages. Additionally, the aforementioned sales increases will increase incomes of business owners, and the land value increases will increase incomes of property owners. While these effects are difficult to quantify, they are real.

3.2.3 Reduced Vehicle Operating Costs

The current levels of funding across the Trans-Sierra Region have been insufficient to adequately maintain and renew our roads and related facilities. A significant portion of our road surfaces are in poor or mediocre condition and the documented backlog in repair, rehabilitation, and reconstruction of roadways and appurtenant facilities exceeds $2.8 billion (Nichols Consulting Engineers, Chtd, 2013). Surface roughness reduces vehicle fuel efficiency and also increases repair and maintenance costs. Residents in the Trans-Sierra Region are paying significant additional vehicle operating costs for driving on these poor roads. The Road Information Program (TRIP), a national transportation research group, conducts research across all 50 states

and in many metropolitan areas to estimate the additional vehicle operating costs due to driving on poor pavements. In a report released in October 2013, TRIP estimated that motorists in the Reno area pay an additional $771 per year in vehicle operating costs (TRIP, 2013). The TRIP report for California issued in September 2014 estimated that the average driver in California pays $703 per year in additional operating costs (TRIP, 2014). Using the TRIP research results, it is estimated that the average additional operating cost per year paid by each driver in the Trans-Sierra Region is about $666. This amounts to an estimated $511 million in additional costs annually, and a cumulative amount through 2035 (if things remain the same) of $12.4 billion. In effect, this is money we are already spending, but with no return. The full investment scenario of the Trans-Sierra Transportation Plan would eliminate the current backlog and provide resources to keep our road system in good condition on a sustainable basis.

3.2.4 Enhanced Quality of Life

The transportation projects and services included in the Trans-Sierra Transportation Plan offer us more options for mobility whether driving, riding transit, walking, or biking, and improved connectivity between all these modes of travel. As a result of these transportation-related improvements, communities can become more cohesive. Streets that are attractive and safe for all users encourage social interaction. They encourage children to ride bicycles to their friends' houses and adults to cross the street to talk to neighbors. Efficient public transit systems allow those without cars – the young, the poor, the elderly, and the handicapped – to participate more fully in civic life, giving them a degree of independence they would not otherwise have (NCHRP, 2002a). As noted in a comprehensive national assessment:

> *"Investment in transit systems can dramatically increase mobility and accessibility for the young, the elderly, the poor, and the disabled. Investment in ADA-compliant light rail systems, fixed-route bus services, or demand response (dial-a-ride) services ensure their personal mobility. It gives them access to jobs, education, shopping, health care, and family and friends, particularly as development in the suburbs continues to outpace development in the older urban centers. Transit can break the social isolation felt by adolescents who are too young to drive, and by the elderly and disabled with impairments that make it impossible or unsafe for them to drive. For the elderly especially, access to transit can make the difference between being able to live independently or in an assisted living facility. Because a disproportionate number of people who depend on transit service are elderly, minorities, and low-income, transit investment also helps reduce social and economic inequality." (NCHRP, 2002a).*

Communities across the country have found that making transportation investments similar to those contemplated in the Trans-Sierra Transportation Plan have made their communities stronger and more cohesive. These investments allow people to come together and create places for interaction to occur. Research has shown that increased community cohesion can:

- Reduce crime and poverty
- Provide support and safety
- Increase property values
- Increase personal security
- Reduce depression, suicides, and illness
- Increase levels of personal happiness

The extent to which communities with enhanced transit options generate quality-of-life benefits is reflected in the demand for such communities. Many studies show that demand for compact, mixed-use, transit-accessible development well exceeds supply. Walkable communities experience a 40 to 100 percent price premium over traditional, automobile-oriented communities (Urban Land Institute, 2013b). Millennials, who will likely fill many of the new skilled jobs in the region, place a particular premium on communities that provide a variety of transportation options. 76 percent of millennials consider walkability an important

aspect of a community (Urban Land Institute, 2013a). Baby boomers are increasingly choosing walkable communities as well.

3.2.5 Better Health

Investments in the Trans-Sierra Transportation Plan will create a connected, safe, and healthy experience for walkers and bicyclists, whether their trip is for work, school, shopping, or recreation.

A good transportation system that offers real opportunities for walking and biking can have enormous health benefits for people of all ages. According to the Centers for Disease Control and Prevention, nearly two-thirds of Americans are not regularly physically active, and more than half are overweight or obese. Each year, 300,000 Americans die from diseases associated with a sedentary lifestyle, including coronary heart disease, hypertension, colon cancer, diabetes, and depression. Yet as little as 30 minutes of moderate-intensity exercise per day, such as cycling or brisk walking, can reduce health risks dramatically. (NCHRP, 2002a).

People who live in neighborhoods with parks, trails, and greenways are twice as healthy as people who live in neighborhoods without these kinds of facilities. Another study showed that spending an additional hour in a car per day corresponds to a 6 percent increase in body weight, while walking 0.6 miles each day corresponds to a 5 percent decrease (Urban Land Institute, 2013b).

Good transportation also provides health benefits by improving our access to health care providers. In Boston, for example, a number of health care providers have chosen to locate facilities in close proximity to transportation nodes. Benefits cited include the ease of access and convenience for both clients and health care workers (NCHRP 2002a). Investments in the Trans-Sierra Transportation Plan will provide a system that will continue the excellent access to health care providers we currently enjoy via automobile while expanding access via other modes for those who prefer or need an alternative.

The cost of transit investments can be partially offset by the health savings generated. The surgeon general recommends at least 30 minutes of physical activity at least 5 days a week. Use of public transportation satisfies this requirement for many riders by itself. Transit users in this country walk a median of 19 minutes a day to and from transit, and 29 percent walk upwards of 30 minutes a day (Besser, 2005).

On average the annual costs of physical inactivity in the U.S. are estimated at $1,374 per person (Pratt et al, 2012). According to research from East Carolina University, 68.5 percent of workers in California and 70.8 percent of workers in Nevada are physically inactive (East Carolina University. 2007). If public transportation investments in the Trans-Sierra Region cause just one percent of the physically inactive population to become physically active, health care cost savings could total up to $6.9 million annually Appendix F presents the estimated annual health savings due to increased transit use by county.

3.2.6 Improved Safety

Transportation investments such as those included in the Trans-Sierra Transportation Plan can make our communities safer places to live, work, and play. Some of the Plan projects will improve safety by building grade separations and controlling access on our major regional arterials and freeways. Expanded options to use other modes of travel will contribute to safety as well. National experience shows us that generally speaking, infrastructure investments in grade separation, reduction of intersection conflict points, and elimination of intersections entirely reduce fatalities and injuries; the safest roads are those with limited access. In 1999, urban interstate highways averaged 0.61 fatalities per 100 million vehicle miles traveled, compared to 1.28 fatalities on urban local roads. Rural Interstates averaged 1.23 fatalities, compared to 3.7 on rural local roads. Shifts to other modes will also generally improve safety. In 1999, 40,000 deaths involved motor vehicle occupants, but just 58 involved bus occupants (school, intercity, and transit), and 14 involved passengers on trains. (NCHRP, 2002a).

Safety can also be improved using Intelligent Transportation Systems (ITS). For example, loop detectors embedded in the roadway, together with cameras mounted on major traffic arteries, provide early warning

of accidents, reducing response time of emergency vehicles. Such a system was deployed in San Antonio, Texas beginning in 1995. Called TransGuide, the system was developed by the Texas DOT with federal funding. TransGuide uses loop detectors, high-resolution color video cameras mounted on poles, variable message signs, lane control signals, and a digital communications network to transmit data to an operations control center. The loop detectors measure the speed and density of traffic on each highway lane and detect any disruptions in flow. This information is displayed graphically on color-coded maps. Incident managers in the control center use this data, coupled with the live video feed, to notify emergency response personnel, and also to adjust the variable message and lane control signals to notify travelers as soon as an incident occurs. Before TransGuide, an average of 100 accidents occurred each day on the city's highways, and emergency vehicles took an average of 18 minutes to reach the scene of an accident. With the new system in place on the first 26 miles of San Antonio's highway network, accidents fell by 15 percent and emergency response times fell by 20 percent. Eventually, TransGuide will cover 191 miles of highway around San Antonio. (NCHRP, 2002a).

Nationwide, just over 5 percent of all trips are made on foot, yet 13 percent of all traffic deaths are pedestrians. The most important safety enhancement for pedestrians is the construction of wide, well-lighted sidewalks and crosswalks, all of which are investments included in the Trans-Sierra Transportation Plan (NCHRP, 2002a).

Safety for bicyclists will also be improved under the full investment scenario. Increasing the separation between bicycle and vehicular traffic decreases cyclist injuries and fatalities. The Trans-Sierra Transportation plan includes extensive bicycle lanes as well as completely separated bicycle paths and trails, which have proven to be the most effective way to ensure a cyclist's safety. (NCHRP, 2002a).

Better street design results in improved safety. Pedestrian injuries and deaths have been shown to occur when there is no crosswalk present (Urban Land Institute, 2013b). Moreover, the installation of traffic-calming elements such as roundabouts, crosswalk flashers, or landscaped curb bump outs reduces automobile accidents involving pedestrian injuries by 15 percent.

Full investment in the Trans-Sierra Transportation Plan will reduce the economic costs of fatal and non-fatal injuries on our streets and highways by an estimated $2.5 billion from 2015-2035. The benefits of this improved safety on a personal level are incalculable.

3.2.7 Sustained Environment

Perhaps the most widely recognized environmental benefit of a good transportation system is a reduction in vehicle emissions, which helps keep our skies blue. Investments that keep our pavements in good condition mean that vehicles operate more efficiently, using less fuel and emitting fewer pollutants for each mile driven. Transportation improvements that reduce traffic congestion mean less time idling in traffic, which reduces tail pipe emissions. Where investments are made in effective transit service, the emissions for each passenger trip can be dramatically lower than the same trip made by car. In more extreme cases, the federal government can and has placed moratoriums on development activities if the level of transportation investment in a community is not sufficient to meet air quality standards in the face of additional travel.

Reduced emissions are not the only environmental benefit from transportation investments. According to national studies:

- **Transportation investment can reduce noise pollution –** New automobiles and transit vehicles are far quieter than their predecessors thanks to advances in engine technology. Erecting "green" roadway sound barriers can muffle the sound of passing vehicles.
- **Transportation investment can protect wetlands and safeguard clean water supplies –**Wetlands mitigation programs can ensure that the total acres of wetlands lost to new transportation projects is less than the number of new wetland areas created elsewhere. Controlling storm water runoff and soil erosion near roadways can reduce groundwater and surface water contamination.

- **Transportation investment can reduce light pollution –** Installing fully shielded, full cutoff streetlights not only saves energy and reduces unwanted glare on roadways, it can help ensure our view of the night sky is not lost to sky glow.
- **Transportation investment can help reclaim brownfields and provide a market for recycled materials –** Brownfields – polluted and abandoned industrial sites – are being cleaned up and rehabilitated for use as intermodal centers and other transportation-related facilities. The transportation industry uses a high percentage of recycled products, from asphalt cement to household plastics.
- **Transportation investment can provide historic and ecological preservation benefits –** Transportation projects are subjected to rigorous state and federal environmental analyses, including archeological research that can broaden our understanding of North American history and prehistory. Moreover, responsible transportation investment need not adversely impact wildlife and ecosystems. Through mitigation measures such as ecoduct construction, the effect of new transportation projects on the natural environment can be minimized. (NCHRP, 2002b).

3.2.8 Expanded Options for Transit, Walking, and Cycling

While the automobile is and will remain the dominant mode of transportation for longer trips in the Trans-Sierra Region for decades to come, it is also recognized by communities throughout the Region that offering options for transit service, where and when it works, and creating real opportunities to make shorter trips by walking or cycling, can provide real benefits. Time is precious to all of us, and while many of us enjoy driving, attitudes are slowly shifting, and many people would rather spend their travel time engaged in other activities such as reading, working, texting, emailing, or exercising. Providing realistic, practical alternatives to the automobile is highly desirable to many people, and an absolute necessity for those who have no choice. These options provide a benefit not only those using the alternative mode but also to those of us who travel by car.

Expanded transit service envisioned in the Trans-Sierra Transportation Plan will provide an alternative to the automobile for many longer trips. Some people may have the option to travel by car but choose to make some of their trips on transit so that they can use their travel time for activities other than driving. Demographic data suggests that this is a growing trend among people 18-33 years of age, the so-called millennials. Transit provides an alternative that can be cost effective, less stressful, and environmentally friendly. For others who are unable to drive due to age, infirmity, financial hardship, or other factors, transit may be a key to maintaining their independence by providing access to employment, school, medical services, shopping, social activities, and recreation.

While many trips are too far to make non-motorized travel an option, a surprising number are not. In urban areas, two-thirds of trips are 5 miles or less – suitable for cycling – and nationwide one-quarter of all trips made are one mile or less – suitable for walking (NCHRP, 2002a). But when walking even a short distance is not an option because there are missing sections of sidewalk, no safe crossings at intersections, or poor lighting, we will get in the car and drive. When riding a bike is unsafe because all or a portion of the trip is in mixed traffic with fast moving vehicles, we will get in the car and drive. When transit service is so infrequent or unreliable that there is no certainty of getting to work on time, we will get in the car and drive. All of this, of course, assumes that one has the option of using a car.

