I-70 Mountain Corridor PEIS Social and Economic Values Technical Report

August 2010

With Corrections March 2011

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Revision and Errata List
I-70 Mountain Corridor PEIS Social and Economic Values Technical Report
March 2011

The following list represents revisions to the *I-70 Mountain Corridor PEIS Social and Economic Values Technical Report* (CDOT, August 2010).

Page	Item
22	Replace the last sentence of the second to last paragraph on page 22 with the following text: "Clear Creek County is not expected to see as much economic (or population) growth as other Corridor counties in the future due to the Action Alternatives (with the exception of the Minimal Action Alternative) because land areas are constrained, not developable due to slopes and geologic hazards, and a large portion of the county consists of National Forest System lands and other public lands."
31 and 32	The first two paragraphs of **Section 7, Construction Mitigation Strategies** are replaced with the following text: "The phased approach of the Preferred Alternative allows ongoing opportunities to avoid and minimize economic impacts, establish effective mitigation, and employ I-70 Mountain Corridor Context Sensitive Solutions. Corridorwide coordination, state involvement and support, and localized efforts to control growth and maintain quality of life would improve the ability of Corridor communities to maintain and protect and social and economic values. The lead agencies will coordinate a variety of construction mitigation strategies to avoid and minimize construction impacts on Corridor communities. This may include the development of a Tier 2 Public Involvement and Marketing Plan or other strategies. Some of the construction mitigation strategies that would be considered are listed below. This list is not inclusive, and the lead agencies will develop specific mitigation strategies, in concert with the Corridor communities, during Tier 2 processes in response to specific impacts."
33	The following text is added to the end of Section 7, Construction Mitigation Strategies: "Mitigation will consider strategies to address the disparity in the distribution of benefits and impacts that might result from construction activities. Tier 2 processes will include strategies to avoid and minimize construction impacts on Clear Creek communities, including but not limited to: ■ Considerations for peak seasonal traffic (e.g., cessation of construction activities during ski season weekends) ■ Accessibility to Idaho Springs businesses ■ Assisting the county with historic tourism marketing ■ Developing a site-specific Tier 2 interpretive signage plan."

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Section 1. Purpose of the Report

This *I-70 Mountain Corridor PEIS Social and Economic Values Technical Report* supports the information contained in **Chapter 3, Section 3.8** of the *I-70 Mountain Corridor Programmatic Environmental Impact Statement* (PEIS). It identifies:

- Methods used to identify social and economic resources and determine potential impacts of alternatives
- Coordination with local, state, and federal agencies
- Description of the social and economic resources in the Corridor
- Consequences of the Action Alternatives evaluated in the *I-70 Mountain Corridor PEIS*
- Considerations for Tier 2 processes
- Proposed mitigation strategies for social and economic resources

Section 2. Background and Methodology

2.1 Study Area

Because the I-70 Mountain Corridor influences the regional mountain economy, the study area comprises nine counties primarily accessed by the I-70 highway or whose workforce supports counties primarily accessed by the I-70 highway: Garfield, Eagle, Pitkin, Summit, Lake, Park, Grand, Gilpin, and Clear Creek counties (see **Figure 1**). Jefferson County was not included because its economy is tied to the Denver metropolitan area rather than to tourism in the Corridor.

2.2 Data Sources

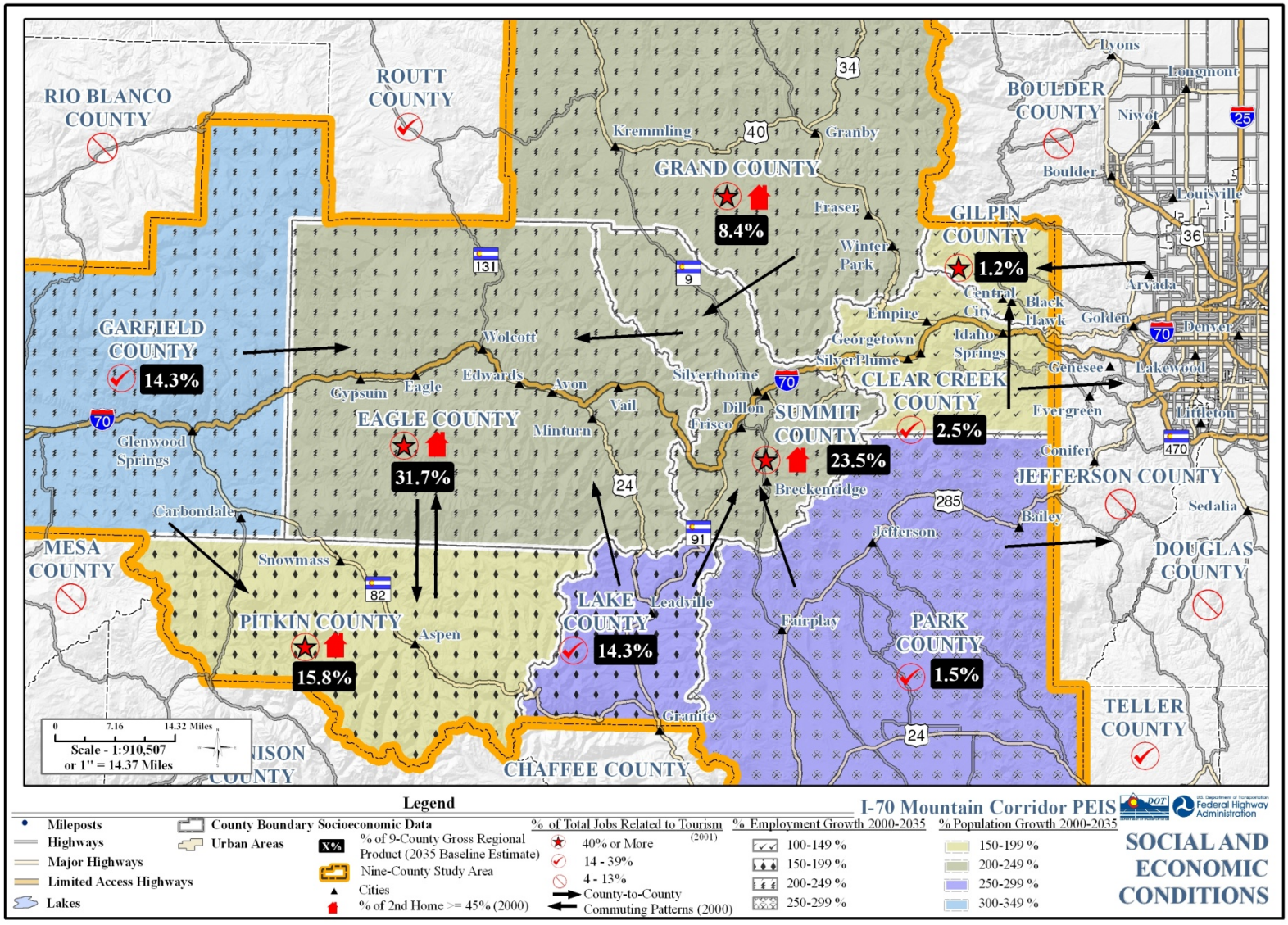
The Colorado Department of Transportation [CDOT] obtained historic and projected demographic information to characterize the existing socioeconomic conditions in the Corridor and understand growth trends. Sources of data for demographic information, including historic and projected population, historic and projected employment, housing data, commuting patterns, and economic data, included:

- The Demography Section of the Colorado Department of Local Affairs
- The Denver Regional Council of Governments (DRCOG)
- The Northwest Colorado Council of Governments (NWCCOG)
- The Corridor counties

These entities provided perspectives on Corridor trends, including growth, build-out assumptions, tourism, and second homes. The lead agencies also met with the Colorado Department of Budgeting and Long-Range Planning to obtain feedback and corroborate study results and conclusions.

Most of the data gathered for this analysis provided information on Corridor conditions as they existed in year 2000, and provided projections for conditions as they would be in 2025, the original planning horizon for this study. As the study progressed, the lead agencies continued to evaluate new data and extended the planning horizon to 2035. However, they determined that because Corridor socioeconomic conditions have been stable, 2010 Census data are not available, and the programmatic nature of impact evaluation at the Tier 1 level focuses on trends and comparative differences among alternatives, the year 2000 and 2025 planning horizon provided a reasonable baseline for a comparative analysis of alternatives.

Figure 1. Social and Economic Conditions



In 2009, the Department of Local Affairs developed population and employment forecasts for year 2035, and revised their initial estimates of population and employment for years 2000 and 2025. These updated estimates were used primarily to qualify and validate the original REMI® model projections. Evaluation of the updated estimates confirmed that the initial estimates are still valid for the purposes of the Tier 1 analysis. **Appendix A** contains the detailed comparison of the Department of Local Affairs initial estimates and updated estimates and the REMI® model forecasts.

2.3 Induced Growth Analysis

The induced growth analysis evaluates the potential for population changes (suppressed or induced growth) associated with each alternative. This information is then provided to Corridor planning organizations and communities to assist with their long-term planning efforts. The method is based on the relationship of growth in traffic on the I-70 highway to population growth by Corridor county and assumes such relationships will continue into 2035. The method uses 2025 projections for expected travel demand and degrees of suppression or inducement for each alternative (from ridership survey and travel demand model) to derive the associated average annual daily traffic (AADT) specific to alternatives and location. The derived 2025 AADT (by county and alternative) is then used with the county population/AADT regression curve to find the associated population and identify growth pressure indicators. These indicators are further examined in light of possible limitations to population growth such as zoning restrictions and infrastructure limitations. The detailed methodology is presented in the *I-70 Mountain Corridor PEIS Land Use Technical Report* (CDOT, August 2010).

2.4 Economic Analysis

The economic data in **Section 4, Affected Environment**, uses the Colorado Department of Local Affairs Base Industry Analysis. This analysis is an integral part of economic forecasting for Colorado counties and identifies economic functions and services that are "basic" to a county's economy. In this analytic process, the driving forces behind a county's economy are best discerned by separating the county's employment into three categories: **basic industries, indirect basic industries,** and **local resident services.**

- **Basic industries.** Activities that bring in money from outside the county. Basic industries serve a county's export market by producing goods or services that are purchased by visitors or people living outside the county. Examples include tourism (which includes the second home market), hotels, agribusiness, mining, construction, manufacturing, and federal/state government services. Agribusiness is a generic term for various businesses involved in food production, including farming, seed supply, agrichemicals, farm machinery, wholesale and distribution, processing, marketing, and retail sales.
- **Indirect basic industries.** Activities that support basic industries. These activities typically include local suppliers of goods and services to basic industries. Examples include wholesale trade, trucking, and aggregate mining for construction.
- **Local resident services.** Activities that serve and sustain the people who reside in the county. Examples include local public schools, grocery stores, local medical services, post offices, and barbers.

Considerable economic growth (Colorado Department of Local Affairs, 2002 and Colorado Department of Local Affairs, 2009) is projected for the nine-county study area during the 2000 to 2035 time period. These projections, called "baseline" projections in this document, do not consider potential impacts from Corridor congestion or improvements, but rather assume that supporting transportation and other public service infrastructure will expand in step with demographic trends.

Indirect economic impacts in the Corridor would involve many factors. The primary factors directly related to travel on the I-70 highway were evaluated and include the change in the number of visitors associated with the different alternatives (due to an increase or a decrease in travel capacity) and the change in the ability to travel to work and to deliver goods and services (due to an increase or a decrease in travel capacity and travel time/access). These factors and variables were used in the REMI® conjoined econometric/input-output model of the nine-county Corridor region to predict economic impacts of the alternatives.

The REMI® model is commonly used for economic assessments in transportation projects because it is a dynamic model that creates progressive forecasts. The model was developed to analyze the impacts of a specific project on the broader regional economy. For the I-70 Mountain Corridor PEIS, the REMI® model process was confirmed by the Colorado Department of Budgeting and Long-Range Planning. The model estimates the impact of differing travel demand among alternatives on recreation spending in the Corridor and assesses secondary effects on the regional economy.

The REMI® model provides the following quantitative information:

- **Projected 2025 and 2035 Gross Regional Product (GRP), personal income, and employment for the nine-county Corridor region (Colorado Department of Local Affairs, 2002 and Colorado Department of Local Affairs, 2009).** The GRP is defined as the total value of new goods and services produced in a year – the equivalent of the U.S. Gross Domestic Product (GDP). Personal income is defined as the value of labor compensation (wages, salaries, and proprietors' earnings), property income (rents, dividends, interest), and net transfers from institutions (such as social security insurance or welfare payments). These comprise the projected economic conditions without regard to changes to the I-70 highway and are used to compare alternative economic predictions and determine economic effects of alternatives in years 2025 and 2035. The modeled time period originally assumed alternative construction would be completed by 2025 and provided a 10-year period, until 2035, during which alternatives could affect economic conditions.
- **Estimated GRP by Corridor county in 2035.** This provides a gauge for counties to estimate possible broad-scale alternative effects.

The economic analysis assumes that tourism spending during peak periods would be affected based on negative or positive effects of recreational trips (as predicted by the travel demand model) for various alternatives. Because the I-70 highway is the major (and in some cases *only*) route for delivery of goods and services, and there is limited storage space in the Corridor, congestion can cause substantial impacts on the area economy. The REMI® model can translate the loss (or gain) of amenity values (such as free-flowing traffic) into a factor that acts to restrain (or stimulate) worker migration over the longer term, which, in turn, impacts regional income and employment.

The value of time is reflected in both a decrease in "real" wages and an increase in production costs. "Real" wages are inflation-adjusted wages. For example, traffic congestion is a major source of wasted time and loss of income (both to commuters and travelers who could be doing other things with their time). Traffic delay while commuting to work or traveling to a recreation destination is considered a cost in terms of time taken away from other activities. Over a period of time, this can lead to a systematic shift in flows of workers and investment capital into the region, thus negatively affecting overall trends in income, employment, and population.

The modeling results are intended as a gauge of the possible economic impacts from the Action Alternatives and the No Action Alternative and do not take the numerous "unknown" economic variables (outside Action Alternatives) into account. In addition, the REMI® model results are regional in nature. Detailed evaluations of localized impacts are beyond the scope of the Tier 1 level of study. This Tier 1

study intentionally focuses on the Corridor-wide effects of changes in the I-70 highway access to Corridor amenities and destinations. Economic activity in the Corridor is tourism-based over a regional area as exemplified by cross-county commuting patterns. Localized impacts will be evaluated during Tier 2 processes in consideration of localized attractions, Action Alternative congestion and access issues, and Action Alternative travel characteristics. The results of the modeling are described in **Section 5, Environmental Consequences**. A detailed description of the economic analysis methods is presented in **Appendix A**.

Section 3. Description of Alternatives

This section summarizes the alternatives considered in the I-70 Mountain Corridor PEIS. A more complete description of these alternatives is available in **Chapter 2** of the PEIS and in the *I-70 Mountain Corridor PEIS Alternatives Screening and Development Technical Report* (CDOT, August 2010).

3.1 Minimal Action Alternative

The Minimal Action Alternative provides a range of local transportation improvements along the Corridor without providing major highway capacity widening or dedicated transit components. The Minimal Action Alternative includes elements of the Transportation System Management family and the Localized Highway Improvements family, including: transportation management, interchange modifications, curve safety modifications, and auxiliary lanes. These elements are also incorporated into the other Action Alternative Packages.

3.2 Transit Alternatives

Four Transit alternatives are considered in the PEIS as a reasonable range representing the Fixed Guideway and Rubber Tire Transit families:

- Rail with Intermountain Connection Alternative
- Advanced Guideway System Alternative
- Dual-Mode Bus in Guideway Alternative
- Diesel Bus in Guideway Alternative

3.2.1 Rail with Intermountain Connection

The Rail with Intermountain Connection Alternative would provide rail transit service between the Eagle County Regional Airport and C-470. Between Vail and C-470 the rail would be primarily at-grade running adjacent to the I-70 highway. The segment between Vail and the Eagle Count Airport would be constructed within the existing Union Pacific Railroad right-of-way. A new Vail Transportation Center, including new track, would be constructed between Vail and Minturn to complete the connection between the diesel and electric trains. This alternative also includes auxiliary lane improvements at eastbound Eisenhower-Johnson Memorial Tunnels to Herman Gulch and westbound Downieville to Empire and the other Minimal Action Alternative elements except for curve safety modifications at Dowd Canyon, buses in mixed traffic and other auxiliary lane improvements.

3.2.2 Advanced Guideway System

The Advanced Guideway System Alternative would provide transit service between the Eagle County Regional Airport and C-470 with a 24-foot-wide, 118 mile, fully elevated system. The Advanced Guideway System Alternative would use a new technology that provides higher speeds than the other Fixed Guideway Transit technologies studied for the PEIS. Any Advanced Guideway System would

require additional research and review before it could be implemented in the Corridor. Although the Federal Transit Administration-researched urban magnetic levitation system is considered in the PEIS, the actual technology would be developed in a Tier 2 process. This alternative includes the same Minimal Action elements as described previously for the Rail with Intermountain Connection Alternative.

3.2.3 Dual-mode Bus in Guideway

This alternative includes a guideway located in the median of the I-70 highway with dual-mode buses providing transit service between the Eagle County Regional Airport and C-470. This guideway would be 24 feet wide with 3 foot high guiding barriers and would accommodate bidirectional travel. The barriers direct the movement of the bus and separate the guideway from general purpose traffic lanes. While traveling in the guideway, buses would use guidewheels to provide steering control, thus permitting a narrow guideway and providing safer operations. The buses use electric power in the guideway and diesel power when traveling outside the guideway in general purpose lanes. This alternative includes the same Minimal Action Alternative elements as described previously for the Rail with Intermountain Connection Alternative.

3.2.4 Diesel Bus in Guideway

This includes the components of the Dual-mode Bus in Guideway Alternative except that the buses use diesel power at all times.

3.3 Highway Alternatives

Three Highway alternatives are advanced for consideration in the PEIS as a reasonable range and representative of the Highway improvements, including Six-Lane Highway 55 mph, Six-Lane Highway 65 mph, and Reversible/HOV/HOT Lanes. The Highway alternatives considered both 55 and 65 mph design speeds to 1) establish corridor consistency and 2) address deficient areas within the Corridor. The 55 mph design speed establishes a consistent design speed throughout the Corridor, which currently does not exist. The 65 mph design speed further improves mobility and addresses safety deficiencies in key locations such as Dowd Canyon and the Twin Tunnels. Both the 55 mph and the 65 mph design speed options are augmented by curve safety improvements, but the 65 mph design speed constructs tunnels in two of the locations: Dowd Canyon and Floyd Hill/Hidden Valley.

3.3.1 Six-Lane Highway 55 mph Alternative

This alternative includes six-lane highway widening in two locations: Dowd Canyon and the Eisenhower-Johnson Memorial Tunnels to Floyd Hill. This alternative includes auxiliary lane improvements at eastbound Avon to Post Boulevard, both directions on the west side of Vail Pass, eastbound Frisco to Silverthorne and westbound Morrison to Chief Hosa, and the Minimal Action Alternative elements except for buses in mixed traffic and other auxiliary lane improvements.

3.3.2 Six-Lane Highway 65 mph Alternative

This alternative is similar to the Six-Lane Highway 55 mph Alternative; it includes the same six-lane widening and all of the Minimal Action Alternative elements except the curve safety modification at Dowd Canyon. The higher design speed of 65 mph alternatives requires the curve safety modifications near Floyd Hill and Fall River Road to be replaced with tunnels.

3.3.3 Reversible Lanes Alternative

This alternative is a reversible lane facility accommodating high occupancy vehicles and high occupancy toll lanes. It changes traffic flow directions as needed to accommodate peak traffic demands. It includes two additional reversible traffic lanes from the west side of the Eisenhower-Johnson Memorial Tunnels to

just east of Floyd Hill. From the Eisenhower-Johnson Memorial Tunnels to US 6, two lanes are built with one lane continuing to US 6 and the other lane to the east side of Floyd Hill. This alternative includes one additional lane in each direction at Dowd Canyon. This alternative includes the same Minimal Action Alternative Elements as the Six-Lane Highway 55 mph Alternative.

3.4 Combination Alternatives

Twelve Combination alternatives, combining Highway and Transit alternatives are considered in the PEIS. Four of these alternatives involve the buildout of highway and transit components simultaneously. Eight alternatives include preservation options, the intent of which is to include, or not preclude, space for future modes in the I-70 Mountain Corridor. The Combination alternatives all include the Six-Lane Highway 55 mph Alternative for highway components.

Combination Rail and Intermountain Connection and Six-Lane Highway Alternative—This alternative includes the 55 mph six-lane highway widening between Floyd Hill and Eisenhower-Johnson Memorial Tunnels, the Rail and Intermountain Connection transit components, and most of the components of the Minimal Action Alternative. The exception is that only one of the Minimal Action auxiliary lane improvements (from Morrison to Chief Hosa westbound) is included.

Combination Advanced Guideway System and Six-Lane Highway Alternative—This alternative includes the 55 mph six-lane highway widening between Floyd Hill and Eisenhower-Johnson Memorial Tunnels and the Advanced Guideway System transit components. It includes the same Minimal Action Alternative elements as the Combination Rail and Intermountain Connection and Six-Lane Highway Alternative.

Combination Bus in Guideway (Dual-Mode) and Six-Lane Highway Alternative—This alternative the 55 mph six-lane highway widening between Floyd Hill and Eisenhower-Johnson Memorial Tunnels and the dual-mode bus in guideway transit components. It includes the same Minimal Action Alternative elements as the Combination Rail and Intermountain Connection and Six-Lane Highway Alternative.

Combination Bus in Guideway (Diesel) and Six-Lane Highway Alternative—This alternative includes the 55 mph six-lane highway widening between Floyd Hill and Eisenhower-Johnson Memorial Tunnels and the diesel bus in guideway transit components. It includes the same Minimal Action Alternative elements as the Combination Rail and Intermountain Connection and Six-Lane Highway Alternative.

Combination Rail & Intermountain Connection and Preservation of Six-Lane Highway Alternative—This alternative includes the Rail and Intermountain Connection Alternative and preserves space to construct the Six-Lane Highway 55 mph at a later point.

Combination Advanced Guideway System and Preservation of Six-Lane Highway Alternative— This alternative includes the Advanced Guideway System and preserves space to construct the Six-Lane Highway 55 mph at a later point.

Combination Bus in Guideway (Dual-Mode) and Preservation of Six-Lane Highway Alternative— This alternative includes the Combination Bus in Guideway (Dual-Mode) Alterative and preserves space to construct the Six-Lane Highway 55 mph at a later point.

Combination Bus in Guideway (Diesel) and Preservation of Six-Lane Highway Alternative—This alternative includes the Bus in Guideway (Diesel) Alternative and preserves space to construct the Six-Lane Highway 55 mph at a later point.

Combination Preservation of Rail and Intermountain Connection and Six-Lane Highway Alternative—This alternative includes the Six-Lane 55 mph Highway Alternative and also preserves space to construct the Rail and Intermountain Connection at a later point.

Combination Preservation of Advanced Guideway System and Six-Lane Highway Alternative— This alternative includes the Six-Lane 55 mph Highway Alternative and also preserves space to construct the Advanced Guideway System at a later point.

Combination Preservation of Bus in Guideway (Dual-Mode) and Six-Lane Highway Alternative— This alternative includes the Six-Lane Highway Alternative and also preserves space to construct the Bus in Guideway (Dual-Mode) at a later point.

Combination Preservation of Bus in Guideway (Diesel) and Six-Lane Highway Alternative—This alternative includes the Six-Lane Highway Alternative and also preserves space to construct the Bus in Guideway (Diesel) at a later point.

3.5 Preferred Alternative—Minimum and Maximum Programs

The Preferred Alternative provides for a range of improvements. Both the Minimum and the Maximum Programs include the Advanced Guideway System Alternative. The primary variation between the Minimum and Maximum Programs is the extent of the highway widening between the Twin Tunnels and the Eisenhower-Johnson Memorial Tunnels. The Maximum Program includes six-lane widening between these points (the Twin Tunnels and the Eisenhower-Johnson Memorial Tunnels), depending on certain events and triggers and a recommended adaptive management strategy.

3.6 No Action Alternative

The No Action Alternative provides for ongoing highway maintenance and improvements with committed funding sources highly likely to be implemented by the 2035 planning horizon. The projected highway maintenance and improvements are committed whether or not any other improvements are constructed with the I-70 Mountain Corridor project. Specific improvements under the No Action Alternative include highway projects, park and ride facilities, tunnel enhancements, and general maintenance activities.

Section 4. Affected Environment

This section provides information on the major Corridor-wide social and economic issues, including:

- Population and growth
  - Historic growth in the Corridor
  - Population estimates and forecasts
  - Growth in building permits
  - Second home growth
- Employment and commuting
  - Employment estimates and forecasts
  - Jobs/population relationship
  - Employment by industry sector
  - Commuting patterns

- Economics and tourism
- Corridor travel and fuel costs
- Emergency Services

As noted in **Section 2, Background and Methodology**, the majority of the data for the social and economic analysis dates from 2002 (Colorado Department of Local Affairs, 2002) Population and employment estimates (core factors in the growth and economic analyses) were updated in 2009 (Colorado Department of Local Affairs, 2009). An evaluation of the more recent data confirmed that the 2002 data is still valid and use of this data (in the REMI® model, in particular) would not result in any change to the comparison of the alternatives to one another in terms of their influence on social and economic values. Further, none of the changes in the economy that have occurred since 2002 would change the conclusions of the analysis. Since 2002, at times economic conditions in the Corridor were strong and reflected predicted growth, particularly in the 2005 to 2007 timeframe. However, the economic recession has slowed growth considerably, and current (2010) conditions are probably more reflective of the early "pre-growth" years when the existing economic conditions were first characterized. **Appendix B** contains more detailed information on population and growth, employment and commuting, and economics and tourism for all ten counties in the Corridor, including Jefferson County.

4.1 Population and Growth

4.1.1 Historic Growth in the Corridor

The counties along the Corridor have experienced substantial fluctuations in population, reflecting the rise and fall of the region's economic fortunes. Population growth in the Corridor has generally followed or coincided with I-70 highway construction periods. The earliest construction of the I-70 highway occurred in the late 1950s and early 1960s, moving east to west. Between 1970 and 1980, most of the major features of the I-70 highway, including the Twin Tunnels, Eisenhower-Johnson Memorial Tunnels, and Vail Pass, were constructed. The last segment in Glenwood Canyon was completed in the mid-1990s. County growth rates in Garfield, Eagle, Clear Creek, and Pitkin counties increased from 1960 to 1970. County growth rates in Park, Summit, Gilpin, and Grand counties increased from 1970 to 1980, while the growth rates in Garfield and Eagle counties have continued to increase from 1970 to the present.