The key to making walking, bicycling, and transit, separately or in combination, a practical and realistic option is the creation of

> ***"The serendipity of walking means that we interact with our friends and neighbors more often, thereby creating a sense of community that not only makes us feel good, but also helps motivate us to support schools, parks, and other public necessities and amenities. Without a sense of community, we retreat to our cocoons, and become less likely to unite against societal challenges. And our cocoons become breeding grounds for fear and suspicion."***
>
> ***– Dom Nozzi, Urban Planner***
> ***Boulder, Colorado (NCHRP, 2002a)***

the integrated, multimodal system described in the Trans-Sierra Transportation Plan. This approach has been highly effective in other communities. For example, the 35-mile Pinellas Trail in St. Petersburg, Florida is used by 90,000 people each month, nearly a third of whom are commuters (NCHRP, 2002a).

Another example of a facility that enhances pedestrian/bicycle access to transit is the 10-mile Minuteman Commuter Bikeway northwest of Boston. The multi-use trail extends through the towns of Bedford, through Lexington, and Arlington to an important subway and bus terminal in Cambridge. On weekdays, hundreds of people use the trail for commuting, and on weekends more than 10,000 people use it for recreation (NCHRP, 2002a).

The fully implemented Trans-Sierra Transportation Plan will provide expanded options for travel via transit, walking, and cycling, while retaining a first-rate system for auto travel. In fact, these modes are inextricably linked and all are necessary to the envisioned integrated, multimodal system in the following ways:

- Virtually all trips, even those by auto or transit, begin and end with a walk
- The vast majority of our sidewalks and bicycle lanes are built in conjunction with our roadways
- Bus transit and paratransit run on roadways
- Non-auto trips reduce congestion and delay for those traveling by auto

3.2.9 Reduced Traffic Congestion

The impacts of traffic congestion are significant and the benefits of congestion relief are real. National experts note that traffic congestion affects our nation and our lives the following ways:

- **Congestion wastes time and affects peoples' quality of life**. Time spent in traffic is time that cannot be spent working or being with families. Congestion reduces access to jobs and other activities, and causes people to rearrange schedules or even change their residence location.
- **Congestion has safety and environmental impacts.** Accident rates, fuel consumption, and air pollution all increase under congested driving conditions.
- **Congestion impacts the economy**. Congestion increases the costs of shipping goods and disrupts production schedules.
- **Congestion impedes travel time reliability.** Roughly 60 percent of all vehicle hours lost in congestion are due to non-recurring congestion, which is particularly onerous because drivers cannot fully anticipate or plan for it.
- **Congestion has psychological and physiological effects.** Congestion affects peoples' mental and physical states. Dissatisfaction with the daily commute has been found to produce undesirable psychological and physiological responses, including elevated blood pressure, increased negative mood states, lowered tolerance for frustration, increased irritability, and impatient driving behavior. Travelers driving in congestion experience increased levels of stress and aggression, especially if they are late or the congestion is unpredictable (NCHRP, 2002c).

The Trans-Sierra Transportation Plan, if fully resourced, will reduce traffic congestion using multiple strategies. The Plan addresses critical bottlenecks on the existing road system with targeted operational and capacity improvements that will improve traffic flow and maximize the return on the major investments that we make in these facilities. Transit services, deployed where and when they work, will help reduce congestion by moving more people with fewer vehicles. Improved, interconnected bicycle and pedestrian facilities will help reduce congestion by offering realistic alternatives to some trips that are currently safe or practical only by auto. The estimated value of the time that could be saved between 2015 and 2035 across the Trans-Sierra Region with full implementation of the Trans-Sierra Transportation Plan is $6.4 billion. For each of us, this means more time to spend with friends, family, and other activities, less stress, and less impact on our fragile environment.

3.3 Benefits to Visitors

Many of the benefits to businesses and residents discussed above will be equally appealing to our visitors. Visitors don't want to spend their precious leisure time stuck in traffic and stressed out. Expanded modal choices, reasonable travel times, improved access and safety, helpful signage, and integrated services for their door-to-door trips are extremely appealing to those who want a quality vacation experience, particularly if they are in an unfamiliar place with their luggage, gear, and kids in tow. Studies have shown that a negative transportation experience can be a significant deterrent to a repeat visit, and most of our visitors have the opportunity to make a different choice each time they plan a trip.

> ***"Finally, continue to focus on the experience and work to differentiate your destination. People are looking for something different to take their minds off all the distractions and irritations in their lives. It's your destination's job to do just that."***
> **– Carl Ribaudo, President + Owner, Strategic Marketing Group (Strategic Marketing Group, 2012)**

Surveys highlight how important transportation is to visitors. From the recent Bay-to-Basin Study of tourism in the Lake Tahoe area, respondents identified the following areas as being very important or somewhat important to improve upon:

- More parking: 57 percent
- Improved access: 58 percent
- Better signage: 61 percent
- Better lighting: 47 percent
- Easier parking: 52 percent
- Better roads: 55 percent
- Better public transit: 56 percent

In this same survey, visitors also cited the need for better travel-related information on activities, better access on and off I-80, the need to improve US-50 by repairing the roadway, improving access and lighting.

In tourist surveys conducted by the Reno-Sparks Visitors and Convention Authority, the second most mentioned factor that would increase the likelihood of return visits was more activities: "other things to do," "more family friendly activities," and "more attractions." Specifically mentioned activities were: golfing, bowling tournaments, hunting, motorcycling, sightseeing, fishing, festivals, shopping, boating, hiking, skiing, softball, rodeo, water sports, zoos, botanical gardens, and western-themed events (InfoSearch International, 2008). The Trans-Sierra Region has these activities in abundance, and we need to better communicate to visitors what the Region has to offer. However, just communicating the wide variety of activities and attractions in the Trans-Sierra Region is not enough. We must take the necessary steps to make this broad array of recreational, cultural, and leisure opportunities practically accessible.

Tourists range along a spectrum. At one end we have the "hard-core" tourists who are extremely focused on a specific recreational activity such as golfing, biking, skiing, or even shopping. At the other extreme are "casual" tourists who are interested in sampling a broader array of activities during their trip. When we consider two or more people traveling together, the permutations of interests and activities can become seemingly infinite and create additional stress on the quality of the vacation. Good transportation can be a critical factor in mitigating this stress. For the hard-core tourist focused on one particular activity, a good transportation system can allow access to an increased number of venues (golf courses, ski resorts, bike trails, etc.) to keep the experience fresh and rewarding. For the casual tourist, a good transportation system can provide access to a broader range of activities (skiing, golfing, visiting art museums, etc.), keeping the experience interesting and diverse. For a group with a mix of tourist types, the ability to conveniently access activities and venues for all is even more dependent upon a good transportation system. From their vacation lodging, mom may go hiking, dad may drive to go fishing, and the kids might ride bikes to the beach. Good

transportation can make the difference between the entire group having a fantastic vacation that they are eager to repeat and the "vacation from hell."

Full implementation of the Trans-Sierra Transportation Plan can give us powerful tools to realize the Region's potential for expanded offerings for our visitors. With the full investment, the Trans-Sierra Region will offer visitors an array of options to get to, from, and between our many attractions and activities safely and in a reasonable amount of time.

Similar to many of the nation's leading companies, visitors are also interested in reducing their impact on the environment. ResponsibleTravel.Org provides the following evidence of this growing interest CREST, 2014):

- The 'green' travel trend is gaining momentum among TripAdvisor members, as 71 percent said they plan to make more eco-friendly choices in the next 12 months compared to 65 percent that did so in the past 12 months.
- "Eco-conscious" consumers travel more frequently than the average consumer. During 2009, 75.6 percent took at least two vacations away from home and 22 percent took five to eight vacations during that time. "That's far more than the national average."
- More than 51 percent of meeting planners schedule meetings only in sustainable venues, according to a 2010 survey. And, according to an executive at the JW Marriott Denver, "75 percent of meeting planners ask about green initiatives when deciding where they want to have a gathering."
- Consumers are increasingly considering a destination's reputation for social and environmental responsibility when making their travel choices.
- Nearly one-third of travelers (30 percent) would choose a travel destination because it is considered eco-friendly.

The responsibility for ensuring that the fragile environment of a tourist destination is protected and sustained is too big and too important to rest with any one party. A 2012 study by The Travel Foundation and Forum for the Future concludes that "the overall issue of who is responsible for protecting the destination as a tourism product, a more holistic approach is now emerging—the idea of destination partnerships. Rather than any one party being responsible for protecting a destination, this is a multi-stakeholder approach whereby all parties interested in a destination as a resource look at how they can work together to achieve a common goal of sustainability." The Trans-Sierra Transportation Plan brings multiple parties to the table and full funding of the Plan can offer a powerful tool for addressing environmental concerns of visitors, residents, and businesses across our region.

SECTION 4

Making the Case for Additional Transportation Investment: *The Value of the Extra Cost*

The estimated cumulative additional funding necessary from 2015-2035 to move from our existing levels of transportation investment to the level of investment needed to realize the Trans-Sierra Transportation Plan is $15.9 billion. High-level assessments of the monetized value of travel/delay time savings, crashes, and vehicle operating costs alone suggest that this investment would produce $18.8 billion in direct user benefits, which is a return of about $1.20 for each dollar invested.

In addition to these economic returns, this additional increment of investment would create an estimated 10,000 well-paying, middle class jobs sustainable to 2035 and beyond, and generate $29.9 billion in economic output including $11.3 billion in labor income. The multimodal transportation system created with full realization of the Trans-Sierra Transportation Plan would provide our businesses with a competitive advantage, allowing them to expand and create additional economic activity. The exceptional quality of life, strong communities, and commitment to sustainable clean air and water in the Trans-Sierra Region would enable our businesses to attract and retain top quality talent in all sectors of the economy.

For our residents, this investment and the resulting increase in economic activity increases long-term, sustainable employment opportunities that provide jobs today and for decades to come. Investments in an integrated multimodal, transportation system will revitalize our downtowns and create exciting places for commerce, entertainment, and community events. Billions in additional revenues will become available for investment in our schools, parks, police, fire, libraries, and other services that strengthen our communities. We will have safer, healthier neighborhoods, more time to spend with family and friends and to pursue other interests, and a sustainable excellent quality of life to pass on to our children and grandchildren.

For our visitors and recreationists, this additional investment will provide greater access to the incredible natural and manmade attractions of the Trans-Sierra Region, preserving and expanding our reputation as a year-round, world class destination. Our multimodal transportation system will accommodate more visitors with reduced impacts on our fragile environment, increasing the appeal of the Region to the growing number of visitors and recreationists wanting to make eco-friendly choices when they travel.

The outcome of limiting investment in the transportation system of the Trans-Sierra Region to currently planned levels is dire: increasing congestion, deteriorating system conditions, loss of economic competitiveness, and declining quality of life. Taking steps to halt the erosion of the region's current transportation funding streams is an important step, but we cannot stop there. The Trans-Sierra Region is in a national and worldwide competition to sustain a vibrant economy while maintaining our quality of life. As our competitors increase their levels of transportation investment, stagnant levels of transportation investment in the Trans-Sierra Region will feed an ever-widening gap between what we have to offer our residents, businesses, and visitors, and what is available in other communities and destinations.

Making the additional investments needed to fully implement the Trans-Sierra Transportation Plan will create enormous benefits for our Region. The value of these investments will be realized by all citizens and interests in the region– safety, environment, family, tourism, economic, recreation – and offers everyone a reason to support it.

SECTION 5

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Appendix A
County Impacts of Constrained Investment Scenario

APPENDIX A

County Impacts of Constrained Investment Scenario

FINAL

Table A-1
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Constrained Investment

Constrained Investment Scenario

Impact	California						Nevada					Tahoe Regional Planning Agency Projects	Total Trans-Sierra Region Projects
	Alpine	Amador	El Dorado	Nevada	Placer	Sierra	Carson City	Douglas	Lyon	Storey	Washoe		
	TOTAL IMPACTS (DIRECT, INDIRECT AND INDUCED)												
Total Construction Costs	**$51,926,100**	**$146,330,000**	**$2,155,800,000**	**$274,630,000**	**$6,945,400,000**	**$155,795,000**	**$268,520,600**	**$80,814,000**	**$112,835,544**	**$31,278,006**	**$7,506,466,000**	**$1,591,534,268**	**$19,321,329,518**
County Impacts													
Industry Output	$60,684,622	$192,789,050	$3,073,704,555	$395,665,292	$10,884,315,316	$189,698,804	$383,504,436	$108,095,115	$156,202,577	$50,440,876	$12,105,404,127	$2,567,878,565	$30,168,383,334
Multiplier	*1.17*	*1.32*	*1.43*	*1.44*	*1.57*	*1.22*	*1.43*	*1.34*	*1.38*	*1.61*	*1.61*	*1.61*	*1.56*
Labor Income	$29,183,800	$46,553,400	$1,082,139,600	$123,389,700	$4,481,781,500	$49,315,800	$133,985,000	$30,122,600	$36,760,200	$19,771,300	$4,744,939,600	$986,322,100	$11,764,264,600
Labor Income per $1 Output	*0.48*	*0.24*	*0.35*	*0.31*	*0.41*	*0.26*	*0.35*	*0.28*	*0.24*	*0.39*	*0.39*	*0.38*	*0.39*
Employment (Job Years)	325.7	1,504.6	21,285.9	3,009.7	68,981.9	1,496.0	2,490.7	788.2	1,192.9	343.8	78,398.1	16,743.2	196,560.9
Income per Employee	*$89,600*	*$30,900*	*$50,800*	*$41,000*	*$65,000*	*$33,000*	*$53,800*	*$38,200*	*$30,800*	*$57,500*	*$60,500*	*$58,900*	*$59,850*
Remainder - Trans-Sierra Region Impacts													
Industry Output	$3,277,126	$4,904,314	$70,947,114	$35,466,339	$319,933,337	$7,441,603	$100,089,753	$28,595,765	$21,938,223	$31,679,169	$7,602,741,840	$32,678,995	$8,259,693,579
Multiplier	*0.06*	*0.03*	*0.03*	*0.13*	*0.05*	*0.05*	*0.37*	*0.35*	*0.19*	*1.01*	*1.01*	*0.02*	*0.43*
Labor Income	$1,101,500	$1,451,000	$24,176,500	$11,966,200	$101,849,300	$2,549,900	$33,836,200	$9,542,800	$7,232,800	$11,530,100	$2,767,119,300	$8,482,000	$2,980,837,600
Labor Income per $1 Output	*0.34*	*0.30*	*0.34*	*0.34*	*0.32*	*0.34*	*0.34*	*0.33*	*0.33*	*0.36*	*0.36*	*0.26*	*0.36*
Employment (Job Years)	24.3	32.8	457.3	225.6	2,287.5	61.1	687.4	184.7	142.8	243.0	58,306.8	199.6	62,852.9
Income per Employee	*$45,400*	*$44,200*	*$52,900*	*$53,000*	*$44,500*	*$41,800*	*$49,200*	*$51,700*	*$50,600*	*$47,500*	*$47,500*	*$42,500*	*$47,426*
Total Trans-Sierra Region Impacts													
Industry Output	$63,961,749	$197,693,365	$3,144,651,669	$431,131,631	$11,204,248,653	$197,140,408	$483,594,189	$136,690,880	$178,140,800	$82,120,044	$19,708,145,966	$2,600,557,560	$38,428,076,913
Multiplier	*1.23*	*1.35*	*1.46*	*1.57*	*1.61*	*1.27*	*1.80*	*1.69*	*1.58*	*2.63*	*2.63*	*1.63*	*1.99*
Labor Income	$30,285,300	$48,004,400	$1,106,316,100	$135,355,900	$4,583,630,800	$51,865,700	$167,821,200	$39,665,400	$43,993,000	$31,301,400	$7,512,058,900	$994,804,100	$14,745,102,200
Labor Income per $1 Output	*0.47*	*0.24*	*0.35*	*0.31*	*0.41*	*0.26*	*0.35*	*0.29*	*0.25*	*0.38*	*0.38*	*0.38*	*0.38*
Employment (Job Years)	350.0	1,537.4	21,743.3	3,235.4	71,269.3	1,557.1	3,178.2	972.9	1,335.8	586.8	136,704.9	16,942.8	259,413.8
Income per Employee	*$86,500*	*$31,200*	*$50,900*	*$41,800*	*$64,300*	*$33,300*	*$52,800*	*$40,800*	*$32,900*	*$53,300*	*$55,000*	*$58,700*	*$56,840*

imp_sum_constrain

Source: IMPLAN.

NOTE: Estimates shown in this table reflect economic impacts associated with construction activity based on total construction budgets, and do not reflect annual impacts. To derive annualized impacts, total impacts shown above should be divided by the estimated construction timeframe (years).

FINAL

Table A-2
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Alpine County

Alpine County: Constrained Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$51,926,100**				
Alpine County Impacts					
Industry Output		$51,926,098	$4,779,024	$3,979,500	**$60,684,622**
Multiplier		1.00	0.09	0.08	**1.17**
Labor Income		$24,984,100	$3,146,800	$1,052,900	**$29,183,800**
Labor Income per $1 Output		0.48	0.66	0.26	**0.48**
Employment (Job Years)		265.61	32.46	27.63	**325.70**
Income per Employee		$94,100	$96,900	$38,100	**$89,600**
Trans-Sierra Region Impacts (Excl. Alpine County)					
Industry Output		-	$398,165	$2,878,961	**$3,277,126**
Multiplier		-	0.01	0.06	**0.06**
Labor Income		-	$122,242	$979,251	**$1,101,500**
Labor Income per $1 Output		-	0.31	0.34	**0.34**
Employment (Job Years)		-	2.37	21.90	**24.27**
Income per Employee		-	$51,500	$44,700	**$45,400**
Total Trans-Sierra Region Impacts					
Industry Output		$51,926,098	$5,177,189	$6,858,461	**$63,961,749**
Multiplier		1.00	0.10	0.13	**1.23**
Labor Income		$24,984,100	$3,269,042	$2,032,151	**$30,285,300**
Labor Income per $1 Output		0.48	0.63	0.30	**0.47**
Employment (Job Years)		265.61	34.84	49.52	**349.97**
Income per Employee		$94,100	$93,800	$41,000	**$86,500**

Alpine constrain

Source: IMPLAN.

FINAL

Table A-3
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Amador County

Amador County: Constrained Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$146,330,000**				
Amador County Impacts					
Industry Output		$146,329,995	$30,177,155	$16,281,900	**$192,789,050**
Multiplier		1.00	0.21	0.11	**1.32**
Labor Income		$32,537,200	$9,567,700	$4,448,500	**$46,553,400**
Labor Income per $1 Output		0.22	0.32	0.27	**0.24**
Employment (Job Years)		1,110.97	264.00	129.65	**1,504.62**
Income per Employee		$29,300	$36,200	$34,300	**$30,900**
Trans-Sierra Region Impacts (Excl. Amador County)					
Industry Output		-	$3,379,184	$1,525,130	**$4,904,314**
Multiplier		-	0.02	0.01	**0.03**
Labor Income		-	$948,581	$502,376	**$1,451,000**
Labor Income per $1 Output		-	0.28	0.33	**0.30**
Employment (Job Years)		-	21.31	11.51	**32.82**
Income per Employee		-	$44,500	$43,600	**$44,200**
Total Trans-Sierra Region Impacts					
Industry Output		$146,329,995	$33,556,339	$17,807,030	**$197,693,365**
Multiplier		1.00	0.23	0.12	**1.35**
Labor Income		$32,537,200	$10,516,281	$4,950,876	**$48,004,400**
Labor Income per $1 Output		0.22	0.31	0.28	**0.24**
Employment (Job Years)		1,110.97	285.31	141.16	**1,537.44**
Income per Employee		$29,300	$36,900	$35,100	**$31,200**

Amador constrain

Source: IMPLAN.

FINAL

Table A-4
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Carson City County

Carson City:
Constrained Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$268,520,600**				
Carson City Impacts					
Industry Output		$268,520,592	$68,998,944	$45,984,900	**$383,504,436**
Multiplier		1.00	0.26	0.17	**1.43**
Labor Income		$93,712,200	$25,253,800	$15,019,000	**$133,985,000**
Labor Income per $1 Output		0.35	0.37	0.33	**0.35**
Employment (Job Years)		1,609.02	522.37	359.35	**2,490.74**
Income per Employee		$58,200	$48,300	$41,800	**$53,800**
Trans-Sierra Region Impacts (Excl. Carson City)					
Industry Output		-	$61,376,303	$38,713,450	**$100,089,753**
Multiplier		-	0.23	0.14	**0.37**
Labor Income		-	$20,689,803	$13,146,386	**$33,836,200**
Labor Income per $1 Output		-	0.34	0.34	**0.34**
Employment (Job Years)		-	394.20	293.22	**687.41**
Income per Employee		-	$52,500	$44,800	**$49,200**
Total Trans-Sierra Region Impacts					
Industry Output		$268,520,592	$130,375,247	$84,698,350	**$483,594,189**
Multiplier		1.00	0.49	0.32	**1.80**
Labor Income		$93,712,200	$45,943,603	$28,165,386	**$167,821,200**
Labor Income per $1 Output		0.35	0.35	0.33	**0.35**
Employment (Job Years)		1,609.02	916.56	652.57	**3,178.16**
Income per Employee		$58,200	$50,100	$43,200	**$52,800**

Carson City constrain

Source: IMPLAN.

Table A-5
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Douglas County

Douglas County: Constrained Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$80,814,000**				
Douglas County Impacts					
Industry Output		$80,813,998	$17,335,717	$9,945,400	**$108,095,115**
Multiplier		1.00	0.21	0.12	**1.34**
Labor Income		$21,479,200	$5,712,600	$2,930,800	**$30,122,600**
Labor Income per $1 Output		0.27	0.33	0.29	**0.28**
Employment (Job Years)		544.70	157.81	85.72	**788.24**
Income per Employee		$39,400	$36,200	$34,200	**$38,200**
Trans-Sierra Region Impacts (Excl. Douglas County)					
Industry Output		-	$20,984,517	$7,611,248	**$28,595,765**
Multiplier		-	0.26	0.09	**0.35**
Labor Income		-	$6,939,234	$2,603,529	**$9,542,800**
Labor Income per $1 Output		-	0.33	0.34	**0.33**
Employment (Job Years)		-	128.54	56.12	**184.66**
Income per Employee		-	$54,000	$46,400	**$51,700**
Total Trans-Sierra Region Impacts					
Industry Output		$80,813,998	$38,320,234	$17,556,648	**$136,690,880**
Multiplier		1.00	0.47	0.22	**1.69**
Labor Income		$21,479,200	$12,651,834	$5,534,329	**$39,665,400**
Labor Income per $1 Output		0.27	0.33	0.32	**0.29**
Employment (Job Years)		544.70	286.35	141.84	**972.89**
Income per Employee		$39,400	$44,200	$39,000	**$40,800**

Douglas constrain

Source: IMPLAN.

Table A-6
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - El Dorado County

El Dorado County: Constrained Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$2,155,800,000**				
El Dorado County Impacts					
Industry Output		$2,155,799,934	$516,226,721	$401,677,900	**$3,073,704,555**
Multiplier		1.00	0.24	0.19	**1.43**
Labor Income		$764,260,600	$192,043,800	$125,835,200	**$1,082,139,600**
Labor Income per $1 Output		0.35	0.37	0.31	**0.35**
Employment (Job Years)		13,640.21	4,532.06	3,113.67	**21,285.94**
Income per Employee		$56,000	$42,400	$40,400	**$50,800**
Trans-Sierra Region Impacts (Excl. El Dorado County)					
Industry Output		-	$42,061,238	$28,885,877	**$70,947,114**
Multiplier		-	0.02	0.01	**0.03**
Labor Income		-	$13,798,324	$10,378,207	**$24,176,500**
Labor Income per $1 Output		-	0.33	0.36	**0.34**
Employment (Job Years)		-	241.26	216.07	**457.34**
Income per Employee		-	$57,200	$48,000	**$52,900**
Total Trans-Sierra Region Impacts					
Industry Output		$2,155,799,934	$558,287,959	$430,563,777	**$3,144,651,669**
Multiplier		1.00	0.26	0.20	**1.46**
Labor Income		$764,260,600	$205,842,124	$136,213,407	**$1,106,316,100**
Labor Income per $1 Output		0.35	0.37	0.32	**0.35**
Employment (Job Years)		13,640.21	4,773.33	3,329.74	**21,743.27**
Income per Employee		$56,000	$43,100	$40,900	**$50,900**

El Dorado constrain

Source: IMPLAN.

FINAL

Table A-7
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Lyon County

Lyon County: Constrained Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$112,835,544**				
Lyon County Impacts					
Industry Output		$112,835,541	$32,666,236	$10,700,800	**$156,202,577**
Multiplier		1.00	0.29	0.09	**1.38**
Labor Income		$25,305,500	$9,080,500	$2,374,200	**$36,760,200**
Labor Income per $1 Output		0.22	0.28	0.22	**0.24**
Employment (Job Years)		802.65	315.50	74.79	**1,192.94**
Income per Employee		$31,500	$28,800	$31,700	**$30,800**
Trans-Sierra Region Impacts (Excl. Lyon County)					
Industry Output		-	$15,161,362	$6,776,861	**$21,938,223**
Multiplier		-	0.13	0.06	**0.19**
Labor Income		-	$4,914,601	$2,318,219	**$7,232,800**
Labor Income per $1 Output		-	0.32	0.34	**0.33**
Employment (Job Years)		-	92.22	50.63	**142.85**
Income per Employee		-	$53,300	$45,800	**$50,600**
Total Trans-Sierra Region Impacts					
Industry Output		$112,835,541	$47,827,598	$17,477,661	**$178,140,800**
Multiplier		1.00	0.42	0.15	**1.58**
Labor Income		$25,305,500	$13,995,101	$4,692,419	**$43,993,000**
Labor Income per $1 Output		0.22	0.29	0.27	**0.25**
Employment (Job Years)		802.65	407.72	125.41	**1,335.79**
Income per Employee		$31,500	$34,300	$37,400	**$32,900**

Lyon constrain

Source: IMPLAN.

Table A-8
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Nevada County

Nevada County:
Constrained Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$274,630,000**				
Nevada County Impacts					
Industry Output		$274,629,992	$71,100,400	$49,934,900	**$395,665,292**
Multiplier		1.00	0.26	0.18	**1.44**
Labor Income		$83,819,200	$24,015,100	$15,555,400	**$123,389,700**
Labor Income per $1 Output		0.31	0.34	0.31	**0.31**
Employment (Job Years)		1,867.26	729.96	412.51	**3,009.73**
Income per Employee		$44,900	$32,900	$37,700	**$41,000**
Trans-Sierra Region Impacts (Excl. Nevada County)					
Industry Output		-	$24,910,918	$10,555,421	**$35,466,339**
Multiplier		-	0.09	0.04	**0.13**
Labor Income		-	$8,260,507	$3,705,705	**$11,966,200**
Labor Income per $1 Output		-	0.33	0.35	**0.34**
Employment (Job Years)		-	149.46	76.18	**225.64**
Income per Employee		-	$55,300	$48,600	**$53,000**
Total Trans-Sierra Region Impacts					
Industry Output		$274,629,992	$96,011,318	$60,490,321	**$431,131,631**
Multiplier		1.00	0.35	0.22	**1.57**
Labor Income		$83,819,200	$32,275,607	$19,261,105	**$135,355,900**
Labor Income per $1 Output		0.31	0.34	0.32	**0.31**
Employment (Job Years)		1,867.26	879.42	488.69	**3,235.37**
Income per Employee		$44,900	$36,700	$39,400	**$41,800**

Nevada constrain

Source: IMPLAN.