Corridor growth also can be related to I-70 highway traffic. Between 1985 and 2000, the population of the nine Corridor counties rose from 101,500 to 173,000, an increase of 70 percent, while the AADT reference level (at the Genesee control point in Clear Creek County) rose from 33,500 vehicles per day to nearly 58,400 (an increase of 74 percent). Clear Creek County population has not risen in relation to I-70 highway traffic, however. Between 1980 and 2002, the county population grew from 7,308 to 9,553 (an increase of 2,245, or 31 percent). During the period from 1985 to 2001, average daily traffic (ADT) levels on the I-70 highway at the Twin Tunnels traffic counter rose from about 24,500 to 39,000 vehicles per day, an increase of almost 60 percent. Despite the rising traffic volume on the I-70 highway, population (and other growth indicators) in Clear Creek County did not reflect similar growth rates.

Population growth in the rest of the Corridor has risen in step with traffic levels on the I-70 highway, but growth has not been even. Fluctuations in the business cycle and associated parameters of economic health (such as employment/unemployment rates, consumer income and spending levels, fuel prices, interest rates and the like) have influenced the rates of growth of population and traffic.

Underlying the counties' demographic statistics are the communities that make up the local setting. Over the years many have prospered and grown while others have experienced classic boom-bust patterns of development, with wide swings in population. After the early mining boom period and the static years of the Great Depression and World War II, the towns emerged from their rural remoteness with the

discovery (by a rapidly growing Denver Front Range population and by out-of-state visitors) of their winter sports and other natural attractions. This, together with improvements in access, resulted in rapid growth that continues to the present.

4.1.2 Population Estimates and Forecasts

Table 1 shows the Department of Local Affairs population estimates for 2000, 2025, and 2035. The population of the nine-county region was approximately 179,000. The forecast for the nine-county region's population in 2025 is 341,000 and in 2035 is approximately 419,000. **Table 1** also shows the average annual growth rate between 2000 and 2025, and between 2025 and 2035.

Table 1. Population Estimates for 2000, 2025, and 2035

County	Population			Average Annual Growth Rate [2009 estimates]	
	2000	2025	2035	2000-2025	2025-2035
Clear Creek	9,386	12,667	14,843	1.2%	1.6%
Eagle	43,355	77,865	94,803	2.4%	2.0%
Garfield	44,263	105,087	133,272	3.5%	2.4%
Gilpin	4,776	7,015	8,146	1.5%	1.5%
Grand	12,885	22,409	27,260	2.2%	2.0%
Lake	7,906	15,770	19,742	2.8%	2.3%
Park	14,698	32,910	39,613	3.3%	1.9%
Pitkin	15,914	23,751	28,341	1.6%	1.8%
Summit	25,727	43,943	53,216	2.2%	1.9%
Nine-County Total	**178,910**	**341,417**	**419,236**	**2.6%**	**2.1%**

Source: Colorado Department of Local Affairs, 2009.

The average annual growth figures generally show a slowing of growth after 2025, with the exception of Clear Creek and Pitkin counties. However, the increased growth rate after 2025 for Pitkin County is only two-tenths of a percent more than the pre-2025 growth rate. Clear Creek and Gilpin counties would have the lowest growth rates over the 35-year period. Garfield and Park counties are anticipated to have the highest growth rates from 2000 to 2025, but Park County will fall behind Lake County after between 2025 and 2035.

Counties are involved in the development of Colorado Department of Local Affairs population estimates by contributing information about building density, occupancy rates, and other relevant parameters. As described in the *I-70 Mountain Corridor PEIS Land Use Technical Report* (CDOT, August 2010), while local changes in any of the variables could change future estimates, the counties use the existing estimates for their planning activities.

4.1.3 Second Home Growth

Much of the new construction in the Corridor has been for second or vacation homes, a large number of which are vacant for varying periods of time. An estimate of the number of second homes comes from the housing vacancy rate reported in the 2000 Census "Housing Vacancies and Homeownership Report" (United States Census Bureau, 2000a). In addition, numerous Corridor communities are projected to experience steep increases in the number and percentage of second homes and retirees in the coming decades.

The NWCCOG conducted *Social and Economic Effects of Second Homes*, a study of second homeowners in four Corridor counties in 2002 and 2003 (NWCCOG, June 2004). The data shown in **Table 2** indicate that second homeowners account for more than 50 percent of the home ownership in these resort counties. *Social and Economic Effects of Second Homes* indicates that as second homeowners and retirees increase in the Corridor, housing for local workers is likely to diminish—especially since much of the baby-boomer population (born between 1946 and 1964) reached the age range of 55 to 64 in 2010. Members of this age cohort are most likely to be the owners of second homes. Additional second homeowner information in *Social and Economic Effects of Second Homes* includes topics such as "reasons for buying in the mountains," ages of owners, size of homes, annual income of owners, recreational activities, period of ownership and property use, and property maintenance activities and costs.

Table 2. Resort County Second Home Ownership, 2000

Jurisdiction	2000 Census		NWCCOG Non Local Ownership (NLO)			
	Seasonal # Units	Seasonal %	Parcels Total	Owners Total	NLO Total	NLO %
Eagle County	5,932	26.8	9,244	20,815	10,155	48.8
Grand County	4,783	43.9	6,479	10,058	6,360	63.2
Pitkin County	2,728	27.0	10,185	10,185	5,618	55.2
Summit County	13,235	54.7	12,402	23,535	15,736	66.9
Total	**26,678**	**39.6**	**38,310**	**64,593**	**37,869**	**58.6**

Sources: United States Census Bureau, 2000a; NWCCOG, June 2004.

4.2 Employment and Commuting

The relationship of employment to population influences commuting patterns among the study area counties. Changes to the I-70 highway could affect the Corridor economy and population, which in turn could affect commuting patterns and traffic on the I-70 highway. The following sections characterize the existing relationship between employment and commuting in the nine-county region.

4.2.1 Employment Estimates and Forecasts

Table 3 shows the jobs estimates forecast for 2000, 2025, and 2035.

Table 3. Jobs Estimates for 2000, 2025, and 2035

County	Jobs			Average Annual Growth Rate	
	2000	2025	2035	2000–2025	2025–2035
Clear Creek	3,875	5,310	5,325	1.3%	0.0%
Eagle	35,378	65,584	80,430	2.5%	2.1%
Garfield	25,991	53,874	63,199	3.0%	1.6%
Gilpin	6,407	7,915	8,140	0.8%	0.3%
Grand	8,948	15,319	18,319	2.2%	1.8%
Lake	2,558	4,039	4,524	1.8%	1.1%

Table 3. Jobs Estimates for 2000, 2025, and 2035

County	Jobs			Average Annual Growth Rate	
	2000	2025	2035	2000–2025	2025–2035
Park	3,960	8,629	10,351	3.2%	1.8%
Pitkin	20,263	29,252	32,338	1.5%	1.0%
Summit	23,272	39,973	50,574	2.2%	2.4%
Nine-County Total	**130,652**	**229,895**	**273,200**	**2.3%**	**1.7%**

According to the latest estimates, among the counties studied, Park County is expected to experience the highest annual growth between 2000 and 2025, more than doubling its jobs from approximately 4,000 to about 8,500. Eagle, Garfield, and Summit counties would have the next highest annual growth rates during the same 25-year period. Annually, Gilpin County is expected to grow the least from 2000 to 2025.

4.2.2 Jobs/Population Relationship

Table 4 identifies the jobs/population ratios for 2000, 2025, and 2035. Job growth exceeds population growth in Gilpin and Pitkin Counties. (**Table 1** and **Table 3** provided the population and jobs data that was used to develop these ratios.) In Lake and Pitkin counties, population growth exceeds jobs growth through to 2035. In Eagle and Summit counties, the jobs/population ratio also grows through to 2035. In all but Clear Creek County, the trend in jobs/population growth is predicted to continue into 2035. Counties with high ratios of jobs/population will continue to put pressure on adjacent counties to provide additional worker/commuter populations.

Table 4. Jobs/Population Ratio

County	Jobs/Population Ratio		
	2000	2025	2035
Clear Creek	0.41	0.42	0.36
Eagle	0.82	0.84	0.85
Garfield	0.59	0.51	0.47
Gilpin	1.34	1.13	1.00
Grand	0.69	0.68	0.67
Lake	0.32	0.26	0.23
Park	0.27	0.26	0.26
Pitkin	1.27	1.23	1.14
Summit	0.90	0.91	0.95
Nine-County Total	**0.73**	**0.67**	**0.65**

Source: Colorado Department of Local Affairs, 2009.

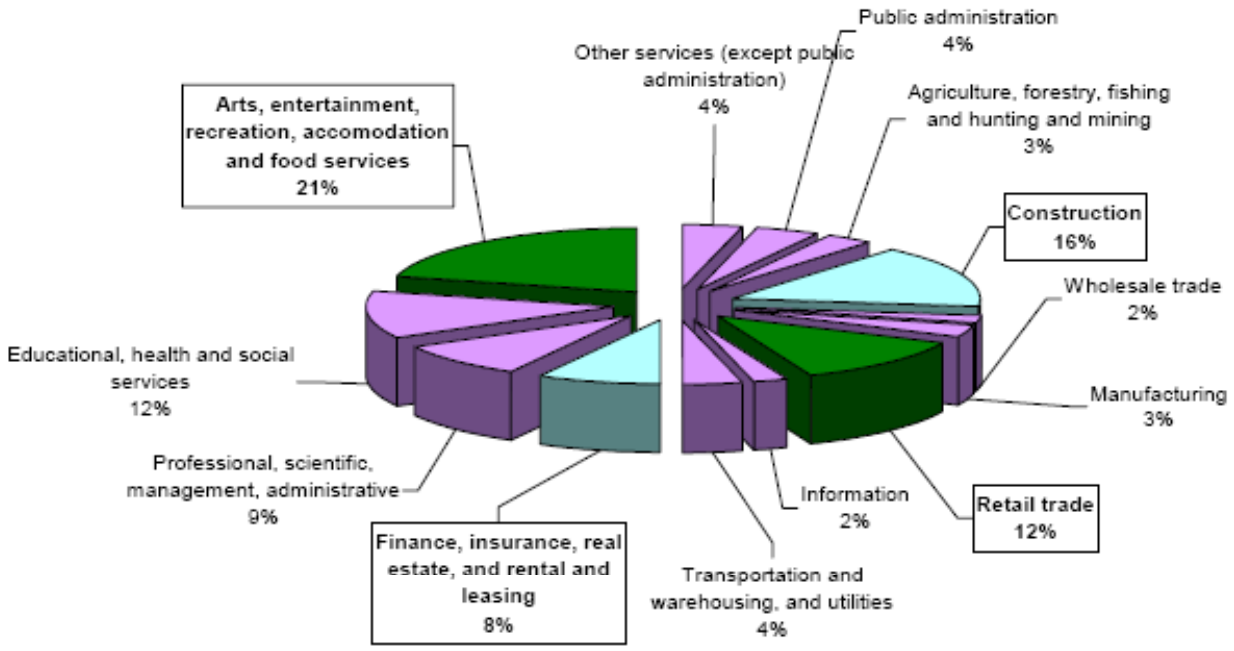
4.2.3 Employment by Industry Sector

Chart 1 illustrates employment by major industry sector in the study area. According to Colorado Department of Local Affairs Base Industry Analysis, tourism-related employment constitutes 33 percent of the workforce. The “construction” sector and “finance, insurance, real estate, and rental and leasing”

sector are related to the second home industry, reflect growth in general, and represent 24 percent of the workforce.

As the most significant industry/service in the Corridor, tourism generated 41 percent of the jobs, and 38 percent of the income, or $7 billion in the year 2000. The tourism industry is made up of many components: recreation (which includes ski areas), visitor lodging, construction for second homes and hotels, real estate, eating and drinking establishments, cleaning services, automotive service stations, wholesale and retail trade, transportation services, and occasionally local government when additional police and fire services are necessary to serve tourism. For this analysis, second homeowners are classified as tourists. In addition, several indirect basic industries are tied to tourism. Employment in the skiing industry makes up 37 percent of these jobs, followed by 13 percent in the resort, and 11 percent in the outdoor recreation industries. By contrast, local resident services (the only nonbasic industry) generate 15 percent of the jobs and 16 percent of the income.

Chart 1. Employment by Major Industry Sector (Year 2000)



Source: Colorado Department of Local Affairs, 2002.

The private sector accounted for the majority of the value of economic activity: in 2000, there were more than 10,000 private enterprises located in the area employing nearly 90,000 workers and paying more than $3.5 billion in wages and salaries. Self-employed proprietors generated another $762 million in earnings, while corporations and other owners of property earned more than $2.7 billion in profits, dividends, interest, and rents. The state and local governments (including school and other special districts) accrued an estimated $869 million in sales, property, and other indirect business taxes while employing about 13,700 persons earning approximately $500 million (CDLE 2002, IMPLAN 2002).

The study area counties are heavily oriented toward serving tourists, vacation home and other property owners, and a large retired population. In contrast, the occupational makeup of the resident workers, while also heavy in the business and personal services trades (which just about matches the total demand for workers in that sector), tends to be lighter in the other sectors. The bulk of the population and jobs in the nine Corridor counties is located in the western portion of the region.

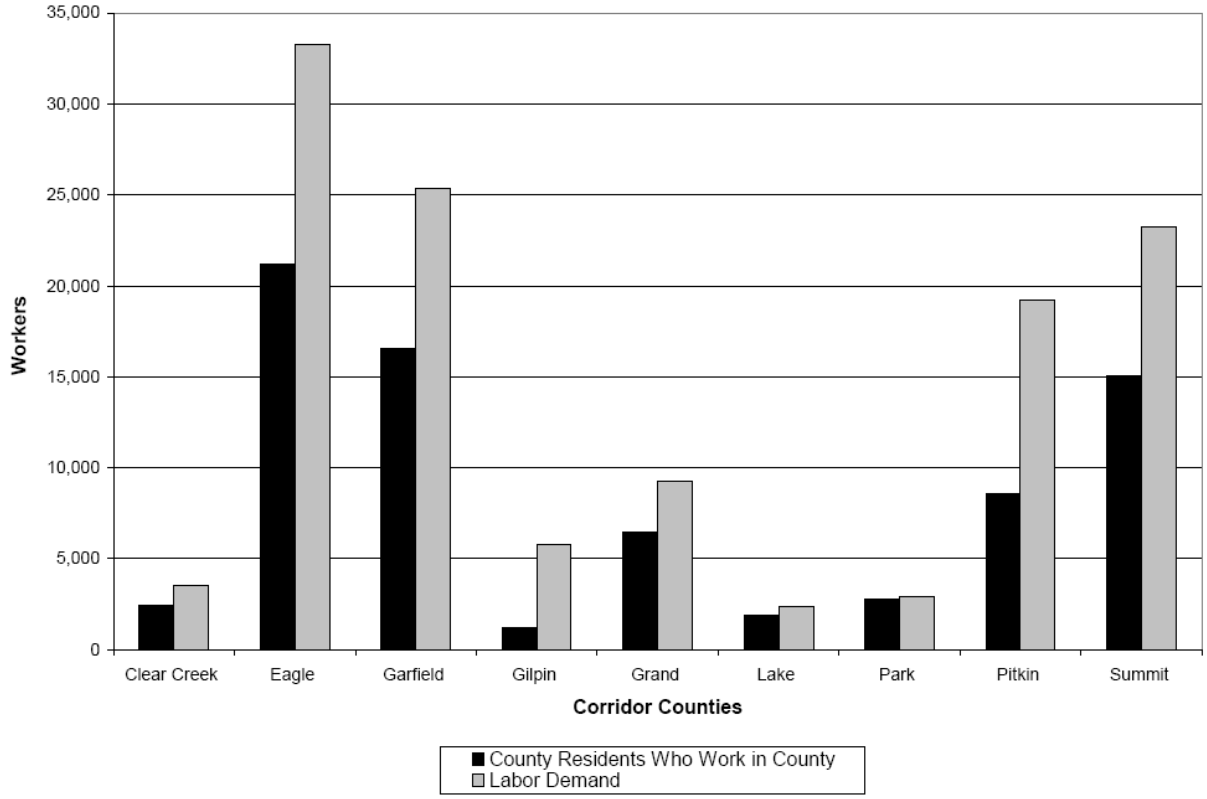
4.2.4 Commuting Patterns

According to the United States Census Bureau's Journey to Work series from the 2000 Census (United States Census Bureau, 2000b), cross-county commuters are concentrated in the western part of the Corridor, with more than 13,500 daily commuters flowing mainly among Pitkin, Summit, Eagle, and Garfield counties, as well as from some adjacent counties. A second node occurs between Jefferson and its adjoining counties, notably Gilpin, Clear Creek, and Park. These daily flows contribute to the visitor traffic congestion on peak winter and summer season days.

Table 5 and **Chart 2** provide additional perspective on commuting patterns in the Corridor area. It is important to note that **Table 5** does not reflect the total number of workers who work in the counties. Total workers would include both county resident workers, as shown in **Chart 2**, and workers from outside the county. As noted earlier, Eagle, Gilpin, Pitkin, and Summit counties import a large numbers of workers from adjacent counties to meet their labor demand. Lake and Park counties contribute workers to Summit County, and Lake, Pitkin, and Garfield counties provide workers to Eagle. Both Garfield and Eagle counties help supply Pitkin County with workers. Eagle, Garfield, and Park counties contribute more than 15,000 cross-county workers, and approximately 50 percent of the resident workers in Clear Creek, Gilpin, and Lake counties work in other counties.

The I-70 highway is used for a portion of the commute route by most Corridor commuters, and localized heavy traffic on the I-70 highway exists in certain Corridor areas during commute hours. However, other cross-county commute routes shown in **Table 5** are also important. For example, Garfield County residents (workers from Glenwood Springs and Carbondale) working in Pitkin County could use SH 2 without having to drive on the I-70 highway, and Park County residents working in Breckenridge or Frisco would not have to use the I-70 highway as part of their work commute.

Chart 2. Comparison of In-County Workers and County Labor Demand (Year 2000)



Source: Colorado Department of Local Affairs, 2002.

Table 5. County Commuting Patterns

County	Primary Destinations	Net Inflow/ Outflow	Primary Originations	Primary Routes
Clear Creek	Front Range (Denver metro), Gilpin	Outflow	Jefferson	I-70, US 6
Eagle	Pitkin, Garfield	Inflow	Garfield, Lake, Pitkin, Summit	I-70, SH 133, SH 82, US 24
Garfield	Pitkin, Eagle	Outflow	Eagle, Pitkin	SH 133, SH 82, I-70
Gilpin	Front Range (Denver metro)	Inflow	Front Range (Denver metropolitan)	US 6, SH 119, I-70
Grand	Summit	N/A	*Negligible Inflow*	N/A
Jefferson	Denver metro area	Inflow	Front Range (Denver metropolitan)	I-70, U.S. 285, C-470, I-25
Lake	Eagle, Summit	Outflow	*Negligible Inflow*	US 24, SH 91, I-70
Park	Front Range (Denver metro), Summit	Outflow	Front Range (Denver metropolitan)	US 285, SH 9, I-70
Pitkin	Garfield, Eagle	Inflow	Garfield, Eagle	SH 82, SH 133, I-70
Summit	Eagle	Inflow	Park, Lake, Grand, Front Range (Denver metropolitan)	SH 91, SH 9, I-70

Source: United States Census Bureau, 2000b

4.3 Economics and Tourism

Socioeconomics involves people playing dual roles as producers and consumers of the resources involved in making a living. In the nine Corridor counties, this process—largely driven by tourism and recreation—has resulted in the creation of employment for nearly 125,000 persons, who earn $4.8 billion in annual personal income (NWCCOG, June 2004a).

Summit and Eagle counties generate more than 50 percent of tourism jobs and income in the Corridor. Pitkin County generates about 20 percent of the Corridor tourism economy. Although the basic industry analysis indicates that the Corridor area as a whole has a net economic gain from residents with Front Range (Denver metropolitan area) jobs/income, four counties (Pitkin, Summit, Eagle, and Gilpin) must import a large number of workers and incur a net loss in jobs/income.

The NWCCOG completed a study in 2004 that tracked the economic impacts of second homes for Eagle, Grand, Pitkin and Summit counties (NWCCOG, June 2004a). The study reports on the most important economic drivers (second homes, winter visitors, and summer visitors) of the tourism industry in terms of basic spending (money coming from outside the Corridor or county), basic jobs (jobs supported by money from outside the Corridor or county), and total jobs (includes basic jobs and secondary local jobs generated by the need for local services and housing for workers and residents). The study data are summarized in **Table 6**.

Table 6. Resort County Second Home Economic Driver Study (Year 2002)

	Estimated Basic Spending		Estimated Basic Jobs		Estimated Total Jobs	
	Millions	Share of Total	Amount	Share of Total	Amount	Share of Total
Second Homes						
Eagle County	$677.2	38.4%	10,018	51.5%	15,133	45.1%
Grand County	$145.9	24.2%	1,809	35.4%	2,786	32.2%
Pitkin County	$453.1	34.1%	5,437	46.0%	7,923	41.3%
Summit County	$517.2	32.2%	3.960	31.6%	5,779	27.6%
All Four Counties	$1,793.4	33.8%	21,223	43.4%	31,621	38.4%
Winter Visitors						
Eagle County	$387.0	21.9%	3,611	18.6%	6,752	20.1%
Grand County	$162.3	26.9%	1,221	23.9%	2,150	24.9%
Pitkin County	$289.4	21.8%	2,103	17.8%	3,757	19.6%
Summit County	$632.2	39.3%	5,456	43.5%	9,660	46.1%
All Four Counties	$1,470.9	27.7%	12,391	25.3%	22,319	27.1%
Summer Visitors						
Eagle County	$153.5	8.7%	1,194	6.1%	2,259	6.7%
Grand County	$166.4	27.6%	1,146	22.5%	1,952	22.6%
Pitkin County	$244.5	18.4%	1,600	13.6%	2,760	14.4%
Summit County	$185.0	11.5%	1,305	10.4%	2,364	11.3%
All Four Counties	$749.4	14.1%	5,245	10.7%	9,335	11.%

Source: NWCCOG, June 2004a.

According to the study results, the tourism industry (second homes, winter visitors, and summer visitors) generates from 72 percent (in Eagle County) to 85 percent (in Summit County) of all jobs in the counties studied. Jobs attributable to second homes are most important in Eagle and Pitkin counties, where they contribute a higher percentage of jobs to total employment than winter and summer visitors combined. In comparison, the data indicate that spending and jobs in Grand and Summit counties are more dependent on winter/summer visitation (destination skiing and summer tourism).

The general economic effects of second homes have been summarized by NWCCOG (NWCCOG, June 2004a) in the quotation below:

> *"As second homes have grown to be a large part of the economic and physical landscape, the size and scope of the job-generating effects of second homes have become especially important in the management of development in Colorado's mountain resorts. Increasing numbers of second homes have begun absorbing large amounts of land in an area where land available for development is limited by terrain and the public domain. The consequence is a growing impact on real estate prices and the cost of living, as well as increasing demands for service from local government."*

Since 2000, the economy of Colorado, like that of the nation, has experienced rising unemployment and falling GDP and personal incomes. The University of Colorado (UC) Leeds School of Business projected that economic declines in Colorado would last up to the end of the first quarter of 2010. The economic forecasts project a 0 percent growth rate perhaps through 2010, but indications are that following the flat growth, the economy will again begin to grow. (UC, June 2009)

The industry has been substantially affected by the economic slowdown that started in 2008. Tourism, leisure, and hospitality are especially vulnerable to economic uncertainty because the sector is dependent upon discretionary spending. While travel, leisure, and hospitality activity will not stop, past economic crises have shown that travel behaviors differ in uncertain economic times compared to more stable periods. Travelers spend less even when they do take a trip.

Colorado's aggressive advertising and marketing program will partially mitigate this projected decline in the state's leisure tourism activity, because it will continue to stimulate additional consumer interest in visiting Colorado. Also, tourism as an industry is very resilient; it is historically one of the first areas of the economy to bounce back and resume growth when times improve (UC, June 2009).

4.4 Corridor Travel and Fuel Costs

Due to rising fuel costs in recent years, research into the sensitivity of Corridor travel to fuel costs was conducted. Traffic counts from the CDOT Automated Traffic Recorder (ATR) data were plotted against fuel costs between 2000 and 2008. Corridor and Front Range population numbers were then overlaid on these plots.

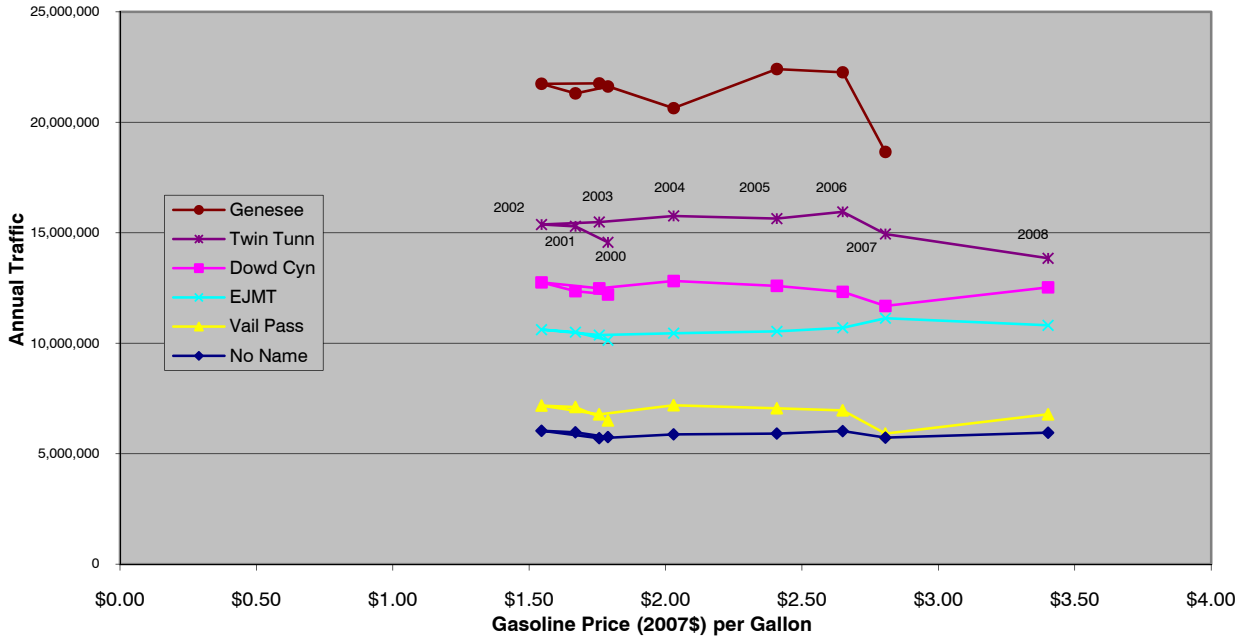
Garfield, Eagle, Summit, and Clear Creek counties do not appear to be substantially affected by changes in gasoline prices. In some instances, the observed data run counter to the expectation that trip-making will decrease as gasoline prices increase. Greater sensitivity to gasoline prices is observed at the Genesee ATR, which may reflect this location having a larger percentage of commuting trips and a smaller fraction of recreational trips than at ATRs located farther west in the Corridor.

Annual traffic at six focal points is plotted against real gasoline price (this is inflation adjusted gas price) in **Chart 3**. Each data point represents the annual traffic count and the annual average national gasoline price for a given year. (Note that because the Rocky Mountain region gasoline price appeared to have a constant relationship to the national price, and since the national price was available for one more recent year, a decision was made to use the national price. The results would not be affected had the Rocky Mountain region gasoline price been used.) The lines connecting the data points show a trajectory of traffic volume in relationship to gasoline price over time. The year corresponding to each data point is labeled for the Twin Tunnels trajectory only, but the points represent the same years for the other five ATR data. In 2000, the real price of a gallon of gasoline was about $1.80 (in 2007 dollars). Because the price fell to about $1.55 per gallon in 2002, the trajectory moves to the left. The price then rose to about $1.75 per gallon in 2003, just left of the 2000 data point. The price continued to rise to an estimated $3.40 per gallon for 2008, which is reflected in the path to the right of the graph.

Absent confounding factors (discussed below), traffic volumes are expected to increase as gasoline prices decrease, and decrease as gasoline prices increase. However, this relationship only appears to hold for certain time periods. Overall, the response of travelers in the Corridor to gasoline prices appears to be relatively flat.

In some cases, the observed response appears to run counterintuitive; for example, volumes at the Eisenhower-Johnson Memorial Tunnels increased from 2003 to 2007, while gasoline prices also increased. Volumes at Genesee also increased from 2004 to 2005.

Chart 3. Annual Traffic at Focal Points and Gasoline Price



Sources: Colorado Department of Transportation 2010; United States Department of Energy 2010

The expected downward trend is most noticeable between 2006 and 2007 for all focal points except the Eisenhower-Johnson Memorial Tunnels. Of these drops, the change at Genesee is the greatest, possibly due to the availability of transit (Regional Transportation District's Route ES/EV/EX, formerly Route E/Z) and higher gasoline prices. Workers may have the option to reduce vehicular travel by telecommuting, carpooling, or using compressed work weeks (for example, four 10-hour days rather than the traditional five 8-hour days). Volumes at Genesee also saw a noticeable drop between 2003 and 2004. No data are available for 2008 at the Genesee focal point. Volumes at Dowd Canyon appear to drop from 2004 to 2007 but then rise again in 2008. A similar pattern appears at Vail Pass. However, the Eisenhower-Johnson Memorial Tunnels volumes decrease from 2007 to 2008.

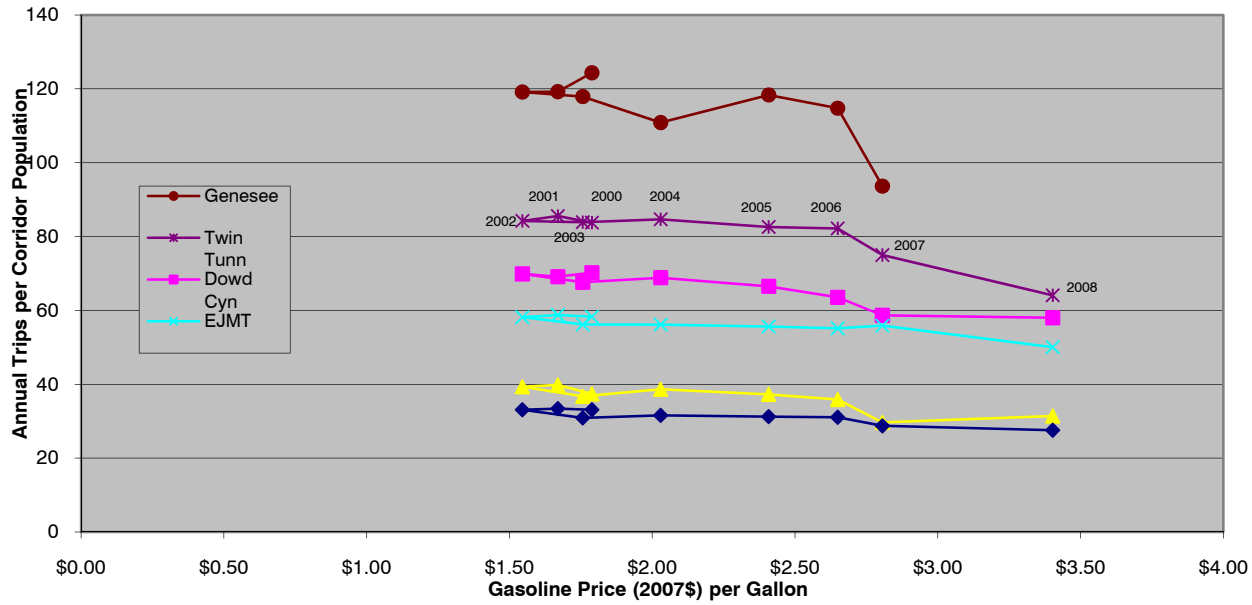
As with work trips, recreation trips may be expected to be sensitive to gasoline price. However, Coloradoans choosing to make local, in-state trips may be more than compensating for trips no longer being made by out-of-state visitors.

One of the confounding factors in **Chart 3** is that over time, population and employment have been growing in both the Corridor and the Front Range. To overcome this confounding influence, ATR volumes were divided by three population figures:

1. The population of the nine-county Corridor (Clear Creek, Eagle, Garfield, Gilpin, Grand, Lake, Park, Pitkin, and Summit counties)
2. The population of the seven-county Front Range (Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson counties—that is, the DRCOG Region, excluding the Corridor counties of Clear Creek and Gilpin)
3. The combined Corridor and Front Range population

The greatest (most negative) correlation was found between gasoline price and volume divided by Corridor population. **Chart 4** shows these variables are plotted against each other. **Chart 4** is similar to **Chart 3** in that a time trajectory is shown for each focal point. Volumes divided by population may be thought of as a trip rate. In this case, the trip rate includes travel within the Corridor by residents, as well as attractions of Front Range residents (travel from Front Range homes in the Corridor for employment or recreation) using Corridor population as a proxy for Corridor employment and recreational opportunities.

Chart 4. Annual Traffic per Corridor Population and Gasoline Price



Sources: Colorado Department of Transportation 2010; United States Department of Energy 2010; United States Census Bureau 2010; Colorado Department of Local Affairs 2009

By dividing by Corridor population, the Eisenhower-Johnson Memorial Tunnels trajectory now shows a flat to downward-sloping trend. Similarly, the Dowd Canyon trip rate dropped slightly from 2007 to 2008 (where before, traffic volumes rose).

A sharp decline appears on **Chart 4** after 2006. In general, the trajectories show a flat to decreasing trend. The causes of the shape of the Genesee trajectory, particularly around 2004 and 2007, are unclear. Overall, elasticities (of trip rate with respect to gasoline price) calculated for focal points other than the Eisenhower Johns Memorial Tunnels ranged from –0.24 to –0.52.

4.5 Emergency Services

County emergency medical services respond to call for service on the I-70 highway. Clear Creek County has a disproportionate relationship between its resources and I-70 highway call response. As shown in **Table 7**, Clear Creek and Summit counties have the highest rate of calls per capita in the Corridor. In addition, Clear Creek emergency vehicles must travel out of county to the nearest medical facility (leading to the highest ambulance rate in the state).

Table 7. Emergency Medical Services

Emergency Service	Funding Source	I-70 Miles Covered	I-70 Calls per Year	I-70 Calls per Capita	Distance to Nearest Medical Facility	Ambulance Rate
Eagle County Ambulance District	Mill levy on property tax, fees for service	40	800 to 900 (13% of all calls)	0.02	Facilities in Vail and Eagle	$575
Summit County Ambulance Service	Operates as an Enterprise fund with no tax support	24	900 (25% of all calls)	0.04	Facilities in Breckenridge and Silverthorne	Not available
Clear Creek County	Fees for service, grants	35	300 to 400 (25% of all calls)[a]	0.04	40 miles	$875

Source: Clear Creek County, 2003; Summit County, June 2003; Eagle County, July 2003

[a] *Note that in addition to I-70 calls, 50 percent of calls in Clear Creek County are nonresident calls (leaving 25 percent local calls)*

Section 5. Environmental Consequences

Alternatives would primarily affect social and economic values through indirect and construction impacts to the Corridor economy. The Colorado Department of Transportation examined direct and indirect impacts on emergency services as well.

As discussed in **Section 4**, the REMI® model analysis of the Corridor economy uses population and employment estimates from 2002. An evaluation of more recent data collected in 2009 confirmed that the model's initial outputs are representative of the regional impacts in the area at the Tier 1 level, and that no further quantitative analysis of the regional economy should be conducted. Further quantitative analysis will be conducted during Tier 2 processes on local impacts at the project level. In addition, changes in population and employment estimates would not result in any change to the relative order of alternatives in terms of their influence on social and economic values.

5.1 Direct Impacts

5.1.1 Emergency Services

The Highway-only alternatives, Combination alternatives, and the Preferred Alternative would address highway safety issues. Therefore, they would likely have beneficial direct impacts on emergency services because they would reduce emergency calls related to the I-70 highway. This improvement in highway safety would especially benefit Clear Creek County because the county's I-70 highway-related emergency response expenses are disproportionately high. The No Action, Minimal Action, and Transit-only alternatives for the most part would not address highway safety issues and would not likely affect the I-70 highway emergency-related calls. Emergency service response time on the I-70 highway would improve under all Action Alternatives except the Minimal Action Alternative because they would reduce congestion and, therefore, travel time delays.

5.2 Indirect Impacts

5.2.1 Induced Population and Development Growth

Many government and private entities have expressed concern that Corridor improvements will induce growth. They have stated that improved transportation access would bring more recreational users into the Corridor, stimulating the economy and population growth. To analyze induced growth, the Colorado Department of Transportation estimated the change in population that would result from possible induced or suppressed travel demand and then estimated the amount of induced development that would occur beyond what is currently planned in surrounding communities. The *I-70 Mountain Corridor PEIS Cumulative Impacts Technical Report* (CDOT, August 2010) describes the analysis in detail; a summary of the analysis follows below.

The growth analysis found that the No Action and Minimal Action alternatives would likely suppress growth for all Corridor counties except Clear Creek County. In Eagle County, the Transit-only alternatives, the Combination alternatives, and the Preferred Alternative would likely increase growth pressure; the Highway-only alternatives would also do so, but to a lesser extent. In Summit County, the Combination alternatives would induce the greatest growth pressure. If the Preferred Alternative Maximum Program were implemented, it would also induce growth in Summit County. Growth in Garfield County is susceptible to changes in Eagle County because of the number residents commuting to Eagle County for employment. The analysis found growth in the remaining Corridor counties to be less dependent on transportation conditions along the I-70 highway, and the alternatives would not likely induce growth in those counties. Coordination with Garfield, Eagle, and Summit county planners resulted in the following assumptions regarding the distribution of induced growth:

- Transit alternatives would concentrate induced growth in urban areas surrounding transit centers in areas of existing or planned urban development in Eagle County, including Eagle, Avon, and Vail.
- Highway alternatives would distribute growth based on existing trends for urban/rural development in each county, resulting in more development in rural areas, primarily in Eagle County.
- Combination alternatives would distribute growth equally between the above transit and highway distribution scenarios, resulting in increased pressure in both urban and rural areas in Eagle and Summit counties.
- The Preferred Alternative initially would induce growth in a manner similar to the Transit alternatives, resulting from the Minimum Program of Improvements, and would concentrate growth in urban areas surrounding transit centers in Eagle County. Later phases of improvements, if the Maximum Program were implemented, would induce growth in a manner more similar to the Combination alternatives; growth pressures would occur in both urban and rural areas in Eagle and Summit counties.

Regardless of alternative, the Department of Local Affairs projects that job needs will greatly exceed worker supply in Gilpin and Pitkin counties and will be relatively high compared to worker supply in the resort counties of Eagle and Summit. Although conditions are improving in Summit and Eagle counties, where the lack of affordable housing is an ongoing issue being addressed through planning strategies, most workers must seek affordable housing in adjacent counties where housing values are lower. This situation increases commuting issues, growth pressure in adjacent counties, and housing requirements in counties where many commuting workers reside, such as Garfield and Lake Counties. These issues would be even greater with those alternatives that would increase growth pressure in resort counties (the Transit-only alternatives, Combination alternatives, and Preferred Alternative).

Induced growth would indirectly impact emergency services by increasing crashes and emergency calls in Corridor counties susceptible to induced growth. Although Clear Creek County, which is not as susceptible to induced growth, has a high per-capita call rate and lack of in-county medical destination facilities, indirect impacts on that county's emergency services are unlikely since measurable induced growth in the county is not anticipated and highway safety in Clear Creek County would be improved under most Action Alternatives.

5.2.2 Indirect Economic Impacts

The economic impact analysis used the REMI® model to evaluate changes in tourism spending, congestion (translated as the value of a driver's or passenger's time), and construction on the Corridor economy. The prediction of economic conditions is dependent on numerous external factors that cannot be directly related to the I-70 highway, such as "bad" snow years, changes in the composition of visitors (such as the trend in increased visitors from the Front Range and decreased visitors from out of state), and general economic conditions (which might cause an increase or decrease in visitation and degree of spending). The results must therefore be viewed as a general characterization of the possible economic effects of alternatives that assumes other external factors are neutral; the analysis does not take the numerous "unknown" economic variables into account. Additionally, the REMI® model results are regional in nature, and a more localized economic evaluation is limited to a county breakdown of the regional baseline economic GRP results (**Table 9**).

According to the REMI® model, the No Action Alternative would likely suppress economic conditions in the nine-county Corridor region when compared to the Action Alternatives (except the Minimal Action), due to increased highway congestion and reduced access to recreational and tourist amenities.

By 2035, the REMI® model predicts that all Action Alternatives except the Minimal Action Alternative would meet or surpass a GRP of approximately $45 billion per year. The Combination alternatives would have the greatest positive effect on economic conditions; the Transit-only alternatives would have a slightly lesser effect, and the Highway-only alternatives would have the least effect. The Preferred Alternative would likely affect economic growth similar to the Transit-only alternatives if the Minimum Program of improvements were implemented by 2035. If additional improvements of the Preferred Alternative –Maximum Program were implemented by 2035, economic growth would be more similar to that of the Combination alternatives.

Because Eagle, Summit, Pitkin, and Garfield counties have the greatest share of the Corridor tourism industry, they also have the greatest vulnerability to suppressed visitor trips arising from chronic traffic congestion, and the largest numbers of intercounty commuting workers, exacerbating congestion in the Corridor.

Because of the interdependency of the Corridor counties, economic analysis was conducted for the nine-county region as a whole. It cannot be assumed, however, that all counties would benefit equally from the Action Alternatives. Historic trends indicate, for example, that Clear Creek County has not received the economic benefits of past improvements to the I-70 highway in proportion to the benefit received by Corridor counties to the west. That trend is expected to continue in the future.

Regional Indirect Economic Impacts

Chart 5 through **Chart 7** show the REMI® model results for employment, personal income, and GRP through time. **Table 8** summarizes economic impacts by alternative in relation to the Department of Local Affairs projected conditions for years 2000, 2025, and 2035. The following general observations can be made from **Chart 5 t**hrough **Chart 7** and **Table 8**:

1. The projected economic trends (called the "baseline") show a slow rate of growth from 2000 to 2014 (reflecting the recession and expected recovery) and an increased rate of growth from 2014 to 2025, after which growth again levels off due to land use and development capacity constraints. These trends present a baseline scenario to reflect Department of Local Affairs 2025 economic projections. The baseline projections do not consider potential impacts from I-70 highway congestion or improvements, but rather assume that supporting transportation and other public service infrastructure will expand in step with demographic trends.
2. The No Action Alternative would represent suppression of projected 2025 economic growth due to increased highway congestion and reduced access to recreational and tourist amenities. The degree of suppression is based on transportation model data that provides trip suppression based on a range of travel times that travelers are willing to accept (the economic analysis used a range of No Action suppression of recreation-oriented trips during peak season on peak days).
3. The Action Alternatives would show depressed economic growth in relation to baseline projections until completion of the construction period (which was modeled for completion in 2025), due to worsening travel conditions on the I-70 highway. This would reflect the impacts of travel delays and decreased access for commuters, tourists, and business (impacts on delivery of goods and services).
4. All Action Alternatives (except the Minimal Action Alternative) would show an increased rate of growth in relation to baseline projections after construction was complete (modeled for 2025) due to the beneficial effects of the transportation improvements on transportation capacity and accessibility.
5. All Action Alternatives (except the Minimal Action Alternative) would either meet or surpass the economic projections in year 2035 (originally modeled as 10 years past the design year). The No Action and Minimal Action alternatives would fall well below the economic projections for 2035 (see **Table 8**).
6. The Combination alternatives would exceed projected employment, GRP, and personal income predictions in 2035. This would result from predicted trip inducement.
7. Transit and Highway alternative GRPs would be similar in 2035 and show that projected conditions could be slightly exceeded, but not to the extent of the Combination alternatives. The Transit alternatives' employment and GRP would slightly exceed projected conditions by 2035, while the Highway alternatives would illustrate that these economic indicators might fall slightly below projected conditions in 2035. However, the Highway alternatives would indicate continued growth after 2035 and are expected to reach or slightly exceed projected conditions in the future.
8. The Preferred Alternative would slightly exceed employment and GRP predictions in 2035, similar to the Transit alternatives, under the Minimum Program of improvements. Personal income might fall slightly below projected 2035 conditions; however, the model indicates continued growth after 2035, and conditions would be expected to reach or slightly exceed projected conditions in the future. If the Maximum Program of improvements were implemented by 2035, employment, GRP, and personal income predictions would all be exceeded, similar to the Combination alternatives.

Table 8. Economic Indicators by Alternative

	Baseline Projections	No Action	Minimal Action	Transit	Highway	Combination	Preferred Alternative[1]
2010							
Employment	145,200	127,700	128,200	129,000	127,600	129,600	129,000 – 129,600
Personal Income ($ billions)	7.95	7.14	7.17	7.18	7.13	7.2	7.18 – 7.2
GRP ($ billions)	16.36	14.52	14.56	14.62	14.51	14.67	14.62 – 14.67
2025							
Employment	270,000	214,400	218,200	234,500	233,500	235,400	234,500 – 235,400
Personal Income ($ billions)	17.65	14.51	14.71	15.47	15.4	15.5	15.47 – 15.5
GRP ($ billions)	37.51	30.6	30.92	32.89	32.81	32.99	32.89 – 32.99
2035							
Employment	286,100	220,700	228,300	289,900	280,800	298,100	289,900 – 298,100
Personal Income ($ billions)	23.03	18.38	18.86	22.81	22.3	23.25	22.81 – 23.25
GRP ($ billions)	45.14	35.85	36.53	45.38	44.65	46.05	45.38 – 46.05

Source: United States Bureau of Economic Analysis, 2001, 2002, and 2003; Colorado Department of Local Affairs, 2002

[1] The Preferred Alternative is presented as a range because the adaptive management component allows it to be implemented based on future needs and associated triggers for further action. Chapter 2, Section 2.7 of the PEIS describes the triggers for implementing components of the Preferred Alternative.

Key to Abbreviations/Acronyms
GRP = Gross Regional Product

Chart 5. Employment

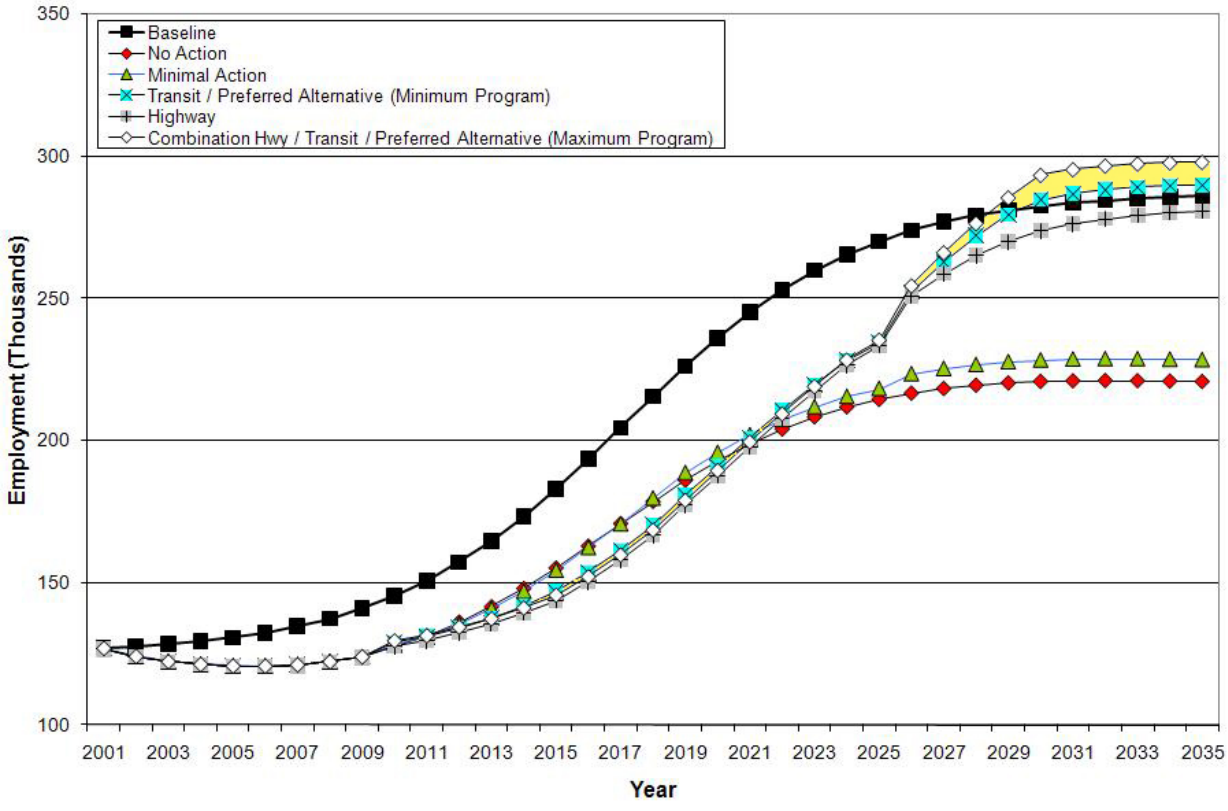


Chart 6. Personal Income

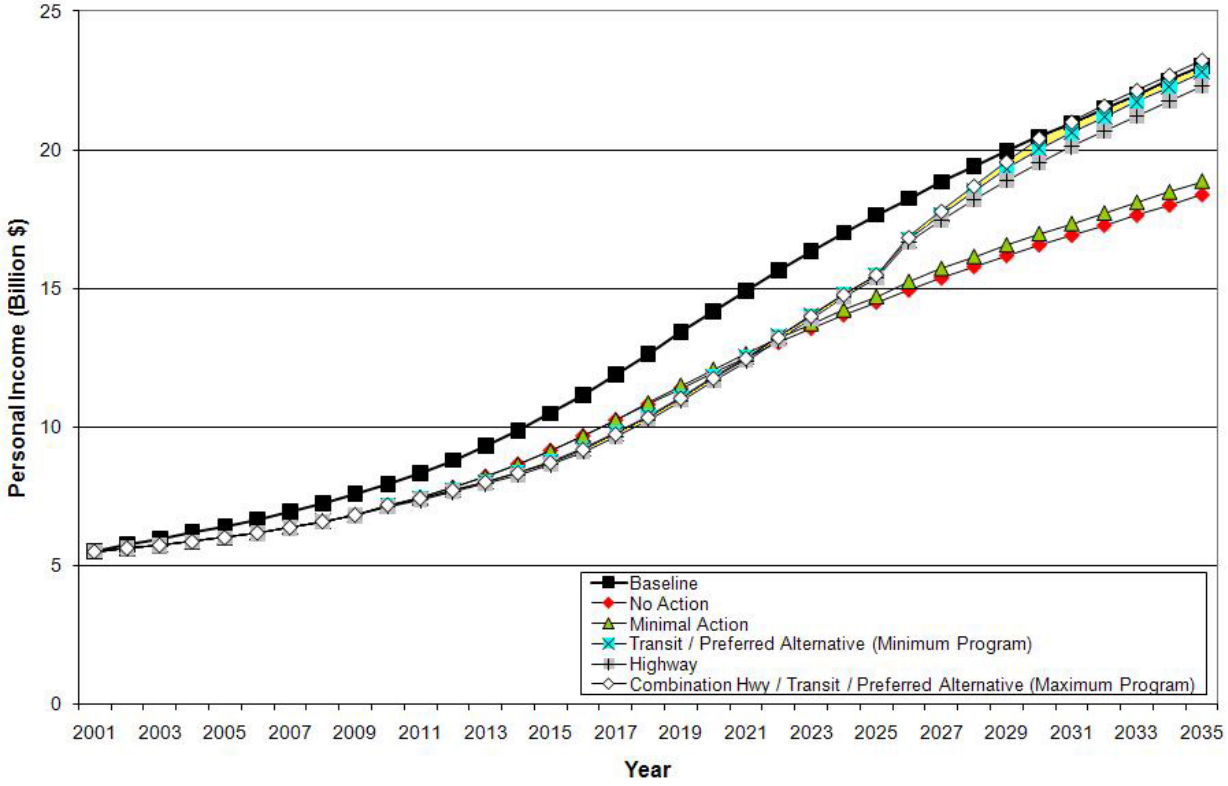
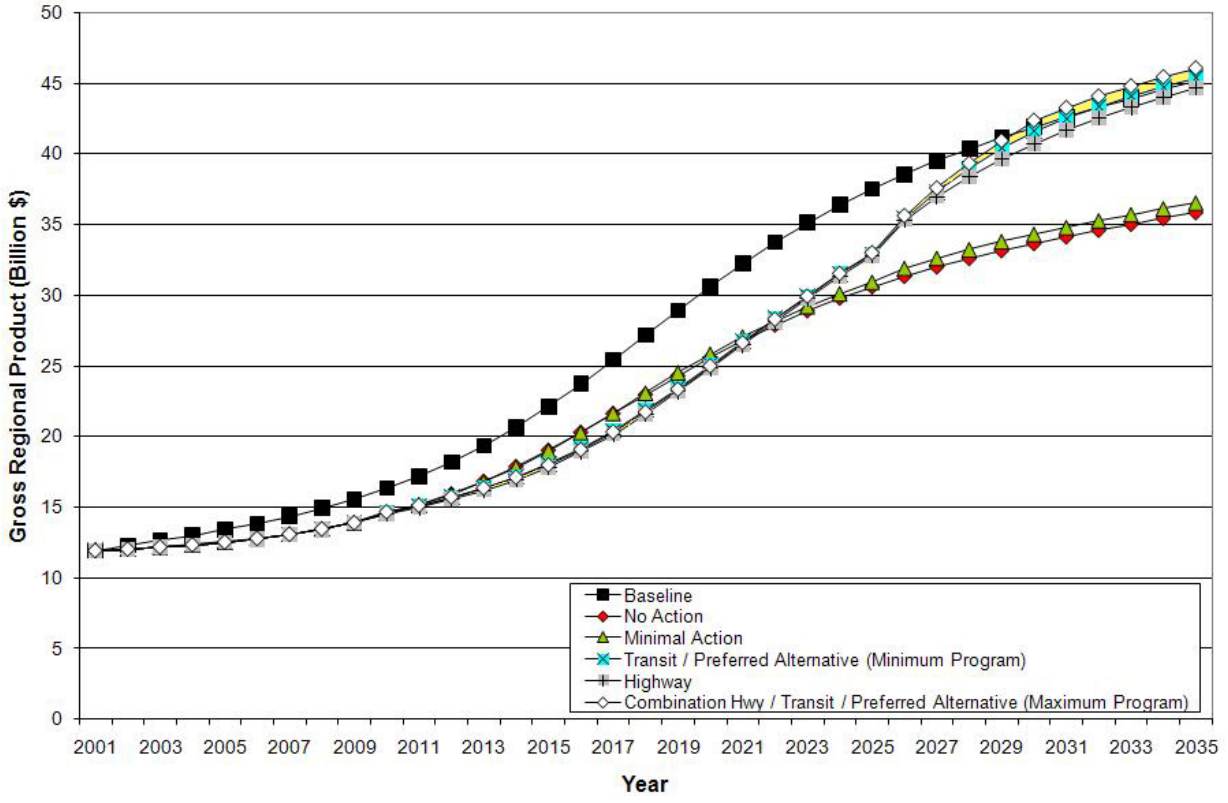


Chart 7. Gross Regional Product



County Indirect Economic Impacts

Table 9 shows the estimated shares of Regional GRP from the REMI® model for each county using two breakdown methods. These methods provide a range of possible economic conditions for each county based on Department of Local Affairs projections and a weighted method that uses Department of Local Affairs projections, sales tax forecasts, and traffic predictions for the year 2035.