Table A-9
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Placer County

Placer County:
Constrained Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$6,945,400,000**				
Placer County Impacts					
Industry Output		$6,945,399,786	$1,887,509,730	$2,051,405,800	**$10,884,315,316**
Multiplier		1.00	0.27	0.30	**1.57**
Labor Income		$2,952,300,600	$797,942,200	$731,538,700	**$4,481,781,500**
Labor Income per $1 Output		0.43	0.42	0.36	**0.41**
Employment (Job Years)		39,254.18	14,468.66	15,259.03	**68,981.87**
Income per Employee		$75,200	$55,100	$47,900	**$65,000**
Trans-Sierra Region Impacts (Excl. Placer County)					
Industry Output		-	$133,895,847	$186,037,490	**$319,933,337**
Multiplier		-	0.02	0.03	**0.05**
Labor Income		-	$40,282,045	$61,567,277	**$101,849,300**
Labor Income per $1 Output		-	0.30	0.33	**0.32**
Employment (Job Years)		-	852.80	1,434.68	**2,287.48**
Income per Employee		-	$47,200	$42,900	**$44,500**
Total Trans-Sierra Region Impacts					
Industry Output		$6,945,399,786	$2,021,405,577	$2,237,443,290	**$11,204,248,653**
Multiplier		1.00	0.29	0.32	**1.61**
Labor Income		$2,952,300,600	$838,224,245	$793,105,977	**$4,583,630,800**
Labor Income per $1 Output		0.43	0.41	0.35	**0.41**
Employment (Job Years)		39,254.18	15,321.46	16,693.71	**71,269.35**
Income per Employee		$75,200	$54,700	$47,500	**$64,300**

Placer constrain

Source: IMPLAN.

Table A-10
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Sierra County

Sierra County:
Constrained Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$155,795,000**				
Sierra County Impacts					
Industry Output		$155,794,995	$22,693,009	$11,210,800	**$189,698,804**
Multiplier		1.00	0.15	0.07	**1.22**
Labor Income		$41,357,100	$5,427,700	$2,531,000	**$49,315,800**
Labor Income per $1 Output		0.27	0.24	0.23	**0.26**
Employment (Job Years)		1,118.55	298.39	79.08	**1,496.03**
Income per Employee		$37,000	$18,200	$32,000	**$33,000**
Trans-Sierra Region Impacts (Excl. Sierra County)					
Industry Output		-	$5,022,880	$2,418,724	**$7,441,603**
Multiplier		-	0.03	0.02	**0.05**
Labor Income		-	$1,745,219	$804,648	**$2,549,900**
Labor Income per $1 Output		-	0.35	0.33	**0.34**
Employment (Job Years)		-	42.45	18.61	**61.06**
Income per Employee		-	$41,100	$43,200	**$41,800**
Total Trans-Sierra Region Impacts					
Industry Output		$155,794,995	$27,715,889	$13,629,524	**$197,140,408**
Multiplier		1.00	0.18	0.09	**1.27**
Labor Income		$41,357,100	$7,172,919	$3,335,648	**$51,865,700**
Labor Income per $1 Output		0.27	0.26	0.24	**0.26**
Employment (Job Years)		1,118.55	340.85	97.69	**1,557.09**
Income per Employee		$37,000	$21,000	$34,100	**$33,300**

Sierra constrain

Source: IMPLAN.

FINAL

Table A-11
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Storey County

Storey County:
Constrained Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$31,278,006**				
Storey County Impacts					
Industry Output		$31,278,005	$9,482,471	$9,680,400	**$50,440,876**
Multiplier		1.00	0.30	0.31	**1.61**
Labor Income		$12,201,100	$4,026,400	$3,543,800	**$19,771,300**
Labor Income per $1 Output		0.39	0.42	0.37	**0.39**
Employment (Job Years)		193.01	74.62	76.18	**343.81**
Income per Employee		$63,200	$54,000	$46,500	**$57,500**
Trans-Sierra Region Impacts (Excl. Storey County)					
Industry Output		-	$14,178,459	$17,500,709	**$31,679,169**
Multiplier		-	0.45	0.56	**1.01**
Labor Income		-	$5,445,099	$6,084,956	**$11,530,100**
Labor Income per $1 Output		-	0.38	0.35	**0.36**
Employment (Job Years)		-	109.54	133.42	**242.95**
Income per Employee		-	$49,700	$45,600	**$47,500**
Total Trans-Sierra Region Impacts					
Industry Output		$31,278,005	$23,660,930	$27,181,109	**$82,120,044**
Multiplier		1.00	0.76	0.87	**2.63**
Labor Income		$12,201,100	$9,471,499	$9,628,756	**$31,301,400**
Labor Income per $1 Output		0.39	0.40	0.35	**0.38**
Employment (Job Years)		193.01	184.15	209.60	**586.76**
Income per Employee		$63,200	$51,400	$45,900	**$53,300**

Storey constrain

Source: IMPLAN.

Table A-12
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Washoe County

Washoe County: Constrained Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$7,506,466,000**				
Washoe County Impacts					
Industry Output		$7,506,465,769	$2,275,715,658	$2,323,222,700	**$12,105,404,127**
Multiplier		1.00	0.30	0.31	**1.61**
Labor Income		$2,928,164,100	$966,299,900	$850,475,600	**$4,744,939,600**
Labor Income per $1 Output		0.39	0.42	0.37	**0.39**
Employment (Job Years)		42,207.03	17,907.33	18,283.70	**78,398.07**
Income per Employee		$69,400	$54,000	$46,500	**$60,500**
Trans-Sierra Region Impacts (Excl. Washoe County)					
Industry Output		-	$3,402,714,500	$4,200,027,340	**$7,602,741,840**
Multiplier		-	0.45	0.56	**1.01**
Labor Income		-	$1,306,779,393	$1,460,339,870	**$2,767,119,300**
Labor Income per $1 Output		-	0.38	0.35	**0.36**
Employment (Job Years)		-	26,287.92	32,018.87	**58,306.80**
Income per Employee		-	$49,700	$45,600	**$47,500**
Total Trans-Sierra Region Impacts					
Industry Output		$7,506,465,769	$5,678,430,158	$6,523,250,040	**$19,708,145,966**
Multiplier		1.00	0.76	0.87	**2.63**
Labor Income		$2,928,164,100	$2,273,079,293	$2,310,815,470	**$7,512,058,900**
Labor Income per $1 Output		0.39	0.40	0.35	**0.38**
Employment (Job Years)		42,207.03	44,195.26	50,302.57	**136,704.86**
Income per Employee		$69,400	$51,400	$45,900	**$55,000**

Washoe constrain

Source: IMPLAN.

Table A-13
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - TRPA

TRPA:
Constrained Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$1,591,534,268**				
TRPA Impacts					
Industry Output		$1,591,534,219	$496,715,309	$479,629,037	**$2,567,878,565**
Multiplier		1.00	0.31	0.30	**1.61**
Labor Income		$621,715,800	$198,343,400	$166,262,900	**$986,322,100**
Labor Income per $1 Output		0.39	0.40	0.35	**0.38**
Employment (Job Years)		9,264.73	3,829.58	3,648.87	**16,743.18**
Income per Employee		$67,100	$51,800	$45,600	**$58,900**
Trans-Sierra Region Impacts (Excl. TRPA Region)					
Industry Output		-	$18,376,860	$14,302,135	**$32,678,995**
Multiplier		-	0.01	0.01	**0.02**
Labor Income		-	$4,416,043	$4,065,976	**$8,482,000**
Labor Income per $1 Output		-	0.24	0.28	**0.26**
Employment (Job Years)		-	88.58	111.04	**199.62**
Income per Employee		-	$49,900	$36,600	**$42,500**
Total Trans-Sierra Region Impacts					
Industry Output		$1,591,534,219	$515,092,169	$493,931,173	**$2,600,557,560**
Multiplier		1.00	0.32	0.31	**1.63**
Labor Income		$621,715,800	$202,759,443	$170,328,876	**$994,804,100**
Labor Income per $1 Output		0.39	0.39	0.34	**0.38**
Employment (Job Years)		9,264.73	3,918.16	3,759.91	**16,942.80**
Income per Employee		$67,100	$51,700	$45,300	**$58,700**

TRPA constrain

Source: IMPLAN.

Appendix B
County Impacts of Full Investment Scenario

APPENDIX B

County Impacts of Full Investment Scenario

FINAL

Table B-1
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Full Investment

Full Investment Scenario

Impact	TOTAL IMPACTS (DIRECT, INDIRECT AND INDUCED)												
	California						Nevada					Tahoe Regional Planning Agency	Total Trans-Sierra Region
	Alpine	Amador	El Dorado	Nevada	Placer	Sierra	Carson City	Douglas	Lyon	Storey	Washoe		
Total Construction Costs	**$132,525,446**	**$414,494,719**	**$2,919,400,000**	**$1,102,391,445**	**$13,990,549,680**	**$382,758,664**	**$667,767,150**	**$1,026,208,038**	**$242,071,645**	**$128,174,610**	**$11,826,790,488**	**$2,375,572,327**	**$35,208,704,212**
County Impacts													
Industry Output	$154,878,835	$546,094,689	$4,162,432,981	$1,588,238,610	$21,924,950,882	$466,053,955	$953,713,204	$1,372,633,778	$335,109,121	$206,702,567	$19,072,634,054	$3,832,893,442	$54,616,336,118
Multiplier	*1.17*	*1.32*	*1.43*	*1.44*	*1.57*	*1.22*	*1.43*	*1.34*	*1.38*	*1.61*	*1.61*	*1.61*	*1.55*
Labor Income	$74,482,600	$131,867,400	$1,465,441,300	$495,298,100	$9,027,930,300	$121,159,600	$333,199,000	$382,508,200	$78,863,700	$81,021,000	$7,475,875,700	$1,472,214,200	$21,139,861,100
Labor Income per $1 Output	*0.48*	*0.24*	*0.35*	*0.31*	*0.41*	*0.26*	*0.35*	*0.28*	*0.24*	*0.39*	*0.39*	*0.38*	*0.39*
Employment (Job Years)	831.2	4,262.0	28,825.6	12,081.4	138,954.5	3,675.5	6,194.1	10,009.4	2,559.3	1,408.9	123,519.8	24,991.4	357,312.9
Income per Employee	*$89,600*	*$30,900*	*$50,800*	*$41,000*	*$65,000*	*$33,000*	*$53,800*	*$38,200*	*$30,800*	*$57,500*	*$60,500*	*$58,900*	*$59,163*
Remainder - Trans-Sierra Region Impacts													
Industry Output	$8,363,860	$13,891,972	$96,077,097	$142,365,324	$644,461,550	$18,282,603	$248,906,972	$363,120,304	$47,065,149	$129,818,542	$11,978,477,605	$48,777,659	$13,739,608,637
Multiplier	*0.06*	*0.03*	*0.03*	*0.13*	*0.05*	*0.05*	*0.37*	*0.35*	*0.19*	*1.01*	*1.01*	*0.02*	*0.39*
Labor Income	$2,811,200	$4,110,000	$32,740,000	$48,033,500	$205,161,400	$6,264,500	$84,145,100	$121,177,800	$15,516,900	$47,249,200	$4,359,726,600	$12,660,500	$4,939,596,700
Labor Income per $1 Output	*0.34*	*0.30*	*0.34*	*0.34*	*0.32*	*0.34*	*0.34*	*0.33*	*0.33*	*0.36*	*0.36*	*0.26*	*0.36*
Employment (Job Years)	61.9	93.0	619.3	905.7	4,607.8	150.0	1,709.5	2,344.8	306.5	995.6	91,865.1	298.0	103,957.3
Income per Employee	*$45,400*	*$44,200*	*$52,900*	*$53,000*	*$44,500*	*$41,800*	*$49,200*	*$51,700*	*$50,600*	*$47,500*	*$47,500*	*$42,500*	*$47,516*
Total Trans-Sierra Region Impacts													
Industry Output	$163,242,695	$559,986,662	$4,258,510,078	$1,730,603,934	$22,569,412,432	$484,336,558	$1,202,620,176	$1,735,754,083	$382,174,269	$336,521,109	$31,051,111,658	$3,881,671,101	$68,355,944,755
Multiplier	*1.23*	*1.35*	*1.46*	*1.57*	*1.61*	*1.27*	*1.80*	*1.69*	*1.58*	*2.63*	*2.63*	*1.63*	*1.94*
Labor Income	$77,293,800	$135,977,400	$1,498,181,300	$543,331,600	$9,233,091,700	$127,424,100	$417,344,100	$503,686,000	$94,380,600	$128,270,200	$11,835,602,300	$1,484,874,700	$26,079,457,800
Labor Income per $1 Output	*0.47*	*0.24*	*0.35*	*0.31*	*0.41*	*0.26*	*0.35*	*0.29*	*0.25*	*0.38*	*0.38*	*0.38*	*0.38*
Employment (Job Years)	893.2	4,355.0	29,444.9	12,987.1	143,562.3	3,825.5	7,903.6	12,354.2	2,865.7	2,404.5	215,384.9	25,289.3	461,270.1
Income per Employee	*$86,500*	*$31,200*	*$50,900*	*$41,800*	*$64,300*	*$33,300*	*$52,800*	*$40,800*	*$32,900*	*$53,300*	*$55,000*	*$58,700*	*$56,538*

imp_sum_full

Source: IMPLAN.