The economic conditions for each county are presented for a broad-scale evaluation of the regional alternative impacts. As for the regional results, the No Action and Minimal Action alternatives are expected to greatly depress economic conditions in relation to baseline projections; by 2035 the No Action and Minimal Action alternatives would depress regional GRP by nearly $10 billion per year from baseline projections, a factor of more than one-fifth of the potential level of economic activity for the region. The Action Alternatives (except the Minimal Action alternative) are expected to either meet or surpass projected economic conditions by 2035.

Table 9. Gross Regional Product by County

County	Estimated 2001 GRP ($ Billions)[1]	Estimated 2035 GRP ($ Billions)[2]	Estimated 2035 GRP ($ Billions)[3]	Percentage Distribution
Clear Creek	$0.61	$0.95	$1.13	2.5
Eagle	$3.30	$17.92	$14.31	31.7
Garfield	$2.32	$6.36	$6.46	14.3
Gilpin	$0.32	$0.99	$0.54	1.2
Grand	$0.64	$1.90	$3.79	8.4
Lake	$0.53	$0.59	$0.50	1.1
Park	$0.72	$0.95	$0.68	1.5
Pitkin	$1.94	$7.81	$7.13	15.8
Summit	$1.74	$7.67	$10.61	23.5

[1] Based on REMI® model
[2] Department of Local Affairs projections: Percentage is based on 2025 Department of Local Affairs projections for population and employment
*[3] (0.4*Department of Local Affairs Projection %)+(0.4*2000 Sales Tax %)+(0.2*Traffic-Based %) Alternative methods based on the Regional Baseline GRP of $45.14 billion in 2035.*

Key to Abbreviations/Acronyms
GRP = Gross Regional Product

Table 9 demonstrates how the bulk of economic activity would be concentrated among the central and western counties of the Corridor counties: Eagle, Summit, Pitkin, and Garfield (see highlighted percentages). These "resort" counties would have the greatest share of the Corridor tourism industry and, therefore, would have the greatest vulnerability to commercial disruptions and loss of attractiveness arising from chronic traffic congestion and route interruptions. These counties also would have the largest contingents of intercounty commuting workers, which would exacerbate the traffic problems afflicting the route. In view of the limited options available for access, and as the core destinations for out-of-state visitors, second homeowners, Front Range residents, and locals, these counties would be particularly sensitive to the viability of the I-70 highway as their primary means of communication and commerce for their livelihood.

5.3 Construction Impacts

The Action Alternatives would likely suppress economic growth during construction, due to worsening travel conditions on the I-70 highway. The REMI® model, explained above, factors construction activities into the analysis and thus accounts for the suppressed economic activity that occurs. Although construction suppresses economic activity, the entire Corridor would not undergo construction all at once. The model predicts that if construction were complete by year 2025, then by year 2035, economic activity would surpass the GRP of the No Action Alternative by $10 billion. However, depending on when construction was complete, the economic benefits could be delayed. Construction would be phased and would occur in different areas of the Corridor at different times during the construction period. Dispersing construction activities throughout the Corridor over time would minimize economic hardship.

Many concerns were voiced with regard to the potential for construction of Action Alternatives to have a negative impact on the economies of Corridor counties. The lead agencies recognize the concerns that the Corridor communities share regarding economic impacts during construction. The nine-county area approach provides an integrated assessment of the regional impacts and benefits, with a built-in suppression of 20 percent in the REMI® model for alternatives during the construction period.

The growing demand for recreational visitation and second homes in the Corridor is expected to bridge a possible period of decreased visitation and travel during construction, although this demand can diminish affordable housing options within a reasonable distance of work opportunities, as described in **Section 5.2** Indirect Impacts of the *I-70 Mountain Corridor PEIS Environmental Justice Technical Report* (CDOT, August 2010). An absolute downturn in travel and visitor spending from existing levels is not indicated. The economic and demographic dynamics of Colorado do not support such a scenario due to the state's high rank as a recreational destination. People are expected to continue traveling to and from the Corridor towns, resorts, and other attractions throughout project construction. These statements are supported by the results of the REMI® model.

5.3.1 Clear Creek County

Clear Creek County is singled out for analysis of local construction impacts because all alternative modes are proposed within the county; therefore, construction impacts would occur in the county regardless of which alternative is selected. Although other counties would be affected by construction, these tourist destination counties do not have the degree of alternative construction present in their counties that would be present in Clear Creek County over an extended time period. In addition, historic trends indicate that Clear Creek County has not received the benefit of I-70 highway improvements in proportion to the benefit received by Corridor counties to the west.

The residents of Clear Creek County, their visitors, businesses, governments and other institutions, and the people traveling through the county would be affected by construction work associated with Action Alternatives. Although consideration of regional construction impacts is included in the REMI® model, localized impacts are expected to be most prominent in Clear Creek County.

The REMI® model indicates economic benefits would flow to the I-70 nine-county region from improved access (associated with alternatives) through reduced user costs of transportation; improved traveler safety; expanded markets for goods and services produced by the region's businesses; and improved local governments' finances to support public services. Remaining issues of concern include:

- How long would it take to get from now to then?
- How much inconvenience and even economic loss, during the transition, would be endured?

This section examines the possible economic ramifications of the construction work in Clear Creek County in light of possible localized economic impacts from Action Alternatives.

County Setting and Growth

The Corridor through Clear Creek Canyon includes the communities of Idaho Springs, Georgetown, Empire, and Silver Plume. These communities have historically been the demographic and economic axis of the county. In recent decades, however, the unincorporated areas along the eastern edge of the county have experienced the principal growth in the county. The *Clear Creek County Master Plan 2030* (Clear Creek County, January 2004) reports that:

> *"Growth has occurred primarily in unincorporated Clear Creek County. Of the 600 building permits issued from 1990 to 2000, almost 90% of new construction occurred in the unincorporated portions of the county. The Census shows that almost 87% of population growth occurred in the same areas. The perception is that most of the new growth has occurred east of the "twin tunnels" in the Floyd Hill and Upper Bear Creek areas."*

More than three-fifths of the residents (62.4 percent) are located in unincorporated parts of the county, with the vast majority along the eastern border. In all, 95 percent of the county's growth between 1980 and 2002 took place in the unincorporated areas of the county (Clear Creek County, January 2004). The municipalities of Idaho Springs (1,885) and Empire (399) actually lost a few hundred residents during that time, while Georgetown (1,107) and Silver Plume (205) added a couple hundred.

As discussed in **Section 4.1.1**, Clear Creek County has experienced slower growth rates than other Corridor counties. In addition, the merchants of Corridor communities in Clear Creek County, with the exception of Idaho Springs, have not experienced business growth similar to other Corridor communities and counties, as reflected in the flat trends of retail sales in Georgetown, Empire and Silver Plume. In contrast, the retail establishments in Idaho Springs and the unincorporated areas of the county doubled their nominal volume of business over the 16-year period. The 1991-1992 Idaho Springs "special improvement district" investment project provided a more-attractive downtown business area. The rate of retail sales in Idaho Springs increased following completion of the project after a period of relatively little growth.

Regional Economic Perspective

A comparison of the level of retail sales per resident among the nine counties making up the Corridor impact area was conducted. Retail trade is a major component of a local economy; it generates an important share of the county's employment, income, and sales taxes. The statistic is significant important because it indicates the extent to which the individual counties rely on their own residents as opposed to visitors to support local merchants. The higher the ratio of a county's per capita sales as a percent of the regional average, the more the county is benefiting from inflows of spending from visitors.

Between 1990 and 2000, Clear Creek County's rate of per capita ran at about 40 percent of the nine-county regional average. In dollars, the county's per capita retail sales averaged about $12,475 in 2000, less than half of the region-wide average of $29,950. Clearly, Pitkin (with per capita sales of $57,390 or 192 percent of the regional average), Summit ($44,600 or 149 percent), and Eagle ($39,950 or 120 percent) counties dominate the region in terms of visitor-boosted retail trade. Garfield and Grand counties fall slightly below the regional averages. At the opposite end of the spectrum are Clear Creek, Lake, Gilpin, and Park counties. The analysis indicates that these latter four counties neither attract considerable amounts of spending by visitors nor capture a significant share of their own residents' consumption spending.

Clear Creek, Lake, Gilpin, and Park counties are commuter-based suburban areas. Major shares of their residents' jobs and incomes are based in the Denver metropolitan area, and as a result, much of their consumption spending is oriented to the metropolitan area. According to the 2000 Census, Clear Creek County had 5,556 employed persons not working at home that year. Of these, less than one-half

(43.6 percent, or 2,425 persons) worked in Clear Creek County. Most of the remainder (2,653 or 47.8 percent) worked in Jefferson, Denver, Gilpin, and Arapahoe counties. This means that a major part of the County's economic base, its residents' personal income, is derived from income and employment generated outside the County. Moreover, consumer expenditure data indicate that county residents obtain a considerable amount of their supplies and services outside the county.

Transportation Construction Effects

With respect to Clear Creek County's relationship to the I-70 highway, the above information provides an indication of how construction work on the highway might affect the county's economic welfare. It is necessary to distinguish the growing population in the eastern unincorporated area along the Jefferson County border from the towns further west along the I-70 highway. The eastern border area, home to many of the county's residents, is west of the Evergreen area of Jefferson County. This area is served by several alternate routes (such as SH 103 and SH 74) for access to shopping, jobs, entertainment, and recreation in Jefferson and Denver counties.

In contrast, the incorporated towns of the county are largely dependent on travelers along the I-70 highway for the visitor spending generating a surplus over earnings from serving local residents. Of these communities, only Idaho Springs has demonstrated any ability to reap a significant harvest from the visitor trade. Any restriction of visitor access to Idaho Springs or the other towns in the County further west due to highway construction work would affect their local businesses. Travel delays and other construction-related issues would also affect resident commuters and local traffic in these communities.

The Highway-only alternatives and highway portion of the Combination alternatives would have greater construction impacts on Clear Creek County communities, due to the wider construction footprint needed, than the Transit-only alternatives. The Preferred Alternative would widen only four miles of the highway at the east end of Clear Creek County under the Minimum Program of improvements, and the phased approach of the Maximum Program would allow ongoing opportunities to avoid, minimize, and mitigate economic impacts if it were implemented. Action Alternative construction, however, is not likely to be a major burden on the bulk of the county's residents (those residing along the eastern border) who are primarily oriented to Jefferson and Denver counties.

The effects of construction workers on the Clear Creek County economy would be primarily dependent on worker commuting and residence conditions. In Clear Creek County, it is expected that most of the construction workers would commute from the Denver metropolitan area (the principal labor market for such workers) and would not reside in the county. Most workers would commute daily to project job sites in the county (assuming commute times would not exceed an hour), preventing the need for temporary workweek accommodations in the county. Construction workers would be expected to generate some local spending in communities along the route, but the amount would be considerably less than their total earnings. Workers commuting to job sites daily generally spend relatively little on the job for products and services such as gasoline, lunches, and snacks, or other casual and brief recreation.

5.4 Impacts in 2050

The REMI® model predicts that all Action Alternatives except the Minimal Action Alternative would meet or surpass a GRP of $45 billion by year 2035. The model takes into account the effects of construction, during which time economic growth would slow down, in comparison to the period after construction when the rate of growth would increase. Presumably, the period of construction would be a smaller portion of the overall period between now and 2050, allowing the economies more time to grow without the effects of construction. The No Action and Minimal Action alternatives would suppress economic growth, and that suppression would likely continue to 2050.

The beneficial economic growth under the Action Alternatives, except the Minimal Action Alternative, could have either positive or negative effects on social values, depending on local planning policies. Economic growth places pressure on property values, community services, and other social infrastructure. These pressures could negatively affect quality of life, community services and infrastructure, and commuting patterns if local planning efforts and mitigation measures do not adequately address them.

The adaptive management approach of the Preferred Alternative allows improvements to be implemented over time based on future needs and associated triggers for further action (see **Chapter 2, Section 2.7** of the PEIS), which may allow communities to manage the indirect effects associated with those improvements better. Future changes such as fuel types, resource availability, climate change, and water availability could substantially affect the social and economic fabric of the Corridor communities. The Action Alternatives could either suppress economic conditions or increase anticipated GRP. The *I-70 Mountain Corridor PEIS Cumulative Impacts Technical Report* (CDOT, August 2010) provides additional analysis of the alternatives in relation to past and current trends and other reasonably foreseeable future actions and events.

Section 6. Tier 2 Considerations

Detailed county-level travel demand, project phasing, time-phased estimates of capital expenditures, worksite locations and scheduling, and sourcing of materials, equipment, services, and labor are required to carry out county-level impact assessments. The lead agencies will conduct further analysis of local county economic impacts during future project-specific Tier 2 processes, and will develop information about county-level travel demand, project phasing, time-phased estimates of capital expenditures, worksite locations and scheduling, and sourcing of materials, equipment, services, and labor for use in the analysis. The REMI® model, which has the ability to incorporate travel demand data with economic impact analysis, could be useful for local economic modeling during Tier 2 processes if it is used. With regard to construction impacts, Tier 2 processes will provide information about work duration, detours, lane closures, and other disturbances that would occur.

The I-70 Mountain Corridor Context Sensitive Solutions Guidance provides direction, guidance, and resources to future planners, engineers, designers, and Corridor stakeholders about how decisions are made about Corridor improvements. To maximize ease of access, transparency, and future flexibility, the lead agencies posted the I-70 Mountain Corridor Context Sensitive Solutions Guidance on an interactive website that:

- Presents the Corridor Context Statement and Core Values;
- Delineates the decision-making process to be used;
- Defines the design criteria and guidance;
- Organizes Corridor environmental data on maps;
- Indexes the 2004 Draft PEIS data by mile marker;
- Provides tools, templates, photographs, exercises, and ideas for project managers;
- Makes available all Corridor agreements;
- Captures years of stakeholders' comments and concerns; and
- Contains links to other relevant materials.

The I-70 Mountain Corridor Context Sensitive Solutions Guidance will be followed during Tier 2 processes.

The lead agencies will develop specific and more detailed mitigation strategies and measures, and develop best management practices specific to each project, during Tier 2 processes. The lead agencies will also adhere to any new laws and regulations that may be in place when Tier 2 processes are underway.

Section 7. Mitigation

Concerns have been raised about the impacts on local economies that may result from construction of the Action Alternatives, as well as impacts resulting from construction of an alternative. Clear Creek County, in particular, has raised specific concerns with the amount of construction that could occur in that county. Note that the Preferred Alternative avoids highway construction in Clear Creek County between Empire and Idaho Springs under the Minimum Program of Improvements, and the phased approach of the Maximum Program allows opportunities to avoid, minimize, and mitigate impacts.

Throughout the Corridor, the phased approach of the Preferred Alternative allows ongoing opportunities to avoid and minimize economic impacts, establish effective mitigation, and employ I-70 Mountain Corridor Context Sensitive Solutions. Corridor-wide coordination, state involvement and support, and localized efforts to control growth and maintain quality of life would improve the ability of Corridor communities to maintain and protect social and economic values.

7.1 Construction Mitigation Strategies

The lead agencies will coordinate a variety of different construction mitigation strategies with Clear Creek and other Corridor counties. This may include the development of a Tier 2 Public Involvement and Marketing Plan. Tier 2 processes will also include strategies to avoid and minimize construction impacts on mountain communities, such as considerations for peak seasonal traffic (e.g., cessation of construction activities during ski season weekends), accessibility to Idaho Springs businesses, assisting the county with historic tourism marketing, and developing a site-specific Tier 2 interpretive signage plan. Mitigation strategies will also aim to address the disparity in the distribution of benefits and impacts that might result from construction activities.

The following list summarizes some of the construction mitigation strategies that would be considered.

- Lane restrictions in the peak direction would generally not be permitted during peak periods.
- Optimal spacing between work zones would allow traffic flow to recover between work zones.
- Contractors would be required to demonstrate that there is no reasonable alternative to a proposed lane closure. When lane restrictions and closures are required, the Colorado Department of Transportation would work with local communities to minimize impacts on local traffic and transit services. If actual total closure and/or stoppage of traffic were needed, they would be advertised and communicated to the public in advance of when they would occur.
- Construction zone planning would ensure that access to communities and businesses is maintained to the highest degree possible. Information technologies, such as well-placed and highly visible signs, would provide safe and efficient access during construction activities.
- Determine an appropriate scheduling approach to day versus night work during Tier 2 processes.
- Public issues and concerns related to local mobility (that is, commuting, shopping, school travel, business access, commerce, emergency services, local government access, and recreational access) would be considered in construction contracts and traffic control strategies.
- Public meetings would be held at critical construction phases to provide the public with information and to offer a venue for discussion of mitigation strategies. Construction information exchange centers would be provided at several locations along the Corridor to offer opportunities

for public input and discussion, as well as to provide up-to-date information on construction activities.

- Public information strategies would include media advisories, variable message signs, advance signs, a telephone hotline, real-time web cameras, the use of intelligent transportation systems and technology in construction work zones, a construction project website, and alternate route advisories.
- As each construction phase is undertaken, CDOT would work with communities to select persons to best represent the business and residential interests and issues of the communities. These persons would partner in the construction traffic control program and provide assistance/feedback to the traffic control team. The traffic control program would include construction scheduling and mitigation strategy determinations.
- All emergency responders that may need to get through the construction on an emergency call would be contacted and given information as to how to contact the appropriate authority in the event of a call. The emergency service would call the traffic control office, advise on their approximate arrival time at the construction zone, and indicate the urgency of their need. In this manner it is possible to provide the emergency vehicle a clear path through the zone.
- Effective directional signage would be provided.
- The Colorado Department of Transportation would be sensitive to blockage during prime business hours.
- Outreach to impacted businesses would occur as early as possible prior to any construction.
- Business relocation opportunities would be identified.
- Coordination with local chambers and town economic offices would occur to help develop promotional strategies during construction.
- A specialized web site would be established for businesses to access construction schedules that might affect their businesses.

7.2 Emergency Services

Clear Creek County is identified as having a disproportionate relationship between its resources and the I-70 highway call response. Clear Creek emergency vehicles must travel out of the county to the nearest medical facility (leading to the highest ambulance rate in the state). The lead agencies will address safety issues on the I-70 highway with design criteria. This will reduce the number of crashes on the highway and the frequency of emergency response, which will in turn reduce local community emergency services costs. Additional coordination with the Colorado State Highway Patrol could identify where resource load could be shifted from Clear Creek County.

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Two appendices support the Social and Economic Values Technical Report:

- **Appendix A** describes the economic impact methodology in detail. The REMI® modeling was performed early in the study and relies on Department of Local Affairs data for years 2000 and 2025, obtained in 2002, and on travel demand modeling for year 2025. An evaluation of more recent Department of Labor Affairs data for years 2000, 2025, and 2035, obtained in 2009, confirms that the original modeling remains representative of the regional impacts at the Tier 1 level.
- **Appendix B** describes the economic descriptions in the ten counties surrounding the Corridor. The descriptions were prepared early in the study process and are based on data gathered in 2002. The data is still considered representative of the Corridor because socioeconomic conditions in the Corridor have been stable, 2010 Census data are not available, and the programmatic nature of impact evaluation at the Tier 1 level focuses on trends and comparative differences among alternatives.

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Appendix A. Economic Impact Methodology

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Appendix A. Economic Impact Methodology

Indirect economic impacts in the Corridor would involve many factors. Three primary considerations, containing a variety of different factors and variables, were used in a REMI® (Regional Economic Models, Inc.) conjoined econometric/input-output model of the nine-county Corridor region to predict economic impacts of the alternatives. These three considerations were:

- Tourism spending
- Value of time
- Construction impacts

The following sections describe the data sources used for the analysis (**Section A.1**), the information and assumptions for each of the three considerations listed above (**Sections A.2 – A.4**), the REMI® modeling process (**Section A.5**), and a sensitivity analysis conducted to determine how changes in tourism spending scenarios affect the model (**Section A.6**). The results of the REMI® analysis are reported in **Section 5.2.2, Indirect Economic Impacts**, of the technical report associated with this appendix.

A.1 Source Data

The economic impact analysis was performed early in the study and relies on Colorado Department of Local Affairs data for years 2000 and 2025, obtained in 2002, called "initial estimates" in this document; and on travel demand modeling for 2025. At the time the economic impact analysis was conducted, a travel demand model for 2035 was not available. An evaluation of more recent Department of Local Affairs data for years 2000, 2025, and 2035, obtained in 2009, called "updated estimates" in this document, confirmed that the results of the original analysis remain representative of impacts to the regional economy at the Tier 1 level.

Most of the data gathered for this economic analysis provided information on Corridor conditions as they existed in year 2000, and provided projections for conditions as they would be in 2025, the original planning horizon for this study. As the study progressed, the lead agencies continued to evaluate new data and extended the planning horizon to 2035. However, they determined that because Corridor socioeconomic conditions have been stable, 2010 U.S. Census data are not available, and the programmatic nature of impact evaluation at the Tier 1 level focuses on trends and comparative differences among alternatives, the year 2000 and 2025 planning horizon provided a reasonable baseline for a comparative analysis of alternatives.

Table A-1 shows the initial Department of Local Affairs population estimates for 2000 and 2025, as well as the updated population estimates for 2000, 2025, and 2035. According to the initial estimates, the 2000 population of the nine-county region was approximately 173,000. The updated estimates revised the 2000 population to approximately 179,000. The forecast for 2025 was revised downward, however, from approximately 348,000 to 341,000. The updated estimate for the nine-county region's population in 2035 is approximately 419,000. **Table A-1** also shows the average annual growth rate between 2000 and 2025, and between 2025 and 2035, for the updated estimates.

Table A-1. Population Estimates for 2000, 2025, and 2035

County	Population					Average Annual Growth Rate [2009 estimates]	
	Initial Estimates		Updated Estimates				
	2000	2025	2000	2025	2035	2000-2025	2025-2035
Clear Creek	9,322	17,060	9,386	12,667	14,843	1.2%	1.6%
Eagle	41,659	76,081	43,355	77,865	94,803	2.4%	2.0%
Garfield	43,791	80,879	44,263	105,087	133,272	3.5%	2.4%
Gilpin	4,757	7,175	4,776	7,015	8,146	1.5%	1.5%
Grand	12,442	25,598	12,885	22,409	27,260	2.2%	2.0%
Lake	7,812	18,458	7,906	15,770	19,742	2.8%	2.3%
Park	14,523	56,100*	14,698	32,910	39,613	3.3%	1.9%
Pitkin	14,872	23,719	15,914	23,751	28,341	1.6%	1.8%
Summit	23,548	42,561	25,727	43,943	53,216	2.2%	1.9%
Nine-County Total	**172,726**	**347,631**	**178,910**	**341,417**	**419,236**	**2.6%**	**2.1%**

Source: Colorado Department of Local Affairs, 2002 and 2009.