NOTE: Estimates shown in this table reflect economic impacts associated with construction activity based on total construction budgets, and do not reflect annual impacts. To derive annualized impacts, total impacts shown above should be divided by the estimated construction timeframe (years).

FINAL

Table B-2
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Alpine County

Alpine County:
Full Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$132,525,446**				
Alpine County Impacts					
Industry Output		$132,525,442	$12,196,993	$10,156,400	**$154,878,835**
Multiplier		1.00	0.09	0.08	**1.17**
Labor Income		$63,764,300	$8,031,100	$2,687,200	**$74,482,600**
Labor Income per $1 Output		0.48	0.66	0.26	**0.48**
Employment (Job Years)		677.88	82.85	70.51	**831.24**
Income per Employee		$94,100	$96,900	$38,100	**$89,600**
Trans-Sierra Region Impacts (Excl. Alpine County)					
Industry Output		-	$1,016,195	$7,347,665	**$8,363,860**
Multiplier		-	0.01	0.06	**0.06**
Labor Income		-	$311,984	$2,499,239	**$2,811,200**
Labor Income per $1 Output		-	0.31	0.34	**0.34**
Employment (Job Years)		-	6.06	55.88	**61.95**
Income per Employee		-	$51,500	$44,700	**$45,400**
Total Trans-Sierra Region Impacts					
Industry Output		$132,525,442	$13,213,188	$17,504,065	**$163,242,695**
Multiplier		1.00	0.10	0.13	**1.23**
Labor Income		$63,764,300	$8,343,084	$5,186,439	**$77,293,800**
Labor Income per $1 Output		0.48	0.63	0.30	**0.47**
Employment (Job Years)		677.88	88.91	126.40	**893.18**
Income per Employee		$94,100	$93,800	$41,000	**$86,500**

Alpine imp

Source: IMPLAN.

FINAL

Table B-3
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Amador County

Amador County: Full Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$414,494,719**				
Amador County Impacts					
Industry Output		$414,494,706	$85,479,883	$46,120,100	**$546,094,689**
Multiplier		1.00	0.21	0.11	**1.32**
Labor Income		$92,164,900	$27,101,500	$12,601,000	**$131,867,400**
Labor Income per $1 Output		0.22	0.32	0.27	**0.24**
Employment (Job Years)		3,146.94	747.80	367.25	**4,261.99**
Income per Employee		$29,300	$36,200	$34,300	**$30,900**
Trans-Sierra Region Impacts (Excl. Amador County)					
Industry Output		-	$9,571,885	$4,320,087	**$13,891,972**
Multiplier		-	0.02	0.01	**0.03**
Labor Income		-	$2,686,953	$1,423,030	**$4,110,000**
Labor Income per $1 Output		-	0.28	0.33	**0.30**
Employment (Job Years)		-	60.37	32.61	**92.98**
Income per Employee		-	$44,500	$43,600	**$44,200**
Total Trans-Sierra Region Impacts					
Industry Output		$414,494,706	$95,051,768	$50,440,187	**$559,986,662**
Multiplier		1.00	0.23	0.12	**1.35**
Labor Income		$92,164,900	$29,788,453	$14,024,030	**$135,977,400**
Labor Income per $1 Output		0.22	0.31	0.28	**0.24**
Employment (Job Years)		3,146.94	808.17	399.86	**4,354.97**
Income per Employee		$29,300	$36,900	$35,100	**$31,200**

Amador imp

Source: IMPLAN.

FINAL

Table B-4
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Carson City County

Carson City:
Full Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$667,767,150**				
Carson City Impacts					
Industry Output		$667,767,129	$171,589,175	$114,356,900	**$953,713,204**
Multiplier		1.00	0.26	0.17	**1.43**
Labor Income		$233,046,900	$62,802,200	$37,349,900	**$333,199,000**
Labor Income per $1 Output		0.35	0.37	0.33	**0.35**
Employment (Job Years)		4,001.37	1,299.05	893.65	**6,194.07**
Income per Employee		$58,200	$48,300	$41,800	**$53,800**
Trans-Sierra Region Impacts (Excl. Carson City)					
Industry Output		-	$152,632,904	$96,274,068	**$248,906,972**
Multiplier		-	0.23	0.14	**0.37**
Labor Income		-	$51,452,182	$32,692,928	**$84,145,100**
Labor Income per $1 Output		-	0.34	0.34	**0.34**
Employment (Job Years)		-	980.30	729.19	**1,709.49**
Income per Employee		-	$52,500	$44,800	**$49,200**
Total Trans-Sierra Region Impacts					
Industry Output		$667,767,129	$324,222,079	$210,630,968	**$1,202,620,176**
Multiplier		1.00	0.49	0.32	**1.80**
Labor Income		$233,046,900	$114,254,382	$70,042,828	**$417,344,100**
Labor Income per $1 Output		0.35	0.35	0.33	**0.35**
Employment (Job Years)		4,001.37	2,279.35	1,622.84	**7,903.56**
Income per Employee		$58,200	$50,100	$43,200	**$52,800**

Carson City imp

Source: IMPLAN.

Table B-5
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Douglas County

Douglas County: Full Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$1,026,208,038**				
Douglas County Impacts					
Industry Output		$1,026,208,006	$220,135,772	$126,290,000	**$1,372,633,778**
Multiplier		1.00	0.21	0.12	**1.34**
Labor Income		$272,751,200	$72,540,400	$37,216,600	**$382,508,200**
Labor Income per $1 Output		0.27	0.33	0.29	**0.28**
Employment (Job Years)		6,916.87	2,003.94	1,088.55	**10,009.35**
Income per Employee		$39,400	$36,200	$34,200	**$38,200**
Trans-Sierra Region Impacts (Excl. Douglas County)					
Industry Output		-	$266,469,672	$96,650,632	**$363,120,304**
Multiplier		-	0.26	0.09	**0.35**
Labor Income		-	$88,117,126	$33,060,644	**$121,177,800**
Labor Income per $1 Output		-	0.33	0.34	**0.33**
Employment (Job Years)		-	1,632.23	712.60	**2,344.83**
Income per Employee		-	$54,000	$46,400	**$51,700**
Total Trans-Sierra Region Impacts					
Industry Output		$1,026,208,006	$486,605,444	$222,940,632	**$1,735,754,083**
Multiplier		1.00	0.47	0.22	**1.69**
Labor Income		$272,751,200	$160,657,526	$70,277,244	**$503,686,000**
Labor Income per $1 Output		0.27	0.33	0.32	**0.29**
Employment (Job Years)		6,916.87	3,636.17	1,801.15	**12,354.18**
Income per Employee		$39,400	$44,200	$39,000	**$40,800**

Douglas imp

Source: IMPLAN.

Table B-6
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - El Dorado County

El Dorado County: Full Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$2,919,400,000**				
El Dorado County Impacts					
Industry Output		$2,919,399,910	$699,077,971	$543,955,100	**$4,162,432,981**
Multiplier		1.00	0.24	0.19	**1.43**
Labor Income		$1,034,967,300	$260,067,100	$170,406,900	**$1,465,441,300**
Labor Income per $1 Output		0.35	0.37	0.31	**0.35**
Employment (Job Years)		18,471.67	6,137.35	4,216.55	**28,825.57**
Income per Employee		$56,000	$42,400	$40,400	**$50,800**
Trans-Sierra Region Impacts (Excl. El Dorado County)					
Industry Output		-	$56,959,633	$39,117,464	**$96,077,097**
Multiplier		-	0.02	0.01	**0.03**
Labor Income		-	$18,685,791	$14,054,244	**$32,740,000**
Labor Income per $1 Output		-	0.33	0.36	**0.34**
Employment (Job Years)		-	326.72	292.60	**619.33**
Income per Employee		-	$57,200	$48,000	**$52,900**
Total Trans-Sierra Region Impacts					
Industry Output		$2,919,399,910	$756,037,604	$583,072,564	**$4,258,510,078**
Multiplier		1.00	0.26	0.20	**1.46**
Labor Income		$1,034,967,300	$278,752,891	$184,461,144	**$1,498,181,300**
Labor Income per $1 Output		0.35	0.37	0.32	**0.35**
Employment (Job Years)		18,471.67	6,464.07	4,509.16	**29,444.90**
Income per Employee		$56,000	$43,100	$40,900	**$50,900**

El Dorado imp

Source: IMPLAN.

FINAL

Table B-7
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Lyon County

Lyon County:
Full Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$242,071,645**				
Lyon County Impacts					
Industry Output		$242,071,638	$70,080,483	$22,957,000	**$335,109,121**
Multiplier		1.00	0.29	0.09	**1.38**
Labor Income		$54,289,200	$19,480,900	$5,093,600	**$78,863,700**
Labor Income per $1 Output		0.22	0.28	0.22	**0.24**
Employment (Job Years)		1,721.97	676.87	160.44	**2,559.28**
Income per Employee		$31,500	$28,800	$31,700	**$30,800**
Trans-Sierra Region Impacts (Excl. Lyon County)					
Industry Output		-	$32,526,416	$14,538,733	**$47,065,149**
Multiplier		-	0.13	0.06	**0.19**
Labor Income		-	$10,543,535	$4,973,390	**$15,516,900**
Labor Income per $1 Output		-	0.32	0.34	**0.33**
Employment (Job Years)		-	197.84	108.61	**306.45**
Income per Employee		-	$53,300	$45,800	**$50,600**
Total Trans-Sierra Region Impacts					
Industry Output		$242,071,638	$102,606,899	$37,495,733	**$382,174,269**
Multiplier		1.00	0.42	0.15	**1.58**
Labor Income		$54,289,200	$30,024,435	$10,066,990	**$94,380,600**
Labor Income per $1 Output		0.22	0.29	0.27	**0.25**
Employment (Job Years)		1,721.97	874.71	269.05	**2,865.73**
Income per Employee		$31,500	$34,300	$37,400	**$32,900**

Lyon imp

Source: IMPLAN.

Table B-8
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Nevada County

Nevada County:
Full Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$1,102,391,445**				
Nevada County Impacts					
Industry Output		$1,102,391,411	$285,403,899	$200,443,300	**$1,588,238,610**
Multiplier		1.00	0.26	0.18	**1.44**
Labor Income		$336,458,300	$96,399,000	$62,440,800	**$495,298,100**
Labor Income per $1 Output		0.31	0.34	0.31	**0.31**
Employment (Job Years)		7,495.35	2,930.15	1,655.85	**12,081.35**
Income per Employee		$44,900	$32,900	$37,700	**$41,000**
Trans-Sierra Region Impacts (Excl. Nevada County)					
Industry Output		-	$99,994,839	$42,370,485	**$142,365,324**
Multiplier		-	0.09	0.04	**0.13**
Labor Income		-	$33,158,477	$14,875,059	**$48,033,500**
Labor Income per $1 Output		-	0.33	0.35	**0.34**
Employment (Job Years)		-	599.94	305.79	**905.73**
Income per Employee		-	$55,300	$48,600	**$53,000**
Total Trans-Sierra Region Impacts					
Industry Output		$1,102,391,411	$385,398,738	$242,813,785	**$1,730,603,934**
Multiplier		1.00	0.35	0.22	**1.57**
Labor Income		$336,458,300	$129,557,477	$77,315,859	**$543,331,600**
Labor Income per $1 Output		0.31	0.34	0.32	**0.31**
Employment (Job Years)		7,495.35	3,530.09	1,961.65	**12,987.09**
Income per Employee		$44,900	$36,700	$39,400	**$41,800**

Nevada imp

Source: IMPLAN.

Table B-9
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Placer County

Placer County:
Full Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$13,990,549,680**				
Placer County Impacts					
Industry Output		$13,990,549,249	$3,802,127,833	$4,132,273,800	**$21,924,950,882**
Multiplier		1.00	0.27	0.30	**1.57**
Labor Income		$5,947,002,100	$1,607,344,400	$1,473,583,800	**$9,027,930,300**
Labor Income per $1 Output		0.43	0.42	0.36	**0.41**
Employment (Job Years)		79,072.12	29,145.12	30,737.21	**138,954**
Income per Employee		$75,200	$55,100	$47,900	**$65,000**
Trans-Sierra Region Impacts (Excl. Placer County)					
Industry Output		-	$269,714,704	$374,746,846	**$644,461,550**
Multiplier		-	0.02	0.03	**0.05**
Labor Income		-	$81,142,620	$124,018,781	**$205,161,400**
Labor Income per $1 Output		-	0.30	0.33	**0.32**
Employment (Job Years)		-	1,717.84	2,889.97	**4,607.81**
Income per Employee		-	$47,200	$42,900	**$44,500**
Total Trans-Sierra Region Impacts					
Industry Output		$13,990,549,249	$4,071,842,537	$4,507,020,646	**$22,569,412,432**
Multiplier		1.00	0.29	0.32	**1.61**
Labor Income		$5,947,002,100	$1,688,487,020	$1,597,602,581	**$9,233,091,700**
Labor Income per $1 Output		0.43	0.41	0.35	**0.41**
Employment (Job Years)		79,072.12	30,862.96	33,627.18	**143,562.26**
Income per Employee		$75,200	$54,700	$47,500	**$64,300**

Placer imp

Source: IMPLAN.