** Represents an early Department of Local Affairs forecast for Park County, which has been refined since 2002.*

The average annual growth figures generally show a slowing of growth after 2025, with the exception of Clear Creek and Pitkin counties. However, the increased growth rate after 2025 for Pitkin County is only two-tenths of a percent more than the pre-2025 growth rate. Clear Creek and Gilpin counties would have the lowest growth rates over the 35-year period. Garfield and Park counties are anticipated to have the highest growth rates from 2000 to 2025, but Park County will fall behind Lake County between 2025 and 2035.

Table A-2 shows the percentage difference in updated population estimates relative to the initial estimates shown in **Table A-1**. The change in estimates is minor, ranging from 0.4 percent (Gilpin County) to as much as 9.3 percent (Summit County). Overall, the estimate of population of the nine-county area for 2000 increased by 3.6 percent.

Table A-2. Changes in Population Estimates

County	Percent Difference in Estimates (2008/2002)	
	2000	2025
Clear Creek	0.7%	-25.8%
Eagle	4.1%	2.3%
Garfield	1.1%	29.9%
Gilpin	0.4%	-2.2%
Grand	3.6%	-12.5%
Lake	1.2%	-14.6%
Park	1.2%	-41.3%
Pitkin	7.0%	0.1%
Summit	9.3%	3.2%
Nine-County Total	3.6%	-1.8%

Changes in the 2025 population forecasts are more pronounced. The greatest percentage change occurs in Park County, where the 2025 population was revised downwards by approximately 23,000 persons, or 41.3 percent. Garfield County estimates were revised upward by approximately 24,000 persons, or 29.9 percent of the original 56,000-person forecast. Clear Creek County was originally forecasted to reach more than 17,000 persons by 2025, but according to updated estimates, the county will have fewer than 13,000 persons in 2025 (25.8 percent change from the 2000 projections) and approximately 15,000 persons in 2035. However, the difference between the two data sets for the entire nine-county study area decreased by only 1.8 percent.

Table A-3 shows the initial Department of Local Affairs jobs estimates for 2000 and 2025, as well as the updated jobs estimates for 2000, 2025, and 2035. Both sets of estimates were similar for year 2000, at about 125,000 jobs for the nine-county region. However, based on the updated estimates, the 2025 jobs forecasts were revised downward, which indicates that lower participation in the labor force is anticipated.

Eagle County consistently has the most jobs of the nine counties, although the county's jobs forecast for 2025 was revised downward from approximately 100,000 to approximately 65,000. Additionally, the updated estimates show that Eagle County is not forecasted to reach 100,000 jobs by 2035, as was initially indicated. Between 2025 and 2035, the greatest absolute growth in jobs would occur in Eagle County with a gain of approximately 14,000 jobs, followed by Summit County with a gain of approximately 10,000 jobs.

Table A-3. Jobs Estimates for 2000, 2025, and 2035

County	Initial Estimates (2002)		Update (2009)			Average Annual Growth Rate	
	2000	2025	2000	2025	2035	2000–2025	2025–2035
Clear Creek	3,509	5,529	3,875	5,310	5,325	1.3%	0.0%
Eagle	33,276	100,531	35,378	65,584	80,430	2.5%	2.1%
Garfield	25,387	40,954	25,991	53,874	63,199	3.0%	1.6%
Gilpin	5,747	7,131	6,407	7,915	8,140	0.8%	0.3%
Grand	9,280	14,108	8,948	15,319	18,319	2.2%	1.8%
Lake	2,385	5,932	2,558	4,039	4,524	1.8%	1.1%
Park	2,931	2,994*	3,960	8,629	10,351	3.2%	1.8%
Pitkin	19,191	39,217	20,263	29,252	32,338	1.5%	1.0%
Summit	23,242	44,261	23,272	39,973	50,574	2.2%	2.4%
Nine-County Total	**124,948**	**260,657**	**130,652**	**229,895**	**273,200**	**2.3%**	**1.7%**

Source: Colorado Department of Labor Affairs, 2002 and 2009.

** Represents an early DOLA forecast for Park County, which has been refined since 2002.*

According to the latest estimates, among the counties studied, Park County is expected to experience the highest annual growth between 2000 and 2025, more than doubling its jobs from approximately 4,000 to about 8,500. Eagle, Garfield, and Summit counties would have the next highest annual growth rates during the same 25-year period. Annually, Gilpin County is expected to grow the least from 2000 to 2025.

Table A-4 shows the percentage revision in updated population estimates relative to the initial estimates shown in **Table A-3**. Relative revisions to the 2000 jobs estimates are larger than corresponding population revisions. Although the nine-county total jobs in 2000 changed by less than 5 percent, reallocation among counties produced much larger changes on an individual county basis. The greatest relative change would occur in Park County, where the jobs estimate changed from approximately 3,000 to approximately 4,000. The greatest absolute change occurred for Eagle County, which went from approximately 33,000 jobs to approximately 35,000.

Revisions to 2025 jobs forecasts are even more pronounced than the 2000 revisions. Park County estimates had the greatest percentage change, almost tripling its expected employment from approximately 3,000 to 8,500. Eagle County estimates had the greatest absolute change, with 35,000 fewer jobs than initially reported. Estimates for Clear Creek, Eagle, Lake, Pitkin, and Summit counties were all adjusted downward.

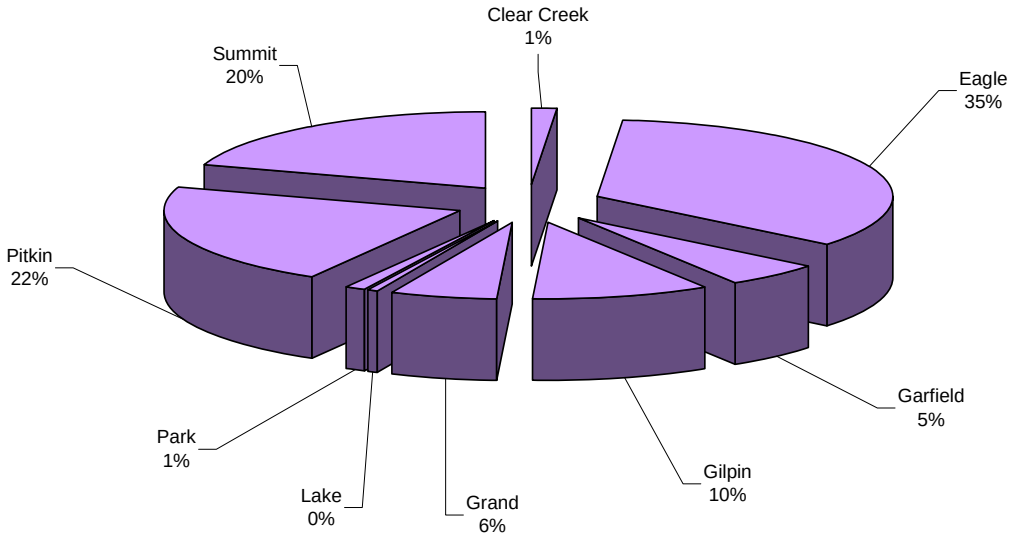
Table A-4. Changes in Employment Estimates

County	Percent Difference (2008/2002)	
	2000	2025
Clear Creek	10.4%	-4.0%
Eagle	6.3%	-34.8%
Garfield	2.4%	31.5%
Gilpin	11.5%	11.0%
Grand	-3.6%	8.6%
Lake	7.3%	-31.9%
Park	35.1%	188.2%
Pitkin	5.6%	-25.4%
Summit	0.1%	-9.7%
Nine-County Total	**4.6%**	**-11.8%**

A.2 Tourism Spending

Tourism was identified as the major economic driver (38 percent of income and 41 percent of jobs) for the Corridor economy. Corridor tourism income by county is shown on **Chart A-1**. Peak travel during weekends was identified as the major congestion period affecting I-70 travel. Peak travel during weekends was also identified as the period most affected by project alternatives. Recreational trips by travelers from the Front Range make up the primary portion (about 75 percent) of peak weekend trips on the I-70 highway. The economic analysis assumes that tourism spending during these peak weekends would be affected based on negative or positive effects of recreational trips (as predicted by the travel demand model) for various alternatives.

Chart A-1. Tourism Income by County (Year 2000)



Information Used

- Projected estimates of 2025 total personal income (nine-county area includes Garfield, Eagle, Pitkin, Lake, Summit, Park*, Grand, Clear Creek, Gilpin counties). The projected estimate is calculated based on Department of Local Affairs population/employment projections from 2002 and existing value.
- Person trips from the travel demand model (winter and summer weekends) at the Twin Tunnels location. The Twin Tunnels location was selected to reflect the maximum number of travelers coming into the Corridor to spend money. It is important to note that tourism-related trips are a subset of the overall peak-day trips evaluated for the PEIS. Trips cannot be averaged through the Corridor due to the high degree of variance in number and type of trips throughout the Corridor.
- Year 2000 person trips and year 2025 projected Baseline person trips at the Twin Tunnels were divided into the following categories: Day Recreation, Local Recreation, Stay Overnight, Colorado Non-Work, External.

Definitions of Trips

- Day Recreation - Front Range residents traveling into and out of the Corridor for recreational (and tourism) purposes during one day.
- Local Recreation - Corridor residents traveling within the Corridor for recreational purposes
- Stay Overnight - Front Range travelers staying overnight in the Corridor (one or more nights)
- Colorado Non-Work - includes Front Range residents traveling to second homes or to see friends or relatives in the Corridor
- External - includes out-of-state recreational (and tourism) travelers (vehicles only)

Assumptions

- There are 40 weekends of congestion on the I-70 highway due to recreational trips (20 attributed to winter season within the months of November through March, and 20 attributed to summer season within the months of May through September.).
- Weekend Day Recreation, Stay Overnight (a portion), Local Recreation, Colorado Non-Work (a portion), and External person trips are decreased/increased from Baseline projections by certain

percentages for each alternative due to decreased/increased capacity as determined by the travel demand model (see **Table A-5**). Note that the degree of alternative inducement shown in the table reflects tourism-oriented trips only, not overall inducement, which takes into account all trips. Inducement associated with tourism trips is higher because tourism-oriented trips are expected to be more sensitive to peak demand. This degree of inducement does not directly correspond with inducement that includes all trip types. Furthermore, the degree of inducement shown in the table reflects a generalized average inducement over the study area based on these tourism-oriented trips. This was necessary because the degree of inducement varies by alternative and location throughout the Corridor.

- The degree of No Action suppression shown in the table reflects tourism-oriented trips only, not overall inducement, which takes into account all trips. Suppression associated with tourism trips is more pronounced because tourism-oriented trips are expected to be more sensitive to the causes of suppression (such as congestion that causes tourists to stay home or go somewhere else). This degree of suppression does not directly correspond with suppression that includes all trip types.
- To capture a range of possible impacts that could result from the No Action Alternative, best- and worst-case scenarios were estimated. The basis for suppressed trips would be the traveling public's assumed tolerance for congestion in the future. Scenarios are based on the traveling public's tolerance for delay due to congestion when traveling from Denver to Silverthorne (55 miles).
  - The best-case scenario was based on a low level of suppression, with high tolerance for delay. It was assumed the traveling public would tolerate trip times of up to 2 hours 45 minutes between Denver and Silverthorne. This would generate suppression of recreation-oriented trips by up to 20 percent.
  - The worst-case scenario was based on a high level of suppression, with low tolerance for delay. It was assumed the traveling public would tolerate trip times of up to 90 minutes between Denver and Silverthorne. This would generate suppression of recreation-oriented trips by up to 38 percent.

Table A-5. Increase/Decrease from Baseline Due to Increase/Decrease in Capacity

Alternative	% Suppression and/or Inducement
No Action[a]	-34% to -20%
Minimal Action	-15%
Rail with Intermountain Connection	+12%
Advanced Guideway System	+12%
Dual-Mode or Diesel Bus in Guideway	+11%
6-Lane Highway (55 or 65 mph) or Reversible/HOV/HOT Lanes	+2%
Combination 6-Lane Highway with Rail and Intermountain Connection	+25%
Combination 6-Lane Highway with Advanced Guideway System	+25%
Combination 6-Lane Highway with Dual-Mode or Diesel Bus in Guideway	+22%
Preferred Alternative [b]	+12% to +25%

[a] A range of economic impacts, from best- to worst-case scenarios, is expressed in the use of 20 percent to 34 percent suppression.

[b] The Preferred Alternative is presented as a range because the adaptive management component allows it to be implemented based on future needs and associated triggers for further action. Chapter 2, Section 2.7 of the PEIS describes the triggers for implementing components of the Preferred Alternative.

Key to Abbreviations/Acronyms
HOT=High Occupancy Toll HOV=High Occupancy Vehicle
mph = miles per hour

- Tourists (by person trip) spend $171/day for winter recreation and $92/day for summer recreation (RRC Associates, 2003); see actual trip distribution in the Tourism Spending Calculations section below.
- Tourists (by person trip) spend $266/day for winter lodging and $114/day for summer lodging (RRC Associates, 2003); see actual trip distribution in the Tourism Spending Calculations section below.
- The degree of tourism contribution to the Corridor economy (percent contribution to the overall Corridor income) does not change from 2000 to 2025 in the Corridor area for the 2025 projected condition.
- The Twin Tunnels location and average inducement factors capture overall economic impacts on the Corridor area. The Twin Tunnels location was selected to represent the most comprehensive picture of trips that might affect the entire Corridor. Trips cannot be averaged through the Corridor.

Tourism Spending Calculations

- Tourism-related trips, which are susceptible to suppression/inducement by alternative, are translated into tourism spending, as shown in **Table A-6**.

Table A-6. Tourism Spending Calculations

Winter Saturday, Summer Saturday, Summer Sunday	2000 Person Trips	2025 Baseline Person Trips	2000 Weekend Person Trips Spending (40-week season)	2025 Baseline Spending Weekend Person Trips (40-week season)	Factor	2025 Adjusted Spending Weekend Person Trips (40-week season)
Day Recreation Trips (suppressed/ induced)	Model Data		PTs x ($92 S or $171 W)	2025 PTs x ($92 S or $171 W)	3.2 ($17.65 billion/ $1.51 billion; 2025 personal income/2000 personal income)	2025 Total Baseline Spending (uses 3.2 factor)
Stay Overnight Trips (suppressed/ induced)			Day Spending = PTs x ($92 S or $171 W); Lodging Spending = PTs x ($114 S or $266 W) x 0.5[c]	Day Spending = PTs x ($92 S or $171 W); Lodging Spending = PTs x ($114 S or $266 W) x 0.5[c]		
Local Recreation Trips (induced)			PTs x ($92 S or $171 W)	PTs x ($92 S or $171 W)		
Colorado Non-Work Trips (induced)[a]			PTs x ($92 S or $171 W) x 0.5[d]	PTs x ($92 S or $171 W) x 0.5[d]		
External Trips (induced)[b]			Day Spending = PTs x ($92 S or $171 W); Lodging Spending = PTs x ($114 S or $266 W).	Day Spending = PTs x ($92 S or $171 W); Lodging Spending = PTs x ($114 S or $266 W).		

Table Legend:
[a] Includes second home trips and local nonrecreation trips.
[b] Includes trips to or from outside the study area (out of state).
[c] To account for 50 percent of these trips attributed to one-night stays.
[d] To account for lower spending.

Key to Abbreviations/Acronyms
PT = Person trip S = Summer W = Winter

- 2025 Adjusted Spending is suppressed/induced by alternative based on the following factors as shown in **Table A-7**.

Table A-7. 2025 Adjusted Tourism Spending Suppression or Inducement

Alternative	% Suppression	% Induced
No Action[a]	-38% to -20%	
Construction	-20%	
Minimal Action	-15%	
Rail with Intermountain Connection		+12%
Advanced Guideway System		+12%
Dual-Mode or Diesel Bus in Guideway		+11%
6-Lane Highway (55 or 65 mph) or Reversible/HOV/HOT Lanes		+2%
Combination 6-Lane Highway with Rail and Intermountain Connection		+21%
Combination 6-Lane Highway with Advanced Guideway System		+20%
Combination 6-Lane Highway with Dual-Mode of Diesel Bus in Guideway		+19%
Preferred Alternative b[a]		+12% to +20%

Legend:
[a] A range of economic impacts, from best- to worst-case scenarios, is expressed in the use of 20 percent to 38 percent suppression.
[b] *The Preferred Alternative is presented as a range because the adaptive management component allows it to be implemented based on future needs and associated triggers for further action. Chapter 2, Section 2.7 of the PEIS describes the triggers for implementing components of the Preferred Alternative.*

Key to Abbreviations/Acronyms
HOT=High Occupancy Toll HOV=High Occupancy Vehicle
mph = miles per hour

- The suppressed/induced spending (by alternative) is compared to the 2025 Baseline Adjusted Spending to yield the potential change in tourism spending relative to Baseline conditions.
- The difference in spending (from 2025 Baseline spending) was calculated for each alternative based on percent changes (suppressed/induced from Baseline as shown in tables above) in recreational person trips (see **Table A-8**).Tourism spending during peak weekends accounts for

approximately 75 percent of the total 2000 regional tourism income (tourism income is approximately 40 percent of the total regional income by industry).

Table A-8. Increase in Recreational Person Trips and Spending

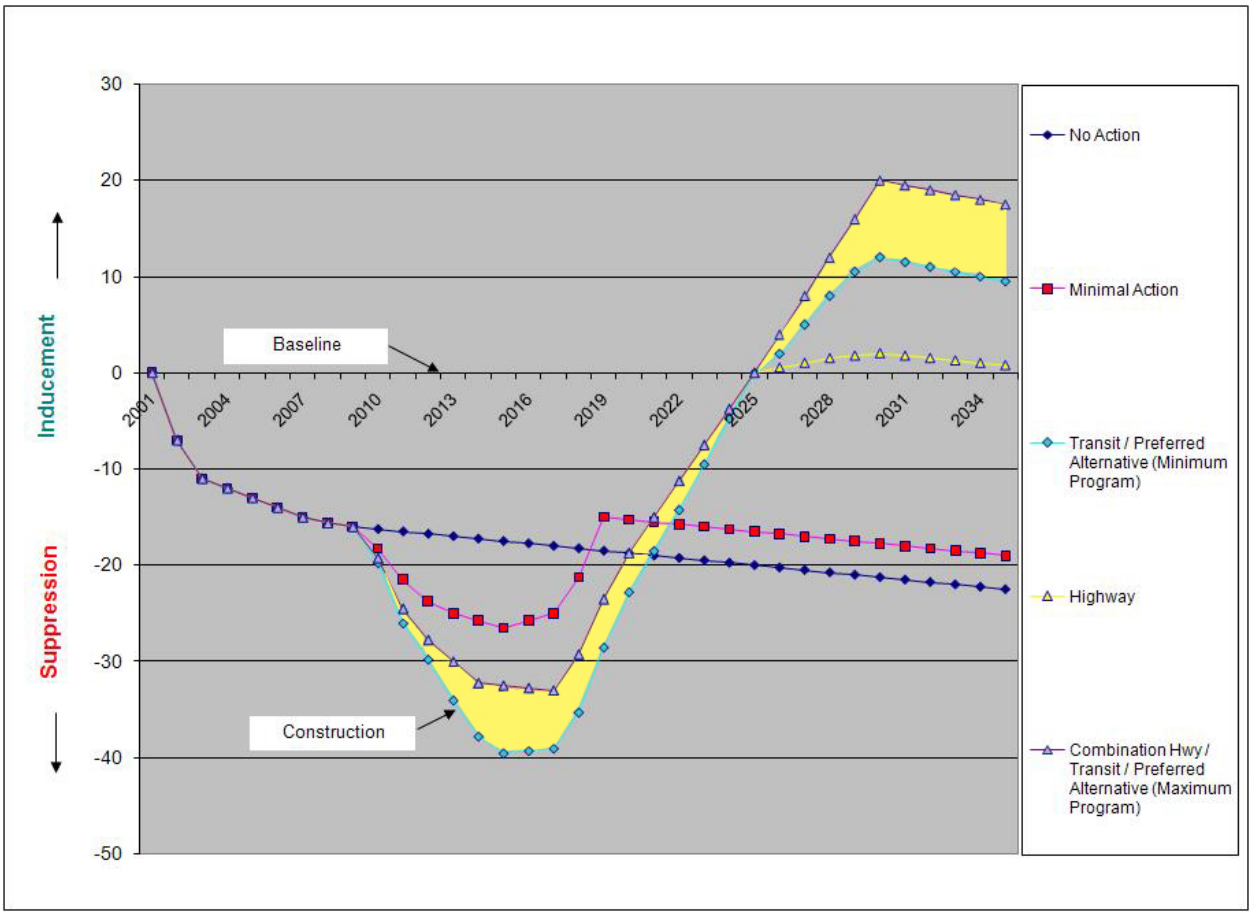
Period of Time	2000 Recreational Person Trips	2025 Recreational Person Trips	2025 No Action, 34% Suppressed Trips	With 20% Construction Suppression – Suppressed Trips	2000 Weekend Spending	2025[a] Weekend Spending (adjusted for 2001 $)	2025 No Action, 38% Suppression Spending
Summer Weekend (average)	209,804	333,482	62,929	78,149	$21,098,263	$106,990,478	$60,374,272
Winter Weekend (average)	248,842	396,544	96,856	114,088	$41,605,516	$211,388,954	$110,522,712
Summer Season (20 weekends)	4,196,080	6,669,640	1,258,589	1,562,987	$421,965,250	$2,139,809,568	$1,207,485,434
Winter Season (20 weekends)	4,976,840	7,930,880	1,937,118	2,281,766	$832,110,320	$4,227,779,072	$2,210,454,236
Total	**9,631,566**	**15,330,546**	**3,195,707**	**3,844,753**	**$1,316,779,349**	**$6,685,968,072**	**$4,377,200,000**

Legend:
[a] = 2025 spending reflects both an increase in recreational person trips and the factor of 3.2 to reflect the general economic dollars increase in personal income from 2000 to 2025 (see Table A-2).

Tourism Spending in the REMI® Model

- Tourism spending is translated into the REMI® model based on research information provided by the *Colorado Visitors Study* (Longwoods, 2000). REMI Policy Insight® software answers "what if...?" questions about state, regional, and local economies.
- Tourism spending trends are based on suppression/inducement associated with alternatives. **Chart A-2** shows the effects of No Action suppression (2000 to 2010), construction (2010 to 2025), and Action Alternatives (except the Minimal Action Alternative) inducement (2025 to 2035).

Chart A-2. Suppression/Inducement of Recreational Trips during Peak Travel



**No Action worst-case scenario (38% suppression)*

A.3 Value of Time

The REMI® model can translate the loss (or gain) of amenity values (such as free-flowing traffic) into a factor that acts to restrain (or stimulate) worker migration over the longer term, which, in turn, affects regional income and employment. Value of Time is reflected in both a decrease in wages and an increase in production costs. For example, traffic congestion is a major source of wasted time and loss of income (both to commuters and travelers who could be doing other things with their time). Traffic delay while commuting to work or traveling to a recreation destination is considered a cost in terms of time taken away from other activities.

Assumptions and Information Used — Value of Time Factors

- The per capita costs of travel time would increase by 5 percent from 2000 to 2025 (the population would experience the equivalent of a 5 percent loss in real wages) under the No Action Alternative.

  This is based on information from a study of a metropolitan area (Anderson and McCullough 2000). (Although Corridor travel characteristics are different from a metropolitan area, no research is available for Value of Time in an area similar to the Corridor.) Real costs of commerce and industry are assumed to increase by 10 percent as a result of traffic disruptions, substantially affecting the study area's industrial output.

- The per capita costs of travel time would increase by 3 percent from 2000 to 2035 (the population would experience the equivalent of a 3 percent loss in real wages) under the Minimal Action Alternative.
- The per capita costs of travel time would increase by 5 percent from 2000 to 2025 (the population would experience the equivalent of a 5 percent loss in real wages) under the Transit, Highway, Combination, and Preferred alternatives from 2000 to 2025, at which time construction would be assumed to be complete. At 2025, the per capita costs of travel time would decrease by 5 percent (compared to Baseline), resulting in economic benefits for these alternatives.

A.4 Impacts Due to Construction

Assumptions and Information Used

- All alternatives would be constructed between 2010 and 2025.
- All alternatives would be completed by 2025.
- Alternative expenditures would be spread evenly between 2010 and 2025.
- Construction impacts would be spread throughout the nine-county area.
- Changes in real wages and costs are projected over the period from 2001 to 2035, and are attributed to progressive declines in I-70 Level of Service, with the effects exacerbated between 2010 and 2025 in the case of the Action Alternatives' construction work disruptions to traffic. Following 2025, Value of Time factors turn positive for the Action Alternatives (except for Minimal Action), reflecting improved accessibility and circulation.
- Half of the commercial and industrial activities in the nine-county region are substantially sensitive to I-70 traffic congestion delays (based on economist's judgment of importance of the I-70 highway to delivery of goods and services).
- The region would experience some economic benefit during construction.
- The benefit of construction would be realized before completion of the alternative.
- The induced growth would not take place until the completion of the alternative.

REMI® (Regional Economic Model) — Process

Overview

The REMI® model is a dynamic economic simulation modeling system that combines econometric estimating equations with a conjoined input-output model to produce short- and long-term projections of the response of a region to economic stimuli. Accordingly, it is able to reflect how changes in prices and relative productivities of factors of production occur as a result of changes in competitive pressures and shifts in demand for its goods and services, and to show their effect on the study area economy.

The forecasting and policy analysis system includes key econometric estimates and integrates inter-industry transactions, long-run equilibrium features, and an economic geography function to account for movement of factors of production between study areas. The model can incorporate substitution among factors of production in response to changes in relative factor costs; migration responses to changes in expected income; labor participation rate responses to changes in real wage and employment conditions; wage rate responses to labor market changes; consumer consumption responses to changes in real disposable income and commodity prices; and local, regional, and market share responses to changes in regional production costs and agglomeration economics.

The REMI® Policy Insight model's unique power is to generate realistic year-by-year estimates of the total regional effects of any specific policy initiative. A wide range of policy variables allows the user to represent the policy to be evaluated while the explicit structure in the model helps the user to interpret the predicted economic and demographic effects. The model is calibrated to many subnational areas for

policy analysis and forecasting and is available in single- and multi-area configurations. Each calibrated area (or region) has economic and demographic variables, as well as policy variables, so that any policy that affects a local economy can be tested.