Table B-10
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Sierra County

Sierra County:
Full Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$382,758,664**				
Sierra County Impacts					
Industry Output		$382,758,652	$55,752,403	$27,542,900	**$466,053,955**
Multiplier		1.00	0.15	0.07	**1.22**
Labor Income		$101,606,500	$13,334,900	$6,218,200	**$121,159,600**
Labor Income per $1 Output		0.27	0.24	0.23	**0.26**
Employment (Job Years)		2,748.07	733.10	194.29	**3,675.46**
Income per Employee		$37,000	$18,200	$32,000	**$33,000**
Trans-Sierra Region Impacts (Excl. Sierra County)					
Industry Output		-	$12,340,260	$5,942,344	**$18,282,603**
Multiplier		-	0.03	0.02	**0.05**
Labor Income		-	$4,287,671	$1,976,868	**$6,264,500**
Labor Income per $1 Output		-	0.35	0.33	**0.34**
Employment (Job Years)		-	104.30	45.72	**150.02**
Income per Employee		-	$41,100	$43,200	**$41,800**
Total Trans-Sierra Region Impacts					
Industry Output		$382,758,652	$68,092,663	$33,485,244	**$484,336,558**
Multiplier		1.00	0.18	0.09	**1.27**
Labor Income		$101,606,500	$17,622,571	$8,195,068	**$127,424,100**
Labor Income per $1 Output		0.27	0.26	0.24	**0.26**
Employment (Job Years)		2,748.07	837.40	240.00	**3,825.48**
Income per Employee		$37,000	$21,000	$34,100	**$33,300**

Sierra imp

Source: IMPLAN.

FINAL

Table B-11
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Storey County

Storey County:
Full Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$128,174,610**				
Storey County Impacts					
Industry Output		$128,174,606	$38,858,361	$39,669,600	**$206,702,567**
Multiplier		1.00	0.30	0.31	**1.61**
Labor Income		$49,999,100	$16,499,800	$14,522,100	**$81,021,000**
Labor Income per $1 Output		0.39	0.42	0.37	**0.39**
Employment (Job Years)		790.92	305.77	312.20	**1,408.89**
Income per Employee		$63,200	$54,000	$46,500	**$57,500**
Trans-Sierra Region Impacts (Excl. Storey County)					
Industry Output		-	$58,102,122	$71,716,420	**$129,818,542**
Multiplier		-	0.45	0.56	**1.01**
Labor Income		-	$22,313,555	$24,935,635	**$47,249,200**
Labor Income per $1 Output		-	0.38	0.35	**0.36**
Employment (Job Years)		-	448.87	546.73	**995.60**
Income per Employee		-	$49,700	$45,600	**$47,500**
Total Trans-Sierra Region Impacts					
Industry Output		$128,174,606	$96,960,483	$111,386,020	**$336,521,109**
Multiplier		1.00	0.76	0.87	**2.63**
Labor Income		$49,999,100	$38,813,355	$39,457,735	**$128,270,200**
Labor Income per $1 Output		0.39	0.40	0.35	**0.38**
Employment (Job Years)		790.92	754.64	858.93	**2,404.49**
Income per Employee		$63,200	$51,400	$45,900	**$53,300**

Storey imp

Source: IMPLAN.

Table B-12
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Washoe County

Washoe County: Full Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$11,826,790,488**				
Washoe County Impacts					
Industry Output		$11,826,790,124	$3,585,497,130	$3,660,346,800	**$19,072,634,054**
Multiplier		1.00	0.30	0.31	**1.61**
Labor Income		$4,613,460,400	$1,522,451,000	$1,339,964,300	**$7,475,875,700**
Labor Income per $1 Output		0.39	0.42	0.37	**0.39**
Employment (Job Years)		66,499.16	28,213.85	28,806.83	**123,520**
Income per Employee		$69,400	$54,000	$46,500	**$60,500**
Trans-Sierra Region Impacts (Excl. Washoe County)					
Industry Output		-	$5,361,136,849	$6,617,340,756	**$11,978,477,605**
Multiplier		-	0.45	0.56	**1.01**
Labor Income		-	$2,058,892,439	$2,300,834,198	**$4,359,726,600**
Labor Income per $1 Output		-	0.38	0.35	**0.36**
Employment (Job Years)		-	41,417.86	50,447.24	**91,865.10**
Income per Employee		-	$49,700	$45,600	**$47,500**
Total Trans-Sierra Region Impacts					
Industry Output		$11,826,790,124	$8,946,633,979	$10,277,687,556	**$31,051,111,658**
Multiplier		1.00	0.76	0.87	**2.63**
Labor Income		$4,613,460,400	$3,581,343,439	$3,640,798,498	**$11,835,602,300**
Labor Income per $1 Output		0.39	0.40	0.35	**0.38**
Employment (Job Years)		66,499.16	69,631.71	79,254.07	**215,384.94**
Income per Employee		$69,400	$51,400	$45,900	**$55,000**

Washoe imp

Source: IMPLAN.

FINAL

Table B-13
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - TRPA

TRPA:
Full Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$2,375,572,327**				
TRPA County Impacts					
Industry Output		$2,375,572,254	$741,412,337	$715,908,851	**$3,832,893,442**
Multiplier		1.00	0.31	0.30	**1.61**
Labor Income		$927,991,800	$296,053,400	$248,169,000	**$1,472,214,200**
Labor Income per $1 Output		0.39	0.40	0.35	**0.38**
Employment (Job Years)		13,828.81	5,716.15	5,446.42	**24,991**
Income per Employee		$67,100	$51,800	$45,600	**$58,900**
Trans-Sierra Region Impacts (Excl. TRPA Region)					
Industry Output		-	$27,429,859	$21,347,801	**$48,777,659**
Multiplier		-	0.01	0.01	**0.02**
Labor Income		-	$6,591,519	$6,068,999	**$12,660,500**
Labor Income per $1 Output		-	0.24	0.28	**0.26**
Employment (Job Years)		-	132.22	165.74	**297.96**
Income per Employee		-	$49,900	$36,600	**$42,500**
Total Trans-Sierra Region Impacts					
Industry Output		$2,375,572,254	$768,842,196	$737,256,651	**$3,881,671,101**
Multiplier		1.00	0.32	0.31	**1.63**
Labor Income		$927,991,800	$302,644,919	$254,237,999	**$1,484,874,700**
Labor Income per $1 Output		0.39	0.39	0.34	**0.38**
Employment (Job Years)		13,828.81	5,848.37	5,612.16	**25,289.34**
Income per Employee		$67,100	$51,700	$45,300	**$58,700**

TRPA imp

Source: IMPLAN.

Appendix C
County Impacts of Incremental Investment Scenario

APPENDIX C

County Impacts of Incremental Investment Scenario

FINAL

Table C-1
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Incremental Investment

Incremental Investment (between Full and Constrained)

Impact	TOTAL IMPACTS (DIRECT, INDIRECT AND INDUCED)												
	California						Nevada					Tahoe Regional Planning Agency	Total Trans-Sierra Region
	Alpine	Amador	El Dorado	Nevada	Placer	Sierra	Carson City	Douglas	Lyon	Storey	Washoe		
Total Construction Costs	**$80,599,346**	**$268,164,719**	**$763,600,000**	**$827,761,445**	**$7,045,149,680**	**$226,963,664**	**$399,246,550**	**$945,394,038**	**$129,236,101**	**$96,896,604**	**$4,320,324,488**	**$784,038,059**	**$15,887,374,694**
County Impacts													
Industry Output	$94,194,213	$353,305,639	$1,088,728,426	$1,192,573,418	$11,040,635,566	$276,355,152	$570,208,869	$1,264,538,763	$178,906,544	$156,261,591	$6,967,229,827	$1,265,014,877	$24,447,952,885
Multiplier	*1.17*	*1.32*	*1.43*	*1.44*	*1.57*	*1.22*	*1.43*	*1.34*	*1.38*	*1.61*	*1.61*	*1.61*	*1.54*
Labor Income	$45,298,900	$85,313,900	$383,301,700	$371,908,400	$4,546,148,800	$71,843,800	$199,214,000	$352,385,600	$42,103,400	$61,249,700	$2,730,936,100	$485,892,200	$9,375,596,500
Labor Income per $1 Output	*0.48*	*0.24*	*0.35*	*0.31*	*0.41*	*0.26*	*0.35*	*0.28*	*0.24*	*0.39*	*0.39*	*0.38*	*0.38*
Employment (Job Years)	505.5	2,757.4	7,539.6	9,071.6	69,972.6	2,179.4	3,703.3	9,221.1	1,366.3	1,065.1	45,121.8	8,248.2	160,752.0
Income per Employee	*$89,600*	*$30,900*	*$50,800*	*$41,000*	*$65,000*	*$33,000*	*$53,800*	*$38,200*	*$30,800*	*$57,500*	*$60,500*	*$58,900*	*$58,323*
Industry Output	$5,086,734	$8,987,658	$25,129,983	$106,898,985	$324,528,213	$10,841,000	$148,817,218	$334,524,539	$25,126,926	$98,139,373	$4,375,735,765	$16,098,664	$5,479,915,057
Multiplier	*0.06*	*0.03*	*0.03*	*0.13*	*0.05*	*0.05*	*0.37*	*0.35*	*0.19*	*1.01*	*1.01*	*0.02*	*0.34*
Labor Income	$1,709,700	$2,659,000	$8,563,500	$36,067,300	$103,312,100	$3,714,700	$50,308,900	$111,635,000	$8,284,100	$35,719,100	$1,592,607,400	$4,178,500	$1,958,759,300
Labor Income per $1 Output	*0.34*	*0.30*	*0.34*	*0.34*	*0.32*	*0.34*	*0.34*	*0.33*	*0.33*	*0.36*	*0.36*	*0.26*	*0.36*
Employment (Job Years)	37.7	60.2	162.0	680.1	2,320.3	89.0	1,022.1	2,160.2	163.6	752.6	33,558.3	98.3	41,104.4
Income per Employee	*$45,400*	*$44,200*	*$52,900*	*$53,000*	*$44,500*	*$41,800*	*$49,200*	*$51,700*	*$50,600*	*$47,500*	*$47,500*	*$42,500*	*$47,653*
Industry Output	$99,280,946	$362,293,297	$1,113,858,409	$1,299,472,403	$11,365,163,779	$287,196,152	$719,026,087	$1,599,063,302	$204,033,470	$254,400,965	$11,342,965,592	$1,281,113,541	$29,927,867,942
Multiplier	*1.23*	*1.35*	*1.46*	*1.57*	*1.61*	*1.27*	*1.80*	*1.69*	*1.58*	*2.63*	*2.63*	*1.63*	*1.88*
Labor Income	$47,008,600	$87,972,900	$391,865,200	$407,975,700	$4,649,460,900	$75,558,500	$249,522,900	$464,020,600	$50,387,500	$96,968,800	$4,323,543,500	$490,070,700	$11,334,355,800
Labor Income per $1 Output	*0.47*	*0.24*	*0.35*	*0.31*	*0.41*	*0.26*	*0.35*	*0.29*	*0.25*	*0.38*	*0.38*	*0.38*	*0.38*
Employment (Job Years)	543.2	2,817.5	7,701.6	9,751.7	72,292.9	2,268.4	4,725.4	11,381.3	1,529.9	1,817.7	78,680.1	8,346.5	201,856.4
Income per Employee	*$86,500*	*$31,200*	*$50,900*	*$41,800*	*$64,300*	*$33,300*	*$52,800*	*$40,800*	*$32,900*	*$53,300*	*$55,000*	*$58,700*	*$56,151*

imp_diff

Source: IMPLAN.

NOTE: Estimates shown in this table reflect economic impacts associated with construction activity based on total construction budgets, and do not reflect annual impacts. To derive annualized impacts, total impacts shown above should be divided by the estimated construction timeframe (years).

FINAL

Table C-2
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Alpine County

Alpine County: Incremental Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$80,599,346**				
Alpine County Impacts					
Industry Output		$80,599,344	$7,417,969	$6,176,900	**$94,194,213**
Multiplier		1.00	0.09	0.08	**1.17**
Labor Income		$38,780,200	$4,884,400	$1,634,300	**$45,298,900**
Labor Income per $1 Output		0.48	0.66	0.26	**0.48**
Employment (Job Years)		412.3	50.4	42.9	**505.54**
Income per Employee		$94,100	$96,900	$38,100	**$89,600**
Trans-Sierra Region Impacts (Excl. Alpine County)					
Industry Output		-	$618,029	$4,468,704	**$5,086,734**
Multiplier		-	0.01	0.06	**0.06**
Labor Income		-	$189,743	$1,519,987	**$1,709,700**
Labor Income per $1 Output		-	0.31	0.34	**0.34**
Employment (Job Years)		-	3.7	34.0	**37.67**
Income per Employee		-	$51,500	$44,700	**$45,400**
Total Trans-Sierra Region Impacts					
Industry Output		$80,599,344	$8,035,998	$10,645,604	**$99,280,946**
Multiplier		1.00	0.10	0.13	**1.23**
Labor Income		$38,780,200	$5,074,143	$3,154,287	**$47,008,600**
Labor Income per $1 Output		0.48	0.63	0.30	**0.47**
Employment (Job Years)		412.3	54.1	76.9	**543.22**
Income per Employee		$94,100	$93,800	$41,000	**$86,500**

Alpine diff

Source: IMPLAN.

FINAL

Table C-3
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Amador County

Amador County: Incremental Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$268,164,719**				
Amador County Impacts					
Industry Output		$268,164,711	$55,302,728	$29,838,200	**$353,305,639**
Multiplier		1.00	0.21	0.11	**1.32**
Labor Income		$59,627,700	$17,533,800	$8,152,400	**$85,313,900**
Labor Income per $1 Output		0.22	0.32	0.27	**0.24**
Employment (Job Years)		2,036.0	483.8	237.6	**2,757.37**
Income per Employee		$29,300	$36,200	$34,300	**$30,900**
Trans-Sierra Region Impacts (Excl. Amador County)					
Industry Output		-	$6,192,701	$2,794,957	**$8,987,658**
Multiplier		-	0.02	0.01	**0.03**
Labor Income		-	$1,738,372	$920,655	**$2,659,000**
Labor Income per $1 Output		-	0.28	0.33	**0.30**
Employment (Job Years)		-	39.1	21.1	**60.15**
Income per Employee		-	$44,500	$43,600	**$44,200**
Total Trans-Sierra Region Impacts					
Industry Output		$268,164,711	$61,495,429	$32,633,157	**$362,293,297**
Multiplier		1.00	0.23	0.12	**1.35**
Labor Income		$59,627,700	$19,272,172	$9,073,055	**$87,972,900**
Labor Income per $1 Output		0.22	0.31	0.28	**0.24**
Employment (Job Years)		2,036.0	522.9	258.7	**2,817.52**
Income per Employee		$29,300	$36,900	$35,100	**$31,200**

Amador diff

FINAL

Table C-4
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Carson City County

Carson City: Incremental Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$399,246,550**				
Carson City Impacts					
Industry Output		$399,246,538	$102,590,231	$68,372,100	**$570,208,869**
Multiplier		1.00	0.26	0.17	**1.43**
Labor Income		$139,334,800	$37,548,300	$22,330,900	**$199,214,000**
Labor Income per $1 Output		0.35	0.37	0.33	**0.35**
Employment (Job Years)		2,392.4	776.7	534.3	**3,703.33**
Income per Employee		$58,200	$48,300	$41,800	**$53,800**
Trans-Sierra Region Impacts (Excl. Carson City)					
Industry Output		-	$91,256,601	$57,560,617	**$148,817,218**
Multiplier		-	0.23	0.14	**0.37**
Labor Income		-	$30,762,379	$19,546,542	**$50,308,900**
Labor Income per $1 Output		-	0.34	0.34	**0.34**
Employment (Job Years)		-	586.1	436.0	**1,022.07**
Income per Employee		-	$52,500	$44,800	**$49,200**
Total Trans-Sierra Region Impacts					
Industry Output		$399,246,538	$193,846,832	$125,932,717	**$719,026,087**
Multiplier		1.00	0.49	0.32	**1.80**
Labor Income		$139,334,800	$68,310,679	$41,877,442	**$249,522,900**
Labor Income per $1 Output		0.35	0.35	0.33	**0.35**
Employment (Job Years)		2,392.4	1,362.8	970.3	**4,725.40**
Income per Employee		$58,200	$50,100	$43,200	**$52,800**

Carson City diff

Source: IMPLAN.

Table C-5
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Douglas County

Douglas County: Incremental Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$945,394,038**				
Douglas County Impacts					
Industry Output		$945,394,009	$202,800,054	$116,344,700	**$1,264,538,763**
Multiplier		1.00	0.21	0.12	**1.34**
Labor Income		$251,272,000	$66,827,800	$34,285,800	**$352,385,600**
Labor Income per $1 Output		0.27	0.33	0.29	**0.28**
Employment (Job Years)		6,372.2	1,846.1	1,002.8	**9,221.12**
Income per Employee		$39,400	$36,200	$34,200	**$38,200**
Trans-Sierra Region Impacts (Excl. Douglas County)					
Industry Output		-	$245,485,155	$89,039,384	**$334,524,539**
Multiplier		-	0.26	0.09	**0.35**
Labor Income		-	$81,177,892	$30,457,114	**$111,635,000**
Labor Income per $1 Output		-	0.33	0.34	**0.33**
Employment (Job Years)		-	1,503.7	656.5	**2,160.17**
Income per Employee		-	$54,000	$46,400	**$51,700**
Total Trans-Sierra Region Impacts					
Industry Output		$945,394,009	$448,285,209	$205,384,084	**$1,599,063,302**
Multiplier		1.00	0.47	0.22	**1.69**
Labor Income		$251,272,000	$148,005,692	$64,742,914	**$464,020,600**
Labor Income per $1 Output		0.27	0.33	0.32	**0.29**
Employment (Job Years)		6,372.2	3,349.8	1,659.3	**11,381.29**
Income per Employee		$39,400	$44,200	$39,000	**$40,800**

Douglas diff

Source: IMPLAN.

Table C-6
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - El Dorado County

El Dorado County: Incremental Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$763,600,000**				
El Dorado County Impacts					
Industry Output		$763,599,976	$182,851,250	$142,277,200	**$1,088,728,426**
Multiplier		1.00	0.24	0.19	**1.43**
Labor Income		$270,706,700	$68,023,300	$44,571,700	**$383,301,700**
Labor Income per $1 Output		0.35	0.37	0.31	**0.35**
Employment (Job Years)		4,831.5	1,605.3	1,102.9	**7,539.63**
Income per Employee		$56,000	$42,400	$40,400	**$50,800**
Trans-Sierra Region Impacts (Excl. El Dorado County)					
Industry Output		-	$14,898,396	$10,231,587	**$25,129,983**
Multiplier		-	0.02	0.01	**0.03**
Labor Income		-	$4,887,467	$3,676,036	**$8,563,500**
Labor Income per $1 Output		-	0.33	0.36	**0.34**
Employment (Job Years)		-	85.5	76.5	**161.99**
Income per Employee		-	$57,200	$48,000	**$52,900**
Total Trans-Sierra Region Impacts					
Industry Output		$763,599,976	$197,749,646	$152,508,787	**$1,113,858,409**
Multiplier		1.00	0.26	0.20	**1.46**
Labor Income		$270,706,700	$72,910,767	$48,247,736	**$391,865,200**
Labor Income per $1 Output		0.35	0.37	0.32	**0.35**
Employment (Job Years)		4,831.5	1,690.7	1,179.4	**7,701.63**
Income per Employee		$56,000	$43,100	$40,900	**$50,900**

El Dorado diff

Source: IMPLAN.

FINAL

Table C-7
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Lyon County

Lyon County: Incremental Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$129,236,101**				
Lyon County Impacts					
Industry Output		$129,236,097	$37,414,247	$12,256,200	**$178,906,544**
Multiplier		1.00	0.29	0.09	**1.38**
Labor Income		$28,983,700	$10,400,400	$2,719,300	**$42,103,400**
Labor Income per $1 Output		0.22	0.28	0.22	**0.24**
Employment (Job Years)		919.3	361.4	85.7	**1,366.33**
Income per Employee		$31,500	$28,800	$31,700	**$30,800**
Trans-Sierra Region Impacts (Excl. Lyon County)					
Industry Output		-	$17,365,054	$7,761,872	**$25,126,926**
Multiplier		-	0.13	0.06	**0.19**
Labor Income		-	$5,628,934	$2,655,171	**$8,284,100**
Labor Income per $1 Output		-	0.32	0.34	**0.33**
Employment (Job Years)		-	105.6	58.0	**163.61**
Income per Employee		-	$53,300	$45,800	**$50,600**
Total Trans-Sierra Region Impacts					
Industry Output		$129,236,097	$54,779,301	$20,018,072	**$204,033,470**
Multiplier		1.00	0.42	0.15	**1.58**
Labor Income		$28,983,700	$16,029,334	$5,374,471	**$50,387,500**
Labor Income per $1 Output		0.22	0.29	0.27	**0.25**
Employment (Job Years)		919.3	467.0	143.6	**1,529.94**
Income per Employee		$31,500	$34,300	$37,400	**$32,900**

Lyon diff

Source: IMPLAN.

Table C-8
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Nevada County

Nevada County: Incremental Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$827,761,445**				
Nevada County Impacts					
Industry Output		$827,761,419	$214,303,499	$150,508,500	**$1,192,573,418**
Multiplier		1.00	0.26	0.18	**1.44**
Labor Income		$252,639,100	$72,383,900	$46,885,400	**$371,908,400**
Labor Income per $1 Output		0.31	0.34	0.31	**0.31**
Employment (Job Years)		5,628.1	2,200.2	1,243.3	**9,071.62**
Income per Employee		$44,900	$32,900	$37,700	**$41,000**
Trans-Sierra Region Impacts (Excl. Nevada County)					
Industry Output		-	$75,083,921	$31,815,064	**$106,898,985**
Multiplier		-	0.09	0.04	**0.13**
Labor Income		-	$24,897,970	$11,169,354	**$36,067,300**
Labor Income per $1 Output		-	0.33	0.35	**0.34**
Employment (Job Years)		-	450.5	229.6	**680.10**
Income per Employee		-	$55,300	$48,600	**$53,000**
Total Trans-Sierra Region Impacts					
Industry Output		$827,761,419	$289,387,420	$182,323,564	**$1,299,472,403**
Multiplier		1.00	0.35	0.22	**1.57**
Labor Income		$252,639,100	$97,281,870	$58,054,754	**$407,975,700**
Labor Income per $1 Output		0.31	0.34	0.32	**0.31**
Employment (Job Years)		5,628.1	2,650.7	1,473.0	**9,751.72**
Income per Employee		$44,900	$36,700	$39,400	**$41,800**

Nevada diff

Source: IMPLAN.

Table C-9
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Placer County

Placer County: Incremental Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$7,045,149,680**				
Placer County Impacts					
Industry Output		$7,045,149,463	$1,914,618,103	$2,080,868,000	**$11,040,635,566**
Multiplier		1.00	0.27	0.30	**1.57**
Labor Income		$2,994,701,500	$809,402,200	$742,045,100	**$4,546,148,800**
Labor Income per $1 Output		0.43	0.42	0.36	**0.41**
Employment (Job Years)		39,817.9	14,676.5	15,478.2	**69,973**
Income per Employee		$75,200	$55,100	$47,900	**$65,000**
Trans-Sierra Region Impacts (Excl. Placer County)					
Industry Output		-	$135,818,857	$188,709,356	**$324,528,213**
Multiplier		-	0.02	0.03	**0.05**
Labor Income		-	$40,860,575	$62,451,504	**$103,312,100**
Labor Income per $1 Output		-	0.30	0.33	**0.32**
Employment (Job Years)		-	865.0	1,455.3	**2,320.33**
Income per Employee		-	$47,200	$42,900	**$44,500**
Total Trans-Sierra Region Impacts					
Industry Output		$7,045,149,463	$2,050,436,960	$2,269,577,356	**$11,365,163,779**
Multiplier		1.00	0.29	0.32	**1.61**
Labor Income		$2,994,701,500	$850,262,775	$804,496,604	**$4,649,460,900**
Labor Income per $1 Output		0.43	0.41	0.35	**0.41**
Employment (Job Years)		39,817.9	15,541.5	16,933.5	**72,292.92**
Income per Employee		$75,200	$54,700	$47,500	**$64,300**

Placer diff

Source: IMPLAN.

Table C-10
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Sierra County

Sierra County: Incremental Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$226,963,664**				
Sierra County Impacts					
Industry Output		$226,963,657	$33,059,395	$16,332,100	**$276,355,152**
Multiplier		1.00	0.15	0.07	**1.22**
Labor Income		$60,249,400	$7,907,200	$3,687,200	**$71,843,800**
Labor Income per $1 Output		0.27	0.24	0.23	**0.26**
Employment (Job Years)		1,629.5	434.7	115.2	**2,179.43**
Income per Employee		$37,000	$18,200	$32,000	**$33,000**
Trans-Sierra Region Impacts (Excl. Sierra County)					
Industry Output		-	$7,317,380	$3,523,620	**$10,841,000**
Multiplier		-	0.03	0.02	**0.05**
Labor Income		-	$2,542,452	$1,172,219	**$3,714,700**
Labor Income per $1 Output		-	0.35	0.33	**0.34**
Employment (Job Years)		-	61.8	27.1	**88.96**
Income per Employee		-	$41,100	$43,200	**$41,800**
Total Trans-Sierra Region Impacts					
Industry Output		$226,963,657	$40,376,775	$19,855,720	**$287,196,152**
Multiplier		1.00	0.18	0.09	**1.27**
Labor Income		$60,249,400	$10,449,652	$4,859,419	**$75,558,500**
Labor Income per $1 Output		0.27	0.26	0.24	**0.26**
Employment (Job Years)		1,629.5	496.6	142.3	**2,268.39**
Income per Employee		$37,000	$21,000	$34,100	**$33,300**

Sierra diff

Source: IMPLAN.

FINAL

Table C-11
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Storey County

Storey County: Incremental Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$96,896,604**				
Storey County Impacts					
Industry Output		$96,896,601	$29,375,890	$29,989,100	**$156,261,591**
Multiplier		1.00	0.30	0.31	**1.61**
Labor Income		$37,798,000	$12,473,400	$10,978,300	**$61,249,700**
Labor Income per $1 Output		0.39	0.42	0.37	**0.39**
Employment (Job Years)		597.9	231.2	236.0	**1,065.08**
Income per Employee		$63,200	$54,000	$46,500	**$57,500**
Trans-Sierra Region Impacts (Excl. Storey County)					
Industry Output		-	$43,923,663	$54,215,710	**$98,139,373**
Multiplier		-	0.45	0.56	**1.01**
Labor Income		-	$16,868,455	$18,850,678	**$35,719,100**
Labor Income per $1 Output		-	0.38	0.35	**0.36**
Employment (Job Years)		-	339.3	413.3	**752.65**
Income per Employee		-	$49,700	$45,600	**$47,500**
Total Trans-Sierra Region Impacts					
Industry Output		$96,896,601	$73,299,553	$84,204,810	**$254,400,965**
Multiplier		1.00	0.76	0.87	**2.63**
Labor Income		$37,798,000	$29,341,855	$29,828,978	**$96,968,800**
Labor Income per $1 Output		0.39	0.40	0.35	**0.38**
Employment (Job Years)		597.9	570.5	649.3	**1,817.73**
Income per Employee		$63,200	$51,400	$45,900	**$53,300**

Storey diff

Source: IMPLAN.