Information Used for Baseline Scenario

- Department of Local Affairs population/employment projections collected in 2002. REMI® assumes retirees will increase from 14 percent to 24 percent, which agrees with Department of Local Affairs predictions.
- REMI® model's regional economic parameters for nine-county area: Employment, Gross Regional Product, Personal Income, State/Local Revenues (comprehensive, United States Census of Governments basis), State/Local Expenditures (comprehensive, United States Census of Governments basis).

Analysis Years

The analysis was performed early in the study, and the analysis years presented below represent the assumptions in place at that time. Because the modeling includes analysis for both 2025 and 2035, and evaluation of the more recent 2009 Department of Local Affairs data confirmed that the REMI® model results are still representative of the regional economy, the results remain relevant and acceptable.

- Year 2000 — Existing condition.
- 2010 to 2025 — Construction period — Some economic impact offset by construction spending and phased project benefits.
- Year 2025 — Projects in service — Begin induced benefits from Action Alternatives.
- Year 2035 — Projected economic impact modeled for initial 10 years of service (REMI®).

Definitions of Parameters

Gross Regional Product (GRP) - total value of new goods and services produced in a year (the regional equivalent of the U.S. Gross Domestic Product). Data are based on the U.S. Bureau of Economic Analysis (BEA) Regional Economic Accounts gross state product series.

Personal Income - value of labor compensation (wages, salaries, and proprietors' earnings), property income (rents, dividends, interest), and net transfers from institutions (such as social security insurance or welfare payments). Data is also from the BEA.

Local Revenues/Expenditures - these values are based on data from the United States Census of Governments (augmented by data from the BEA's annual survey of state and local government finances), and include all revenues and expenditures of state, county and municipal governments, school and other special districts, and government enterprises and public utilities. In contrast, the local government fiscal data reported by Department of Local Affairs covers only individual county and municipal government general funds. Quoting from the Census Bureau's website for government finances:

> *"The annual survey of* State and Local Government Finances *contains current estimates of government financial activity. Data include estimates of revenue by type, expenditure by purpose and function, debt, and financial assets by type — all in detail similar to that found in the Census of Governments. Estimates are shown for state and local governments combined, as well as for local governments."*

The REMI® model does not disaggregate the estimates of sources and uses of funds.

Assumptions — Baseline Condition

- Current economic conditions restrain relocation to and investment in the project area.

- From 2013 to 2020, economic activity would accelerate due to improving economic conditions.
- By the mid 2020s and beyond, buildout conditions in the Corridor would gradually dampen growth.
- Reflecting the Department of Local Affairs Baseline forecast of regional population, employment, and income, no explicit assumption is made about the ability of the I-70 highway to serve future demand; it is assumed that future demand resulting from Baseline conditions is met.

Baseline Scenario

The Economic Baseline Condition used in the REMI® model reflects a theoretical projection or condition that is based on reaching Department of Local Affairs's projections for employment and population by 2025, see **Chart A-3** through **Chart A-5**. Curves for GRP and personal income were produced by the REMI® model based on the assumptions cited for population and employment. The Baseline Condition for trips used to calculate tourism spending (by alternative) is taken from the Corridor travel demand model predictions (2000 and 2025).

Chart A-3. Baseline Conditions, Population and Employment

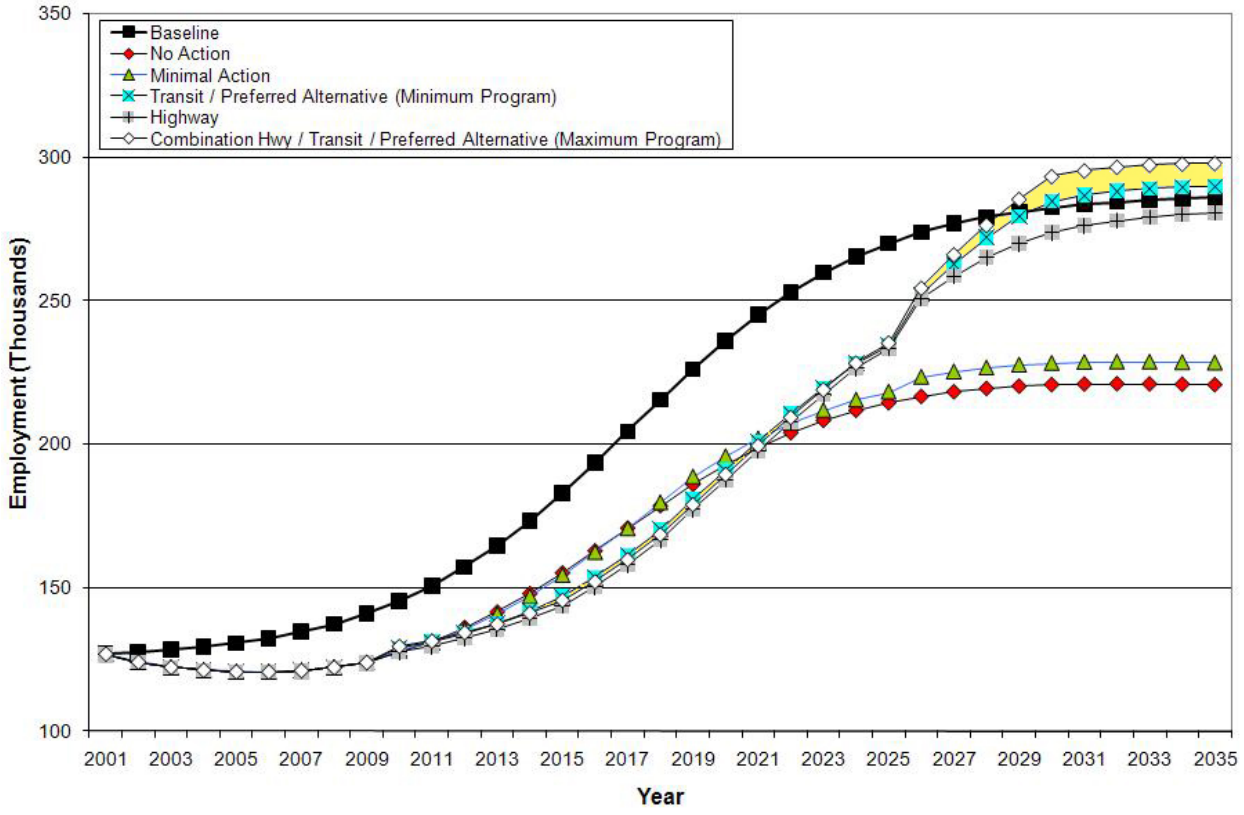
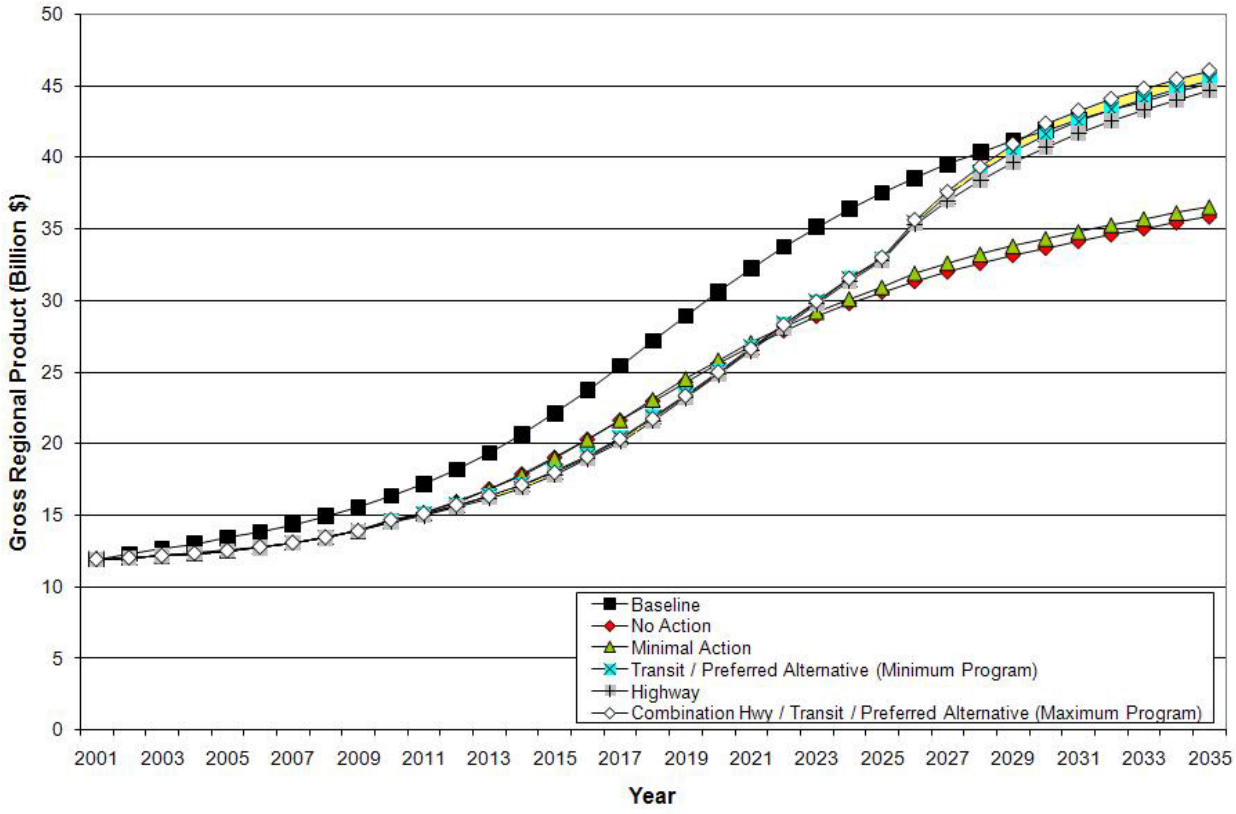


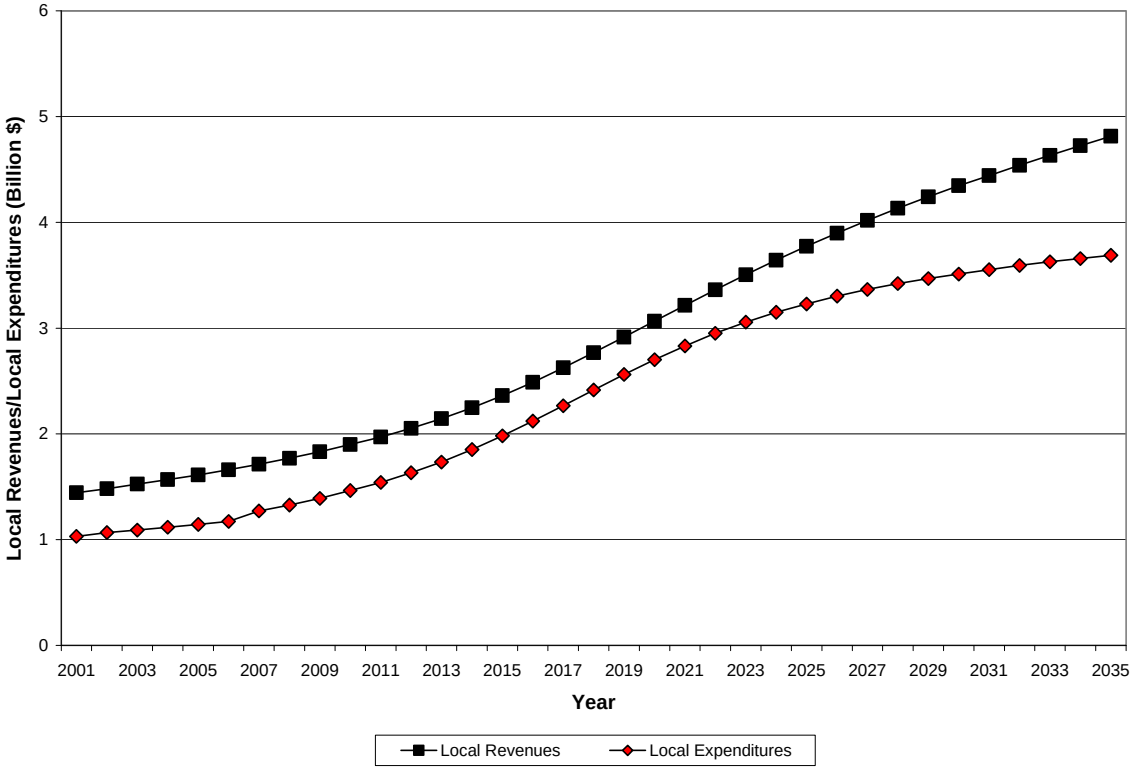
Chart A-4. Baseline Conditions, Gross Regional Product and Personal Income



Local Revenues and Expenditures

By 2025, according to the model, under the Baseline case assumptions the nine-county and local governments will be accruing $3.77 billion per year in local taxes and other sources of revenue, while their expenditures will be running around $2.38 billion per year (see **Chart A-5**).

Chart A-5. Baseline Conditions, Local Revenues and Expenditures



A.6 Sensitivity Analysis

The sensitivity analyses shown in **Chart A-6** through **Chart A-8** indicate that REMI® is relatively insensitive to changes in suppression (tourism spending scenarios with 20 percent to 38 percent suppression), and is much more sensitive to changes in Value of Time (0 percent/ 5 percent/ 10 percent cases tested). Although the transportation studies have shown high-end suppression at 34 percent, REMI® 38 percent runs are deemed acceptable due to the sensitivity findings.

Chart A-6. Sensitivity Test of Value of Time Factors, 38 Percent Suppression No Action Case GRP

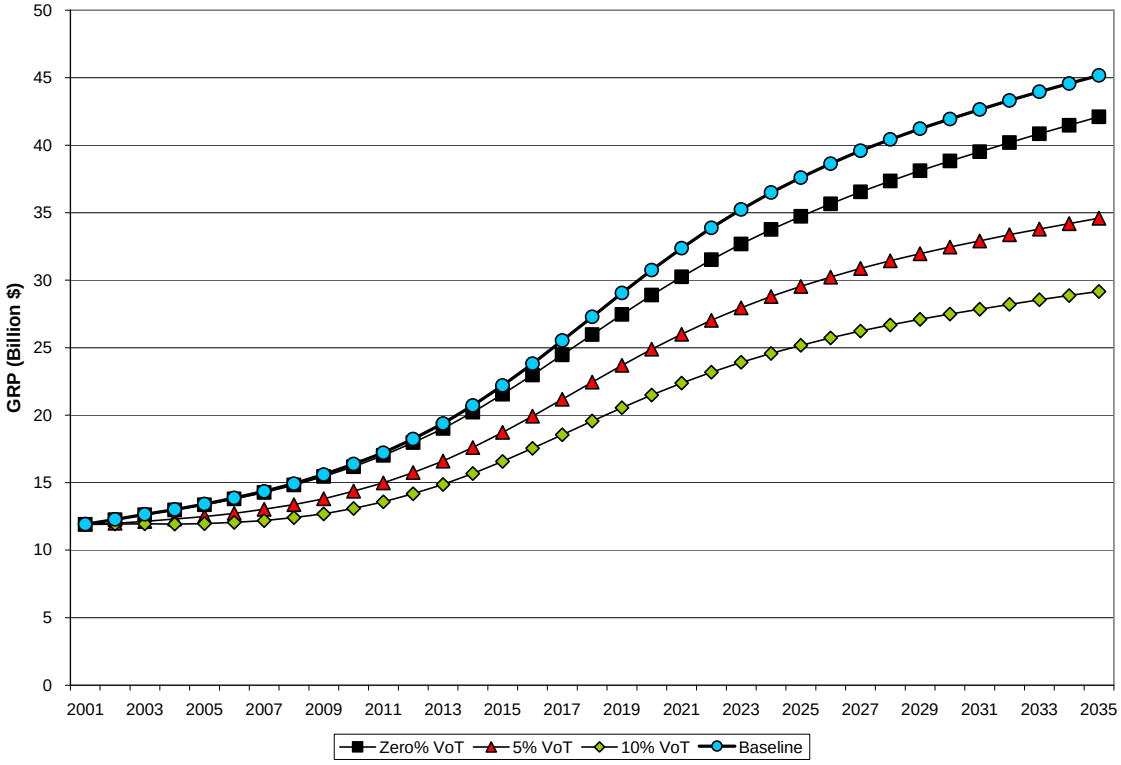


Chart A-7. No Action Impacts on Gross Regional Product

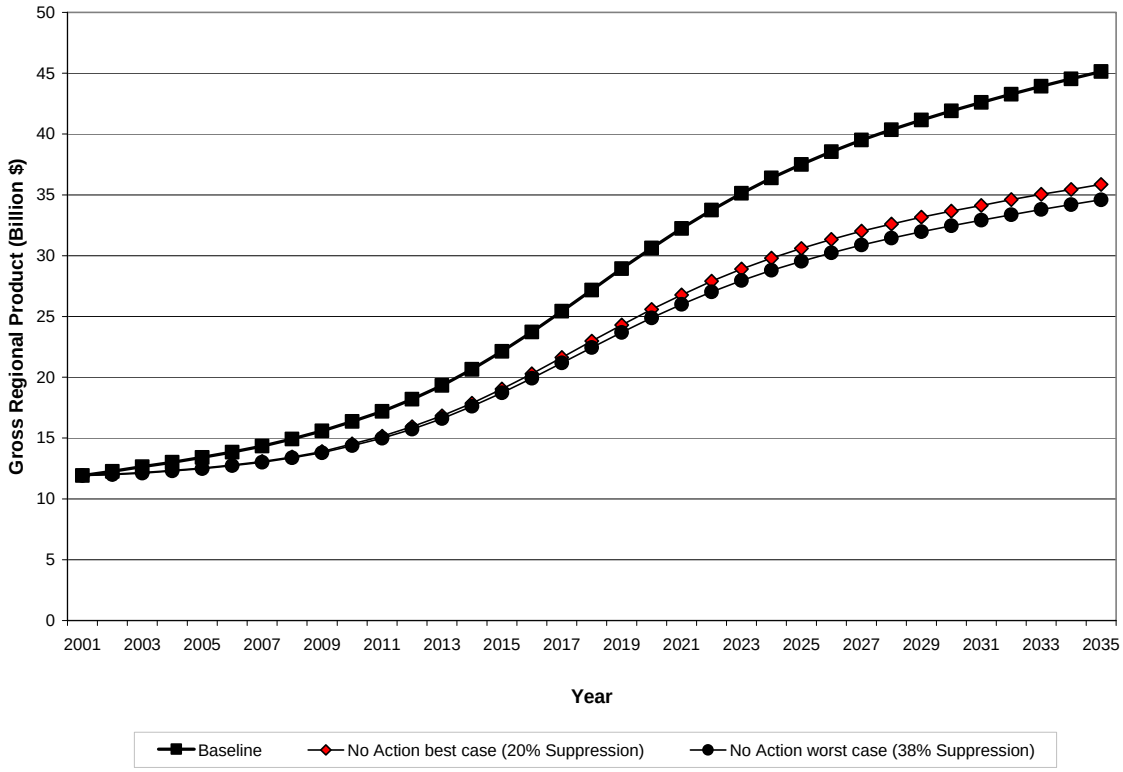
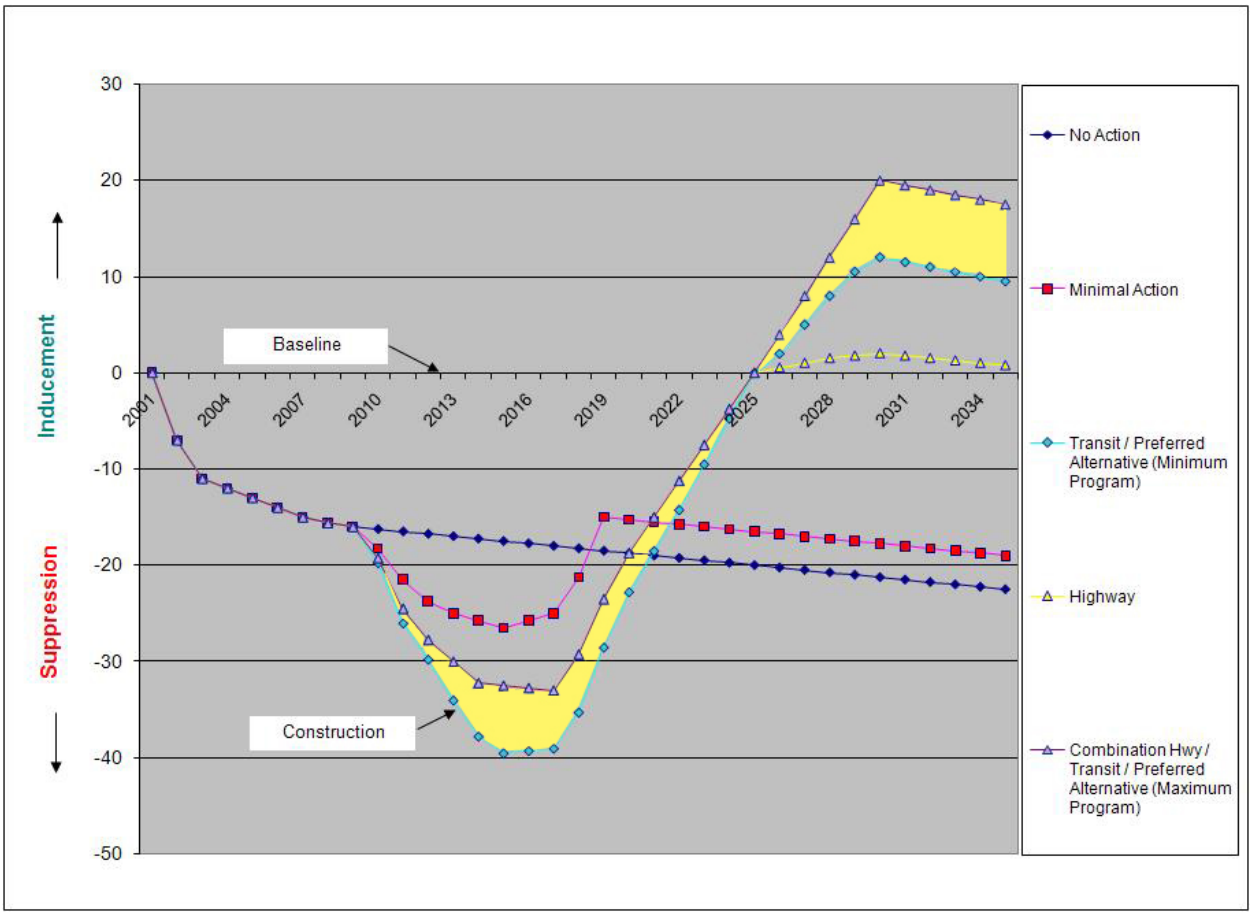


Chart A-8. Sensitivity Test of Value of Time Factors, 20 Percent Suppression No Action Case GRP



A.7 References

Anderson and McCullough. 2000. *The Full Cost of Transportation in the Twin Cities Region.*

RRC Associates. 2003. *Town of Vail Community Survey – 2003 research.* Prepared for Town of Vail. May.

Appendix B. Summary of Social and Economic Conditions by County

B. Summary of Social and Economic Conditions by County

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B. Summary of Social and Economic Conditions by County

The economic descriptions in this appendix use the Department of Local Affairs Base Industry Analysis. The descriptions were prepared early in the study process and are based on data gathered in 2002 (Colorado Department of Local Affairs, 2002).

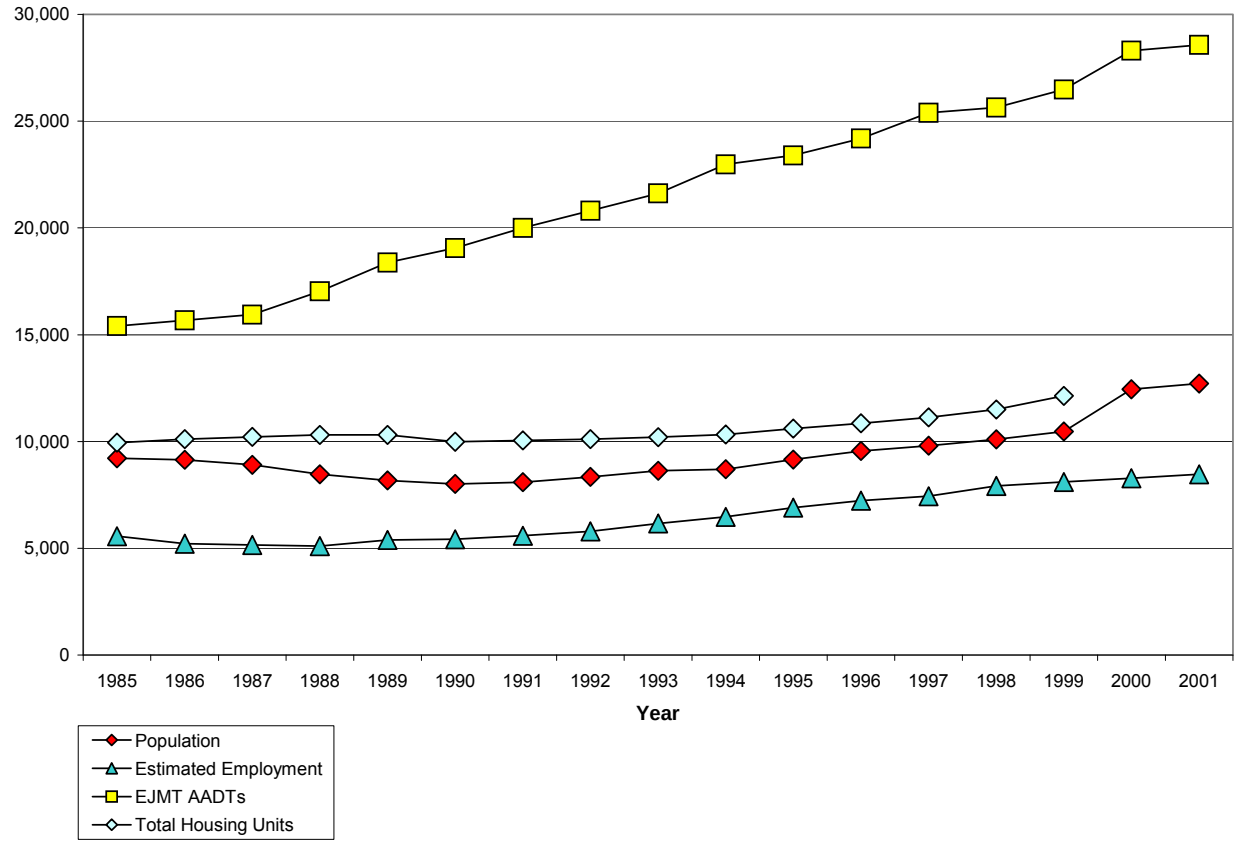
The county-by-county pie charts are intended to serve as general economic illustrations only. Specific values for industry employment and income are available from the Department of Local Affairs. In some cases, the pie charts show negative percentage values to portray certain economic characteristics associated with Corridor issues discussed. The negative percentages reflect actual negative values reported by the Department of Local Affairs. Note that these negative percentage values are included in the overall 100 percent that comprises the pie chart of interest. In other words, the negative percentage values are added positively when evaluating the pie chart total of 100 percent. Also the pieces that contribute less than 1 percent to the total pie are not labeled on pie charts.

B.1 Garfield County Social and Economic Values

B.1.1 Population and Growth

Chart B-1 illustrates growth in population, employment, housing, and I-70 traffic at Glenwood Springs in Garfield County from 1985 to 2001. The county population is forecast to increase to 80,879 by the year 2025. This is an 85 percent increase from the county's 2000 population (43,791 as per the 2000 U.S. Census). Trends from 1990 to 2000 indicate that New Castle and Carbondale had the greatest growth rates and Glenwood Springs had the lowest.

Chart B-1. Garfield County Trends



B. Summary of Social and Economic Conditions by County

Table B-1 shows that second homes represent about 5 percent of total housing units in Garfield County. More than 40 percent of the population currently resides in unincorporated areas.

Table B-1. Garfield County: Resident Households and Second Homes

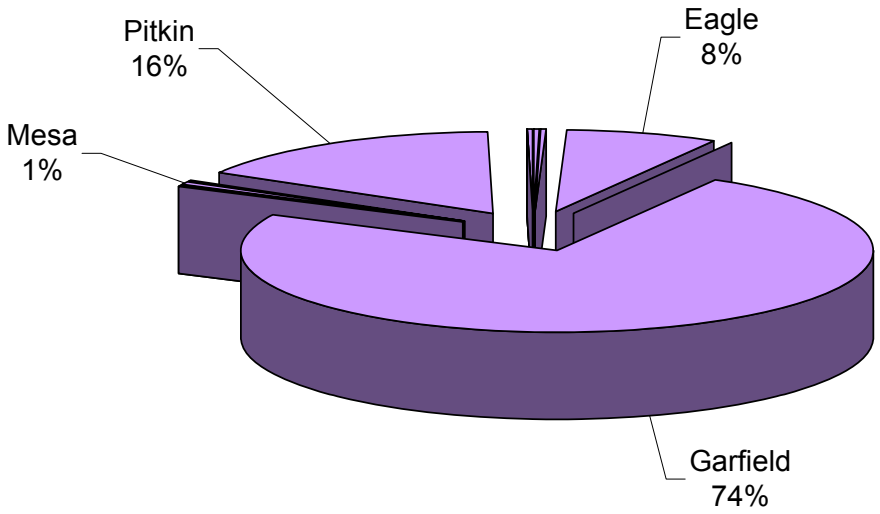
County/Subarea	2000 Population	2000 Resident Households[a]	2000 Second Homes[b]
Garfield County	43,790	16,229	484
Glenwood Springs	7,736	3,216	66
Carbondale	5,195	1,744	21
Rifle	6,784	2,493	5
New Castle	1,984	705	7
Silt	1,740	648	2
Unincorporated areas and balance of county	19,345	7,423	383

Source: Department of Local Affairs, United States Census Bureau, 2000.
Legend:
[a] *Department of Local Affairs occupied.*
[b] *Department of Local Affairs vacant.*

B.1.2 Employment and Commuting

Employment opportunities in Garfield County are projected to increase 61 percent by 2025 (from 25,387 to 40,954). Garfield County's existing resident-employed workforce exceeds the demand for workers, generating a net outflow of commuters to neighboring counties. According to the 2000 Census, 26 percent of resident workers (5,839) work outside the county—primarily supplying labor to adjacent Pitkin and Eagle Counties (see **Chart B-2**) (United States Census Bureau, 2000). More than 5,000 workers (35 percent) travel 30 minutes or more to the workplace (Census Transportation Planning Package [CTTP], 2000). Projections for 2025 result in an employment-to-population ratio of 1:2. Although the county is expected to continue to supply workers to adjacent counties in 2025, an increase in the percent of out-of-county workers is not indicated by these projections. However, because of the anticipated increase in employment/population ratios of Pitkin and Eagle counties (based on Department of Local Affairs 2025 projections), pressure for increased commuters from Garfield County is indicated.

Chart B-2. Garfield County Workplace Destinations by County



B.1.3 Economics and Tourism

Total 2001 income from all industries in the county was $840 million (27,728 jobs) and total personal income was $1.3 billion. Of this, tourism accounts for 11 percent of industry income and 13 percent of resident jobs (see **Chart B-3** and **Chart B-4**). Most of these tourism jobs are based in "outdoor recreation" (Center for Business and Economic Forecasting [CBEF], April 2001). However, local and resident services supply the highest amount of jobs and income (26 percent) — an indication that Garfield County is not as highly dependent on tourism as are other Corridor counties. A substantial portion of income/jobs (18 percent/14 percent) is also based in regional center/national services. Commuter households (residents who work in other counties) bring in 3 percent of the county's income and jobs.

Chart B-3. Garfield County Sources of Income

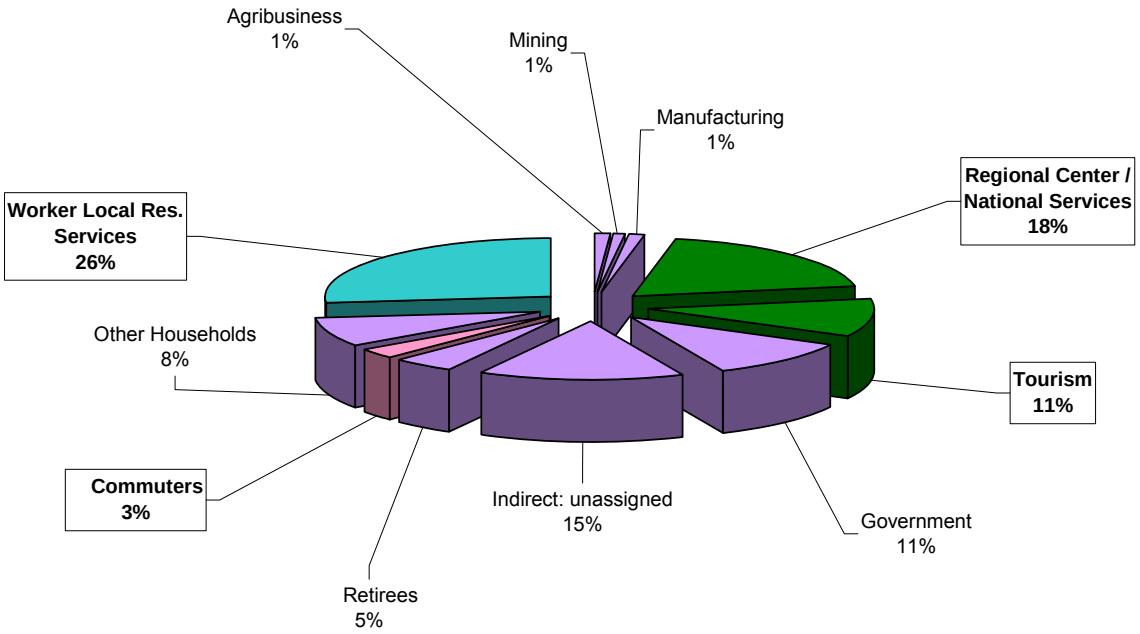
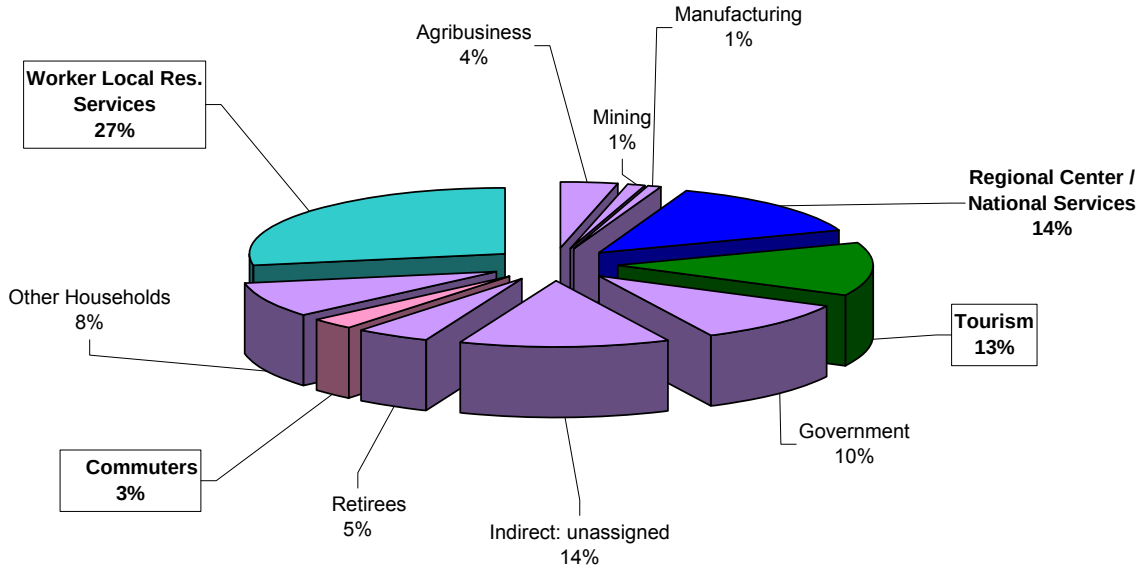


Chart B-4. Garfield County Jobs by Industry



Source: Department of Local Affairs, Demography Section.
Note: Local refers to activities that serve and sustain the people who reside in the county (for example, grocery stores, movie theaters, post offices).

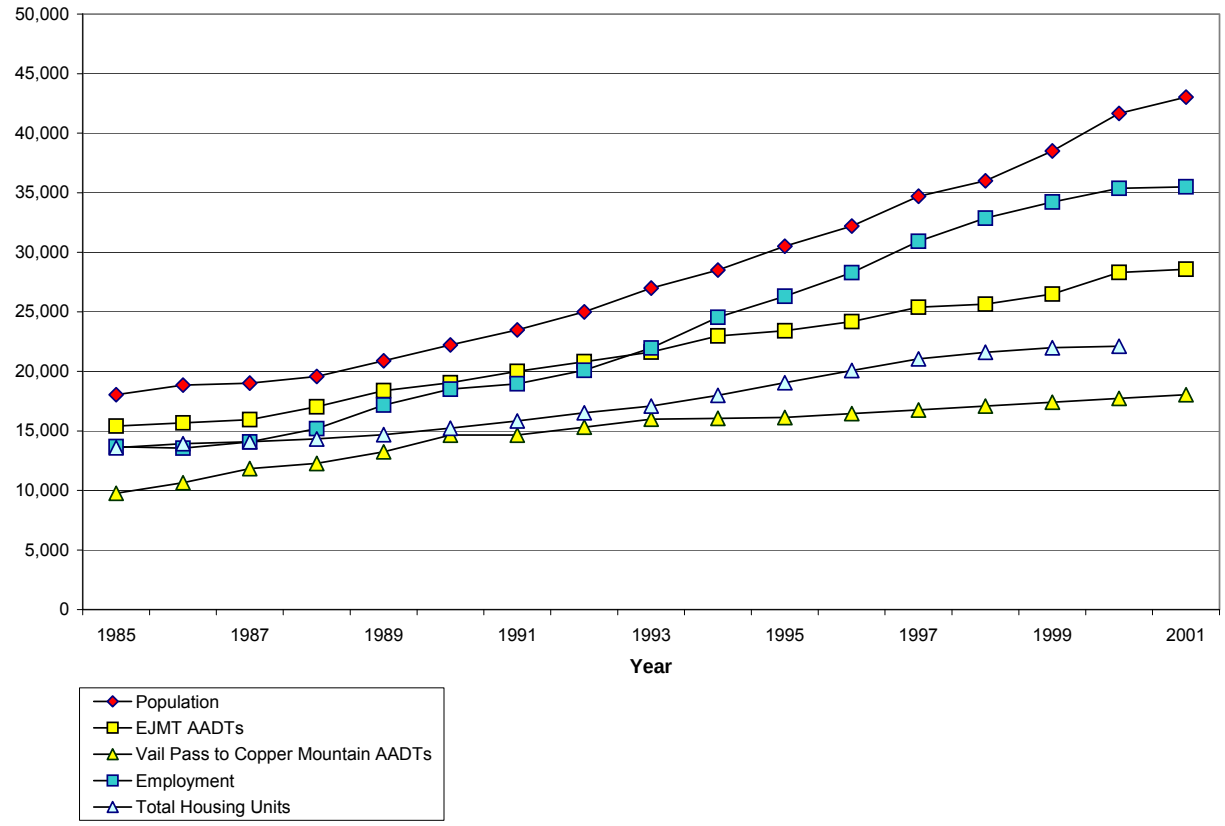
The median sales price for a single-family home in Garfield County is $370,000 ($275,000 for a condominium or townhouse), and the average median income for a three-person family is $47,600 (Colorado Division of Housing, August 2002).

B.2 Eagle County Social and Economic Values

B.2.1 Population and Growth

Chart B-5 shows recent trends in Eagle County population, employment, housing units, and I-70 traffic. The Eagle County population is projected to increase to 76,081 by the year 2025, an increase of 81 percent from the 2000 population.

Chart B-5. Eagle County Trends



Eagle County expects to reach the Department of Local Affairs projected population of 76,081 in 2025; however, there may be some capacity for further growth (based on available dwelling units). **Table B-2** summarizes Eagle County's recent "dwelling unit analysis." According to the study, 64.4 percent of the county's available housing units have been built, and incorporated areas have been built to 72 percent of their capacity (about 5,000 units are still available). Vail and Minturn are more than 90 percent of total capacity, and Red Cliff and Gypsum are more than 80 percent of total capacity. Unincorporated areas are at 56.7 percent of total capacity with more than 7,000 units still available.

Table B-2. Dwelling Unit Analysis (Eagle County 2002)

Location	Estimated Housing Units Built	Total Housing Units Allowed[a]	Percent Built (Units Built/Units Allowed)
Eagle County	23,085	35,842	64.4%
Highway 24 area	11	125	8.8%
Minturn area	10	27	37.0%

Location	Estimated Housing Units Built	Total Housing Units Allowed[a]	Percent Built (Units Built/Units Allowed)
Red Cliff area	2	190	1.1%
Avon/Eagle-Vail area	2,951	2,966	99.5%
Northeast county and Piney Creek area	19	376	5.1%
Edwards area	4,324	6,118	70.7%
Wolcott area	96	525	18.3%
Highway 131 area	76	999	7.6%
Central county area	18	793	2.3%
Eagle area	519	1,139	45.6%
Gypsum/airport area	106	328	32.3%
Colorado River Road area	95	758	12.5%
Dotsero area	123	599	20.5%
Cottonwood Pass area	14	505	2.8%
El Jebel area	1,523	1,911	79.7%
Fryingpan area	200	426	46.9%
Total unincorporated	**10,087**	**17,785**	**56.7%**
Town of Vail	6,381	6,601	96.7%
Town of Minturn	462	494	93.5%
Town of Red Cliff	143	176	81.3%
Town of Avon	2,761	6,470	42.7%
Town of Eagle	1,029	1,397	73.7%
Town of Gypsum	1,370	1,650	83.0%
Town of Basalt	852	1,269	67.1%
Total incorporated towns	**12,998**	**18,057**	**72.0%**

Legend:

[a] *Total units allowed by right: all units built or that could be built by simply obtaining a building permit from community development. No further subdivision or planning approvals would be necessary to construct these units.*

Based on housing vacancy rates, second homes represent about 31 percent of all housing units in the county (Census, 2000). However, recent data collected by the Northwest Colorado Council of Governments (NWCCOG) (August 2003) indicates the county had a 48.8 percent rate of nonlocal ownership in 2000 (see **Table B-3**). Vail has the highest rate of nonlocal ownership at 67 percent, while Gypsum has the lowest at 6 percent.

Table B-3. Eagle County — Second Homes/Nonlocal Ownership

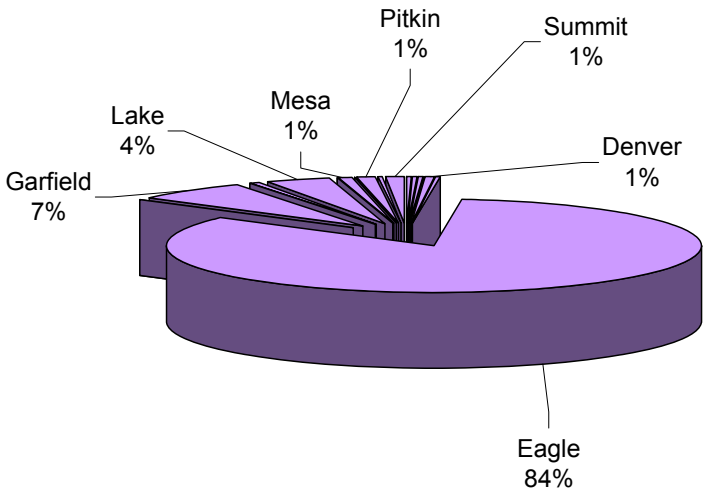
Jurisdiction	Census 2000		Second Home/Nonlocal Ownership (NLO)			
	Seasonal # Units	Seasonal Percent	Parcels Total	Owners Total	NLO Total	NLO Percent
Eagle County	5,932	26.8%	9,244	20,815	10,155	48.8%
Town of Avon	523	20.5%	375	2,106	726	34.5%
Town of Basalt	83	6.8%	878	1,112	356	32.0%
Town of Eagle	9	0.8%	635	794	76	9.6%
Town of Gypsum	11	0.9%	1,013	1,152	76	6.6%
Town of Minturn	32	7.1%	284	370	65	17.6%
Town of Red Cliff	3	2.5%	113	115	16	13.9%
Town of Vail	2,888	53.6%	1,505	6,472	4,346	67.2%
Unincorporated	2,383	23.7%	4,441	8,694	4,494	51.7%

Source: NWCCOG, August 2003.

B.2.2 Employment and Commuting

Employment opportunities in Eagle County are forecast to increase by 200 percent in 2025 (from 33,276 to 100,531) — twice the rate of population growth. With this significant increase in Eagle County jobs over the planning horizon, the 2025 employment-to-population ratio will be over 1:1 and the county will not be capable of providing a sufficient number of resident workers. The county is currently a net importer of workers (see **Chart B-6**), and an increase in commuters (from other counties) is highly likely. The Vail area is expected to continue to provide the primary source of in-county employment.

Chart B-6. Eagle County Workers by County of Residence



In Eagle County, 15 percent of residents worked outside the county (about 3,500) in 2000 (Census). The primary destination for outflow commuters is Pitkin County; 40 percent of commuters (6,000 workers) had trips less than 20 minutes, and 22 percent had trips greater than 30 minutes (CTPP, 2000).

B.2.3 Economics and Tourism

Eagle County generated a total industry income of $1.3 billion (25,494 jobs) and a personal income of $1.6 billion in 2001. Of this, about 45 percent of all industry jobs and income in Eagle County are based in tourism (see **Chart B-7** and **Chart B-8**). About 44 percent of tourism jobs are in the ski industry, followed by 16 percent in the resort industry and 9 percent in outdoor recreation (CBEF, April 2001). Second home construction also contributes to tourism-related jobs and income in the county. Most of the remaining economic activity involves local resident services and regional center/national services.

The median sales price for a single-family home in Eagle County is $512,500 ($235,294 for a condominium or townhouse), and the area median income for a three-person family is $67,400 (Colorado Division of Housing, August 2002).

Chart B-7. Eagle County Sources of Income

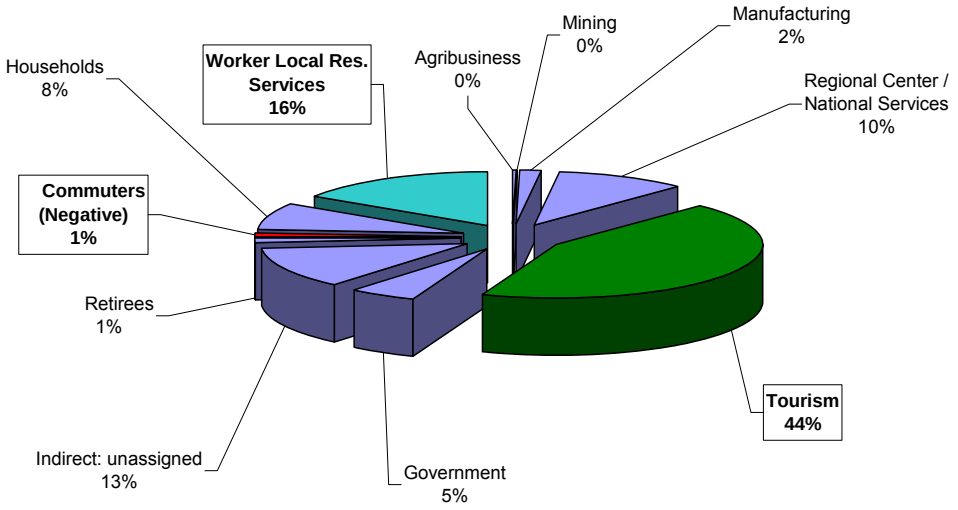
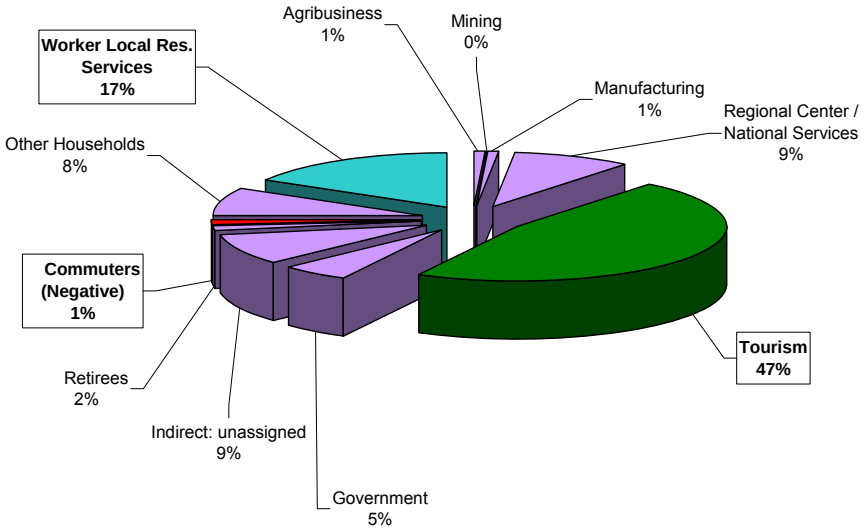


Chart B-8. Eagle County Jobs by Industry



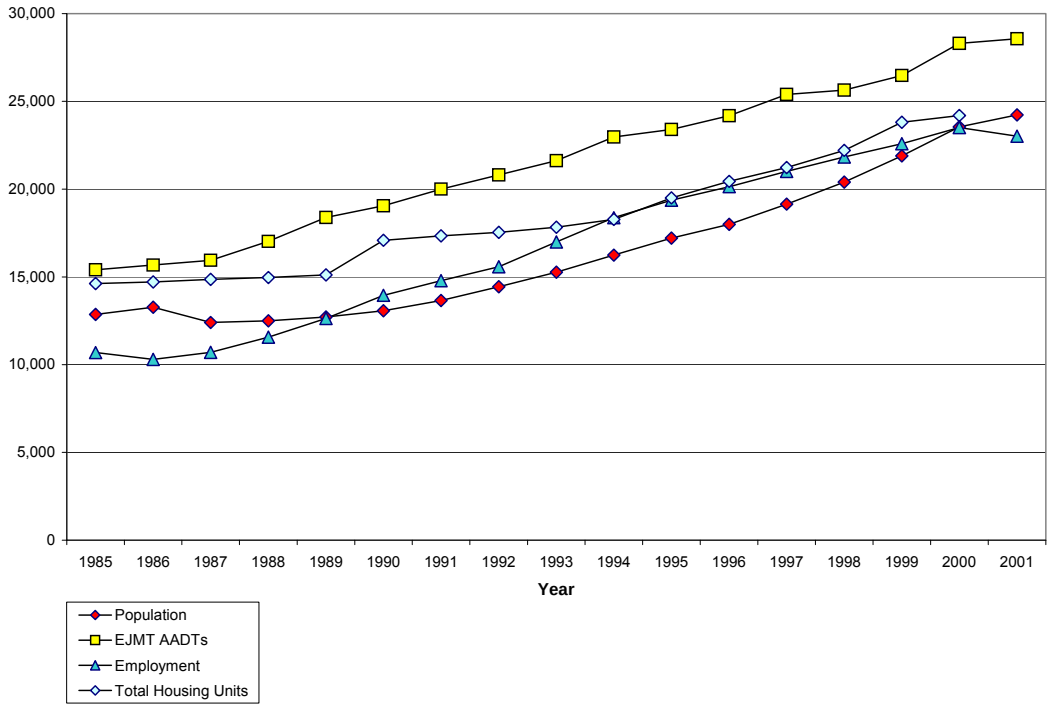
Source: Department of Local Affairs, Demography Section.
Note: Local refers to activities that serve and sustain the people who reside in the county (for example grocery stores, movie theaters, post offices).

B.3 Summit County Social and Economic Values

B.3.1 Population and Growth

Chart B-9 illustrates trends in population, employment, housing units, and I-70 traffic from 1985 to 2001 in Summit County. The county population is predicted to reach 42,561 by 2025 (Department of Local Affairs), a 78 percent increase from 2000. The Summit County *Countywide Comprehensive Plan* (2003) studies indicate that Summit County will be approaching a population of 45,000 by 2025.