FINAL

Table C-12
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - Washoe County

Washoe County: Incremental Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$4,320,324,488**				
Washoe County Impacts					
Industry Output		$4,320,324,355	$1,309,781,472	$1,337,124,000	**$6,967,229,827**
Multiplier		1.00	0.30	0.31	**1.61**
Labor Income		$1,685,296,300	$556,151,100	$489,488,700	**$2,730,936,100**
Labor Income per $1 Output		0.39	0.42	0.37	**0.39**
Employment (Job Years)		24,292.1	10,306.5	10,523.1	**45,122**
Income per Employee		$69,400	$54,000	$46,500	**$60,500**
Trans-Sierra Region Impacts (Excl. Washoe County)					
Industry Output		-	$1,958,422,349	$2,417,313,416	**$4,375,735,765**
Multiplier		-	0.45	0.56	**1.01**
Labor Income		-	$752,113,046	$840,494,328	**$1,592,607,400**
Labor Income per $1 Output		-	0.38	0.35	**0.36**
Employment (Job Years)		-	15,129.9	18,428.4	**33,558.31**
Income per Employee		-	$49,700	$45,600	**$47,500**
Total Trans-Sierra Region Impacts					
Industry Output		$4,320,324,355	$3,268,203,821	$3,754,437,416	**$11,342,965,592**
Multiplier		1.00	0.76	0.87	**2.63**
Labor Income		$1,685,296,300	$1,308,264,146	$1,329,983,028	**$4,323,543,500**
Labor Income per $1 Output		0.39	0.40	0.35	**0.38**
Employment (Job Years)		24,292.1	25,436.5	28,951.5	**78,680**
Income per Employee		$69,400	$51,400	$45,900	**$55,000**

Washoe diff

Source: IMPLAN.

FINAL

Table C-13
TransSierra Transportation Plan
Business Case
Economic Impacts of Transportation Construction Activity - TRPA

TRPA Region: Incremental Investment

Impact	Input	IMPACT CATEGORY Direct	Indirect	Induced	Total
Total Construction Costs	**$784,038,059**				
TRPA Impacts					
Industry Output		$784,038,035	$244,697,029	$236,279,813	**$1,265,014,877**
Multiplier		1.00	0.31	0.30	**1.61**
Labor Income		$306,276,100	$97,710,000	$81,906,100	**$485,892,200**
Labor Income per $1 Output		0.39	0.40	0.35	**0.38**
Employment (Job Years)		4,564.1	1,886.6	1,797.5	**8,248**
Income per Employee		$67,100	$51,800	$45,600	**$58,900**
Trans-Sierra Region Impacts (Excl. TRPA Region)					
Industry Output		-	$9,052,999	$7,045,666	**$16,098,664**
Multiplier		-	0.01	0.01	**0.02**
Labor Income		-	$2,175,477	$2,003,023	**$4,178,500**
Labor Income per $1 Output		-	0.24	0.28	**0.26**
Employment (Job Years)		-	43.6	54.7	**98.34**
Income per Employee		-	$49,900	$36,600	**$42,500**
Total Trans-Sierra Region Impacts					
Industry Output		$784,038,035	$253,750,027	$243,325,479	**$1,281,113,541**
Multiplier		1.00	0.32	0.31	**1.63**
Labor Income		$306,276,100	$99,885,477	$83,909,123	**$490,070,700**
Labor Income per $1 Output		0.39	0.39	0.34	**0.38**
Employment (Job Years)		4,564.1	1,930.2	1,852.2	**8,347**
Income per Employee		$67,100	$51,700	$45,300	**$58,700**

TRPA diff

Source: IMPLAN.

Appendix D
Sales Tax Estimates

APPENDIX D

Sales Tax Estimates

Table D-1
TransSierra Transportation Plan
Business Case
Sales Tax Estimates

Item	California					
	Alpine	Amador	El Dorado	Nevada	Placer	Sierra
Estimated Annual Taxable Sales - State FY 2013-2014 [1]	**$23,771,823**	**$391,349,289**	**$1,958,286,173**	**$1,187,969,949**	**$8,200,192,351**	**$15,527,492**
Gross Sales Tax Rate [2]						
Statewide Base Sales Tax Rate	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
County Sales Tax Add-On	0.0%	0.5%	0.0%	0.1%	0.0%	0.0%
Subtotal	**7.5%**	**8.0%**	**7.5%**	**7.6%**	**7.5%**	**7.5%**
1.0% Increase in Taxable Sales	$237,718	$3,913,493	$19,582,862	$11,879,699	$82,001,924	$155,275
Gross Annual Sales Tax Increase	**$17,829**	**$313,079**	**$1,468,715**	**$905,827**	**$6,150,144**	**$11,646**
3.0% Increase in Taxable Sales	$713,155	$11,740,479	$58,748,585	$35,639,098	$246,005,771	$465,825
Gross Annual Sales Tax Increase	**$53,487**	**$939,238**	**$4,406,144**	**$2,717,481**	**$18,450,433**	**$34,937**
5.0% Increase in Taxable Sales	$1,188,591	$19,567,464	$97,914,309	$59,398,497	$410,009,618	$776,375
Gross Annual Sales Tax Increase	**$89,144**	**$1,565,397**	**$7,343,573**	**$4,529,135**	**$30,750,721**	**$58,228**

sales tax

Source: Nevada Department of Taxation, California Board of Equalization, and EPS.

[1] California taxable sales data only available through the second quarter of 2013. Taxable sales data for 2012 Q3 through 2013 Q2 were used to project taxable sales for the following year, July 2013 to June 2014. The year to year changes for 2013 Q1 and 2013 Q2 were averaged, and the resulting figure was applied to each quarter to project year-over-year sales growth.
[2] The gross sales tax rate is a conservative estimate, as it does not include additional taxes levied by certain incorporated cities in California.

Table D-1
TransSierra Transportation Plan
Business Case
Sales Tax Estimates

Item	Nevada					Total Trans-Sierra Region
	Carson City	Douglas	Lyon	Storey	Washoe	
Estimated Annual Taxable Sales - State FY 2013-2014 [3]	**$804,368,288**	**$599,622,888**	**$356,889,794**	**$108,434,066**	**$6,370,684,534**	**$20,017,096,646**
Gross Sales Tax Rate						
Statewide Base Sales Tax Rate	6.9%	6.9%	6.9%	6.9%	6.9%	
County Sales Tax Add-On	0.6%	0.3%	0.3%	0.8%	0.9%	
Subtotal	**7.5%**	**7.1%**	**7.1%**	**7.6%**	**7.7%**	
1.0% Increase in Taxable Sales	$8,043,683	$5,996,229	$3,568,898	$1,084,341	$63,706,845	**$200,170,966**
Gross Annual Sales Tax Increase	**$601,265**	**$425,732**	**$253,392**	**$82,410**	**$4,921,354**	**$15,151,393**
3.0% Increase in Taxable Sales	$24,131,049	$17,988,687	$10,706,694	$3,253,022	$191,120,536	**$600,512,899**
Gross Annual Sales Tax Increase	**$1,803,796**	**$1,277,197**	**$760,175**	**$247,230**	**$14,764,061**	**$45,454,179**
5.0% Increase in Taxable Sales	$40,218,414	$29,981,144	$17,844,490	$5,421,703	$318,534,227	**$1,000,854,832**
Gross Annual Sales Tax Increase	**$3,006,326**	**$2,128,661**	**$1,266,959**	**$412,049**	**$24,606,769**	**$75,756,964**

sales tax

Source: Nevada Department of Taxation, California Board of Equalization, and EPS.

[3] Nevada sales data provided by Nevada Department of Taxation for Fiscal Year 2014 (July 2013 through June 2014).

Appendix E
Property Tax Revenue Estimates

APPENDIX E

Property Tax Revenue

Table E-1
TransSierra Transportation Plan
Business Case
Property Tax Revenue

Item	California					
	Alpine	Amador	El Dorado	Nevada	Placer	Sierra
Estimated Assessed Value 2014	$685,436,381	$4,310,018,693	$26,806,476,743	$15,720,956,747	$58,267,146,115	$492,038,535
Property Tax Rate [1]	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
0.50% Increase in Assessed Value [2]	$3,427,000	$21,550,000	$134,032,000	$78,605,000	$291,336,000	$2,460,000
Gross Annual Property Tax Increase	**$34,000**	**$216,000**	**$1,340,000**	**$786,000**	**$2,913,000**	**$25,000**
1.00% Increase in Assessed Value [2]	$6,854,000	$43,100,000	$268,065,000	$157,210,000	$582,671,000	$4,920,000
Gross Annual Property Tax Increase	**$69,000**	**$431,000**	**$2,681,000**	**$1,572,000**	**$5,827,000**	**$49,000**
1.50% Increase in Assessed Value [2]	$10,282,000	$64,650,000	$402,097,000	$235,814,000	$874,007,000	$7,381,000
Gross Annual Property Tax Increase	**$103,000**	**$647,000**	**$4,021,000**	**$2,358,000**	**$8,740,000**	**$74,000**

prop tax

Source: County Assessor's Offices and EPS.

[1] In Nevada, assessed value is calculated as 35% of the taxable value. Unlike California, which has a fixed rate of 1%, Nevada property tax rates vary by county, which include component tax rates for the county general fund, towns and special districts, schools, and the state.

[2] In California, a property's assessed value may not increase by more than 2% in any one year. In Nevada, a homeowner's property tax bill may not increase more than 3% in a given year, while commercial property taxes are capped at eight percent.

Table E-1
TransSierra Transportation Plan
Business Case
Property Tax Revenue

Item	Nevada					Total Trans-Sierra Region
	Carson City	Douglas	Lyon	Storey	Washoe	
Estimated Assessed Value 2014	$1,226,989,608	$2,597,218,630	$1,181,637,268	$290,945,409	$12,525,719,865	**$124,104,583,994**
Property Tax Rate [1]	3.7%	2.9%	2.9%	3.5%	2.7%	
0.50% Increase in Assessed Value [2]	$6,135,000	$12,986,000	$5,908,000	$1,455,000	$62,629,000	**$620,523,000**
Gross Annual Property Tax Increase	**$225,000**	**$373,000**	**$173,000**	**$50,000**	**$1,691,000**	**$7,826,000**
1.00% Increase in Assessed Value [2]	$12,270,000	$25,972,000	$11,816,000	$2,909,000	$125,257,000	**$1,241,044,000**
Gross Annual Property Tax Increase	**$449,000**	**$745,000**	**$347,000**	**$101,000**	**$3,382,000**	**$15,653,000**
1.50% Increase in Assessed Value [2]	$18,405,000	$38,958,000	$17,725,000	$4,364,000	$187,886,000	**$1,861,569,000**
Gross Annual Property Tax Increase	**$674,000**	**$1,118,000**	**$520,000**	**$151,000**	**$5,073,000**	**$23,479,000**

prop tax

Source: County Assessor's Offices and EPS.

[1] In Nevada, assessed value is calculated as 35% of the taxable value. Unlike California, which has a fixed rate of 1%, Nevada property tax rates vary by county, which include component tax rates for the county general fund, towns and special districts, schools, and the state.

[2] In California, a property's assessed value may not increase by more than 2% in any one year. In Nevada, a homeowner's property tax bill may not increase more than 3% in a given year, while commercial property taxes are capped at eight percent.

Appendix F
Estimated Annual Health Savings Due to Increased Transit Use

APPENDIX F

Estimated Annual Health Savings Due to Increased Transit Use

Table F-1
TransSierra Transportation Plan
Business Case
Estimated Annual Health Savings Due to Increased Transit Use

Item		Assumptions	California						Nevada					Total Trans-Sierra Region
			Alpine	Amador	El Dorado	Nevada	Placer	Sierra	Carson City	Douglas	Lyon	Storey	Washoe	
Projected 2015 Total Workers [1]			1,030	18,336	94,672	58,912	195,325	1,529	39,078	28,515	17,346	3,858	263,054	**721,655**
Physically Inactive Workers [2]														
California	68.5%	of workers	706	12,560	64,850	40,355	133,798	1,047						**253,316**
Nevada	70.8%	of workers							27,667	20,189	12,281	2,731	186,242	**249,111**
Increase in Physically Active Workers [3]	1.0%	of currently inactive workers	7	126	649	404	1,338	10	277	202	123	27	1,862	**5,024**
Annual Cost Savings of Physical Activity [4]	**$1,374**	**per person**	**$9,694**	**$172,577**	**$891,043**	**$554,474**	**$1,838,379**	**$14,391**	**$380,148**	**$277,392**	**$168,741**	**$37,530**	**$2,558,968**	**$6,903,337**
								health						*health*

[1] Woods and Poole County Demographic Data, 2013
[2] State average physical inactivity rates taken from East Carolina University's Physical Inactivity Cost Calculator (http://www.ecu.edu/picostcalc/).
[3] Hypothetical assumption.
[4] “The Cost Of Physical Inactivity: Moving Into The 21st Century”, Pratt