Chart B-9. Summit County Trends



The county was at 69.6 percent of buildout in 2002 (see **Table B-4**). Frisco, Silverthorne, and Blue River are more than 70 percent of total capacity, and unincorporated areas are all above 50 percent of total capacity. The senior population has been experiencing an extremely strong growth trend, and the retirement/second home growth trend is expected to continue. Peak county populations (including tourists and second home persons) were estimated at 138,278 in 2000 and are expected to grow to 180,607 by 2010.

Table B-4. Summit County: Housing Unit Growth and Capacity

County/Subarea	Built Housing Units	Total Housing Units Allowed	Percent Built (Units Built/Units Allowed)
Summit County	27,277	40,303	69.6%
Incorporated Areas			
Breckenridge	5,156	8,079	63.8%
Blue River	593	841	70.5%
Dillon	N/A	N/A	N/A
Frisco	2,594	2,888	89.8%

County/Subarea	Built Housing Units	Total Housing Units Allowed	Percent Built (Units Built/Units Allowed)
Montezuma	37	74	50.0%
Silverthorne	4,528	6,067	74.6%
Unincorporated Areas			
Lower Blue Basin	3,419	4,987	68.6%
Snake River Basin	7,496	10,450	71.7%
Tenmile Basin	1,769	2,614	67.7%
Upper Blue Basin	3,345	5,851	57.0%

Source: Summit County 2003.
Legend:
N/A = Not available.

According to the Department of Local Affairs housing vacancy rate, second homes represent 64 percent of county housing units, and the 2003 NWCCOG *Second Home Study* indicates that 67 percent of Summit County homes are owned non-locally (see **Table B-5**). The highest area of nonlocal ownership is Dillon (79 percent), and the lowest area of nonlocal ownership is Silverthorne (40 percent).

Table B-5. Summit County — Second Homes/Nonlocal Ownership

Jurisdiction	Census 2000		Second Home/Nonlocal Ownership (NLO)			
	Seasonal # Units	Seasonal Percent	Parcels Total	Owners Total	NLO Total	NLO Percent
Summit County	13,235	54.7%	12,402	23,535	15,736	66.9%
Town of Blue River	275	48.8%	563	584	328	56.2%
Town of Breckenridge	2,906	68.1%	1,602	4,485	3,370	75.1%
Town of Dillon	852	66.6%	293	1,008	795	78.9%
Town of Frisco	1,485	54.5%	1,278	2,314	1,620	70.0%
Town of Montezuma	13	37.1%	32	32	24	75.0%
Town of Silverthorne	369	23.3%	344	489	197	40.3%
Unincorporated	7,335	53.4%	8,290	14,623	9,402	64.3%

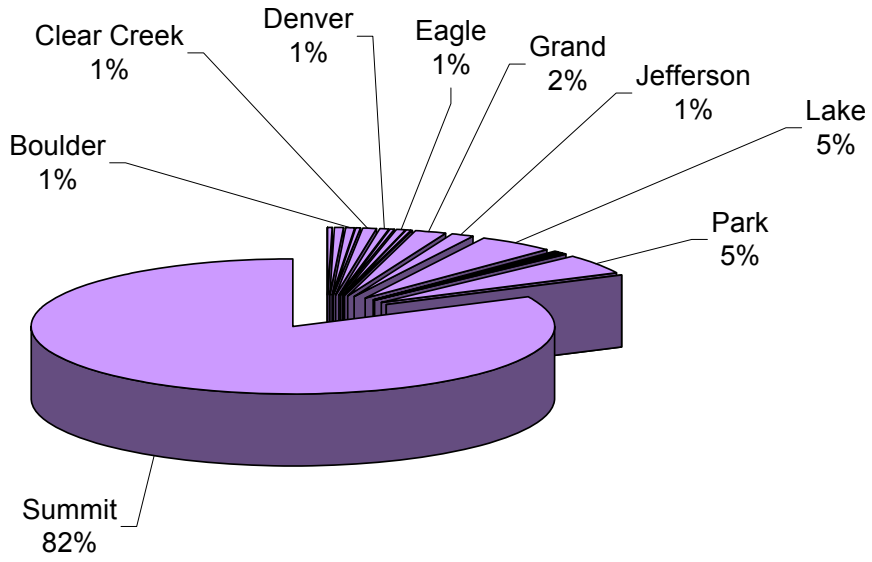
Source: NWCCOG preliminary data.

B.3.2 Employment and Commuting

Employment opportunities in Summit County are forecast to increase by 133 percent over the planning horizon (from 23,242 to 54,257) and will continue to outpace population growth. Factors fueling job growth have been the construction of second homes, real estate sales, and the strengthening of industries that support new home development. Future projections show this trend continuing, making it necessary for larger numbers of workers to commute into the county. In addition, labor force participation rates are expected to decline as baby boomers start to leave the workforce. If anticipated job growth occurs while Summit County population and housing approach capacity, a substantial increase in inflow commuter

traffic can be expected. Summit County imports a substantial number of workers from Lake and Park counties (see **Chart B-10**).

Chart B-10. Summit County Workers by County of Residence



Only 5 percent (790 workers) of county resident workers work outside the county (2000 Census), and only 10 percent (about 700 workers) travel more than 30 minutes to work (CTPP 2000).

B.3.3 Economics and Tourism

Summit County generated a total industry income of $694 million (23,018 jobs) and personal income of $891 million in 2001. Of this, about 50 percent of all industry income/jobs in Summit County are based in tourism (see **Chart B-11** and **Chart B-12**), and the ski industry accounts for 57 percent of these tourism jobs (CBEF, April 2001). Second home construction and real estate contribute 34 percent/19 percent to tourism employment/income. Most of the remaining economic activity involves local resident services and household income.

Although the ski industry has dominated the county's economy in the past, more recent trends suggest the county is shifting to a year-round economy driven by the construction industry and real estate sales (Summit County 2003). Skier visits between 1990 and 2001 ranged from 2.8 million to 3.8 million, and skier visits have been increasing by only modest yearly rates.

The median sales price for a single-family home in Summit County is $322,727 ($193,750 for a condominium or townhouse), and the area median income for a three-person family is $65,400 (Colorado Division of Housing, August 2002).

Chart B-11. Summit County Sources of Income

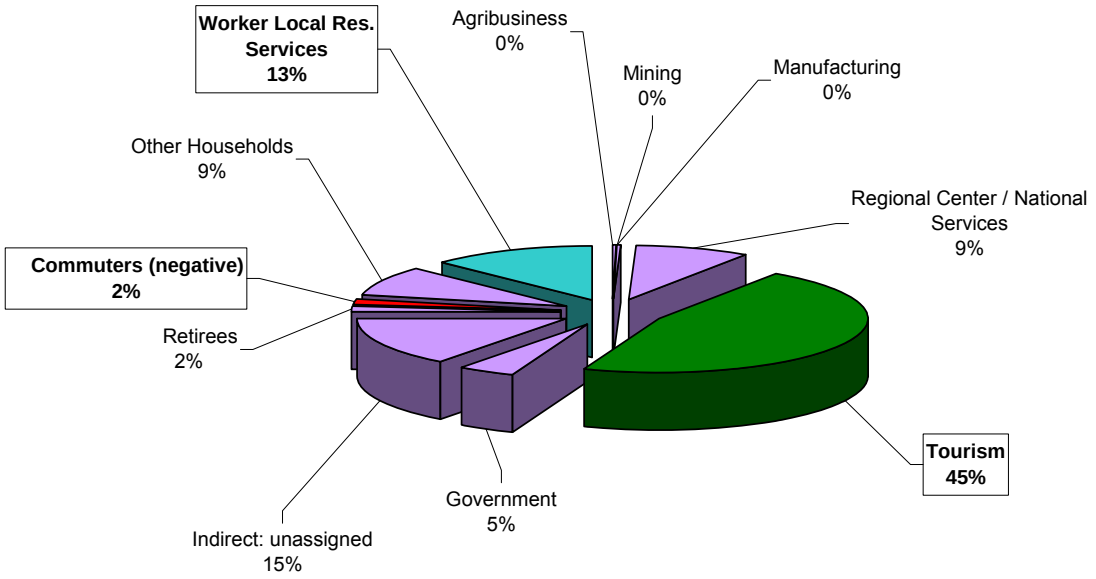
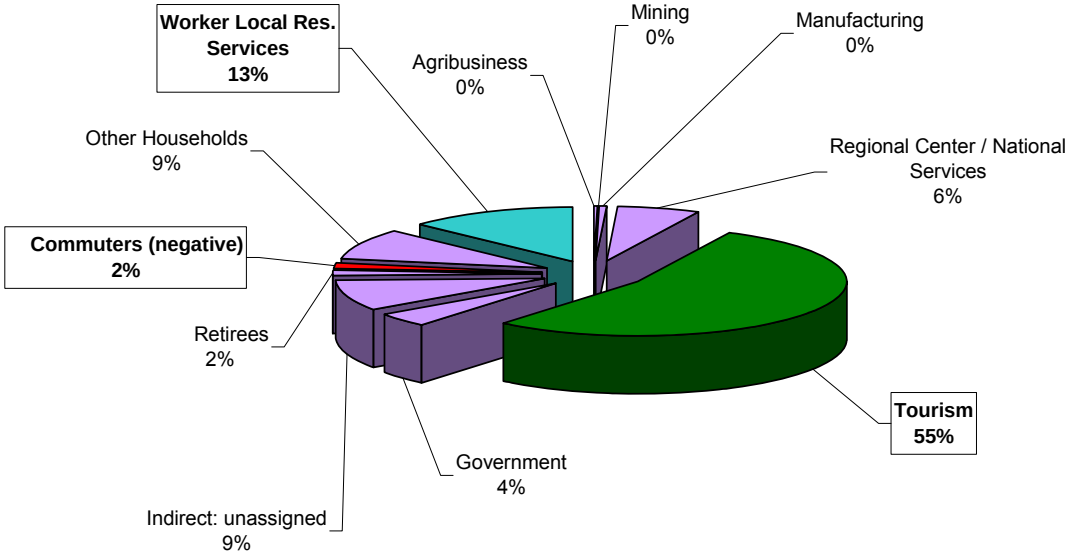


Chart B-12. Summit County Jobs by Industry



Source: Department of Local Affairs, Demography Section.
Note: Local refers to activities that serve and sustain the people who reside in the county (for example, grocery stores, movie theaters, post offices).

B.4 Clear Creek County Social and Economic Values

B.4.1 Population and Growth

Chart B-13 illustrates growth in population, employment, housing, and I-70 traffic from 1985 to 2001 in Clear Creek County. The county population is forecast to increase to 17,060 by the year 2025. This is an 82 percent increase from the county's population in 2000 (9,355 per the 2000 U.S. Census).

Chart B-13. Clear Creek County Growth Trends

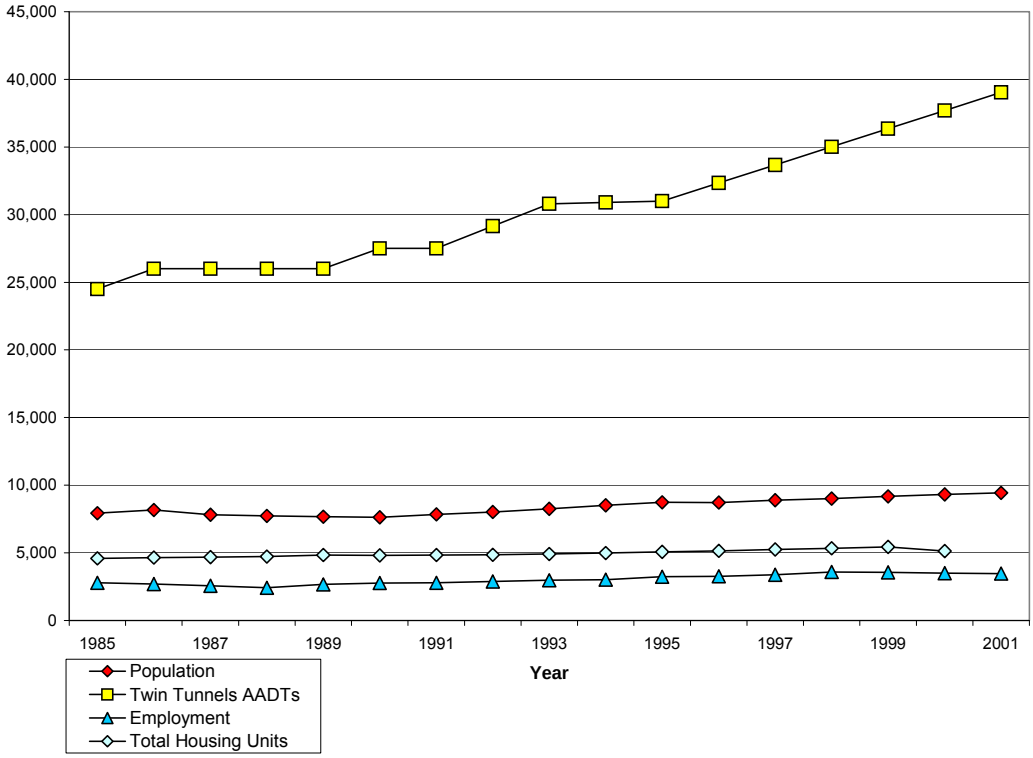


Table B-6 shows 2000/2001 residential housing versus second homes. With most of the communities in Clear Creek County possessing only limited capacity for additional population and housing growth (as buildout approaches), about two-thirds of the county's overall population and housing growth is forecast to occur in unincorporated areas. These areas generally consist of residential housing parcels (low-density development). Second homes make up about 22 percent of county housing.

Table B-6. Clear Creek County: Resident Households and Second Homes

County/Subarea	2000 Resident Households	2000 Second Homes	2001 Resident Households	2001 Second Homes
Clear Creek County	4,019	919	484	1,124
Idaho Springs	841	15	842	62
Georgetown	503	144	507	167
Empire	163	9	185	22
Silver Plume	93	32	94	41
Unincorporated areas and balance of county	2,419	219	2,462	832

Source: Department of Local Affairs,2002 and United States Census Bureau, 2000.
Legend:
Resident = Occupied. *Second Homes = Vacant.*

B.4.2 Employment and Commuting

Employment opportunities in Clear Creek County are projected to increase by 58 percent over the planning horizon (from 3,509 to 5,529), while population is projected to increase by 83 percent (from 9,322 to 17,060) over the same period. As a result, the county's 2025 employment-to-population ratio will drop to 0.32 by 2025 (refer to **Table B-7**), and Clear Creek County will continue to function as a source for outflow commuters. Georgetown is forecast to have the greatest ratio of employment to population by 2010. Workers residing in Empire, Silver Plume, and unincorporated areas of Clear Creek County must primarily seek employment in other areas of the county and outside the county. Idaho Springs is also projected to have a net outflow of workers.

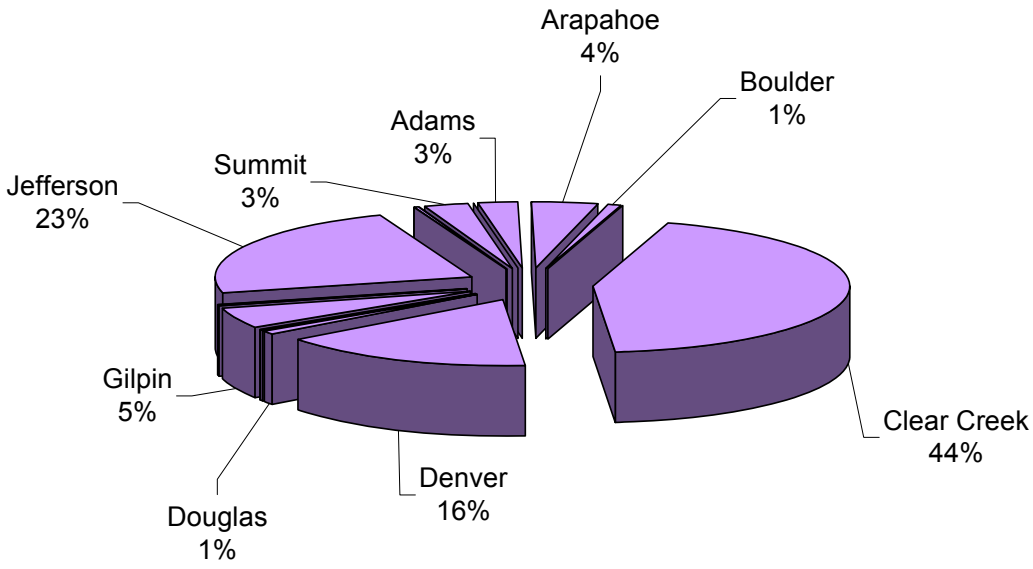
Table B-7. Clear Creek County: Forecasted PEIS 2025 Employment-to-Population Ratios

County/Subarea	2025 Employment Forecast (PEIS Baseline)	2025 Population Forecast (PEIS Baseline)	2025 Employment to Population Ratio (PEIS Baseline)
Clear Creek County	5,529	17,060	0.32
Idaho Springs	900[a]	3,511[a]	0.51[a]
Georgetown	1,823[a]	1,780[a]	1.02[a]
Empire	79[b]	700[b]	0.11[b]
Silver Plume	—	—	—
Unincorporated areas and balance of county	—	—	—

Source: Department of Local Affairs, 2002
Legend:
[a] = 2010, Comprehensive Plan 2001.
[b] = 2015, Comprehensive Plan 2000.

Fifty-six percent (more than 3,000 workers) of county resident workers commute outside the county — primarily to Front Range destinations (see **Chart B-14**). More than 50 percent of commuters travel more than 30 minutes to get to work, and about 32 percent of these workers travel more than 45 minutes to the workplace (CTPP, 2000).

Chart B-14. Clear Creek County Worker Destinations



B.4.3 Economics and Tourism

Clear Creek County generated a total industry income of $191 million (3,473 jobs) and personal income of $353 million in 2001. Of this, tourism accounts for 12 percent of income and 20 percent of jobs (see **Chart B-15** and **Chart B-16**). Commuter households bring in the most significant economic activity (from other counties), representing about 30 percent of all county jobs and income. Mining is also a significant contributor to the county economy, with 20 percent of the total industry income.

The median sales price for a single-family home in Clear Creek County is not available (the benchmark home value for a 1,300 square-foot home is $235,962), and the area median income for a three-person family is $55,200 (Colorado Division of Housing 2002).

Chart B-15. Clear Creek County Sources of Income

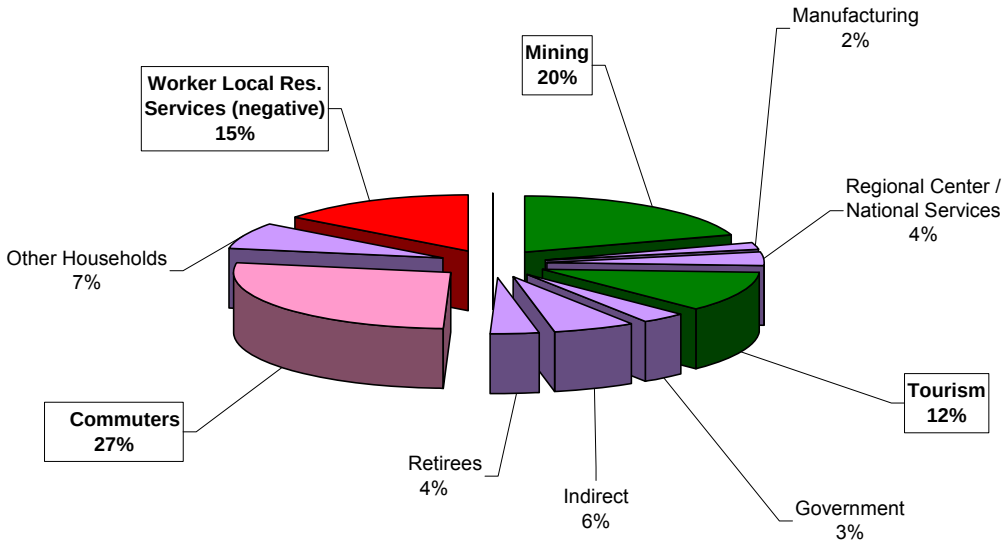
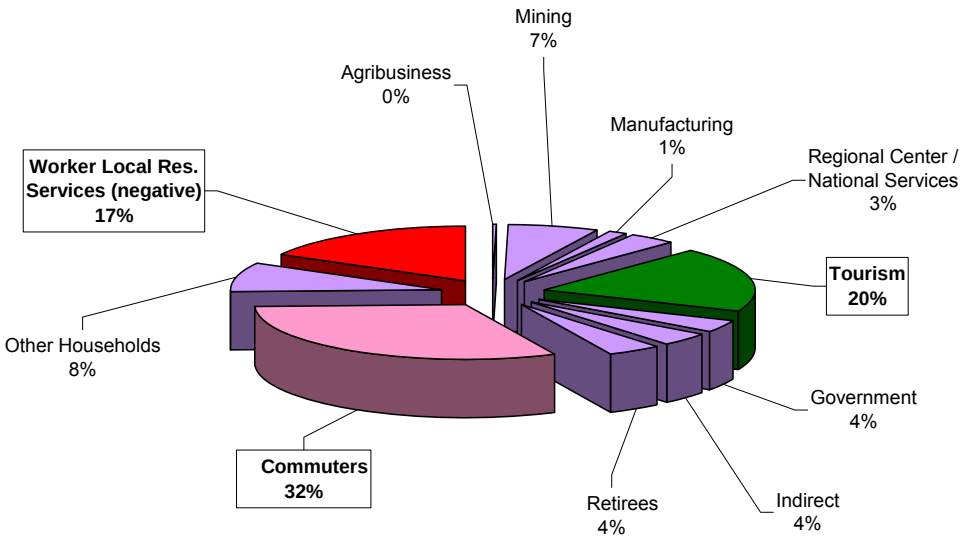


Chart B-16. Clear Creek County Jobs by Industry



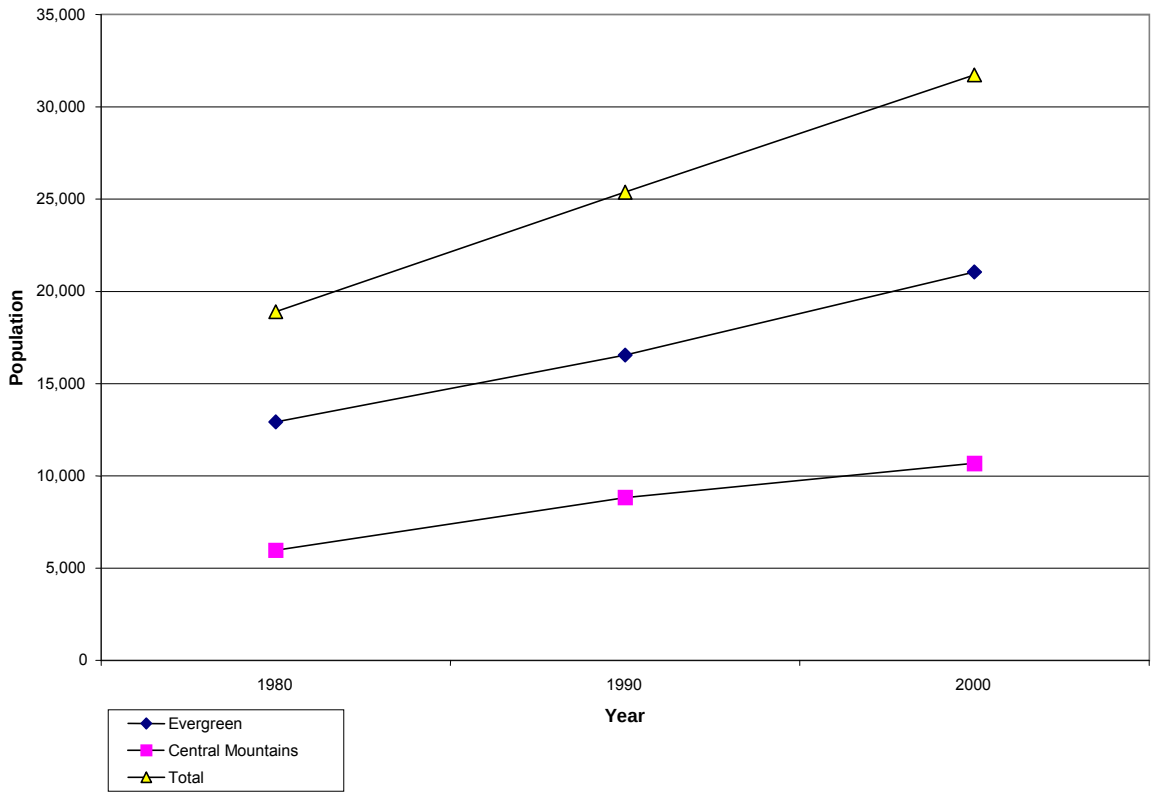
Source: Department of Local Affairs, Demography Section.
Note: Local refers to activities that serve and sustain the people who reside in the county (for example, grocery stores, movie theaters, post offices).

B.5 Jefferson County Corridor Area Social and Economic Values

B.5.1 Population and Growth

The Corridor traverses two Jefferson County planning areas — the Central Mountains and Evergreen areas. These planning areas, which are located outside the Denver metropolitan area, represent the Jefferson County Corridor area. **Chart B-17** shows generalized population trends for the planning areas from 1980 to 2000.

Chart B-17. Jefferson County Corridor Area — Population Trends



The Jefferson County Corridor Area population is forecast to increase to 53,828 by the year 2025 (see **Table B-8**). This is a 70 percent increase from the area's 2000 population of 31,733. **Table B-8** also shows a similar percentage increase in housing units. The projected growth rate in the Jefferson County Corridor Area is low relative to most other counties in the Corridor. This trend is primarily due to the limited developable land in this area (unbuildable terrain and public lands). Also, the number of existing and forecast second homes in this area is negligible relative to that of other counties in the Corridor.

Table B-8. Jefferson County Corridor Area — Population and Housing

Planning Area	Population		Housing Units	
	2000	2025	2000	2025
Central Mountains	10,685	16,148	4,798	7,251
Evergreen	21,048	37,680	9,205	16,479
Total	**31,733**	**53,828**	**14,007**	**23,760**

B.5.2 Employment and Commuting

Employment opportunities in the Jefferson County Corridor Area are projected to increase 70 percent by 2025 (from 19,357 to 32,835). The relatively low job growth and the population/housing growth will yield a 2025 employment-to-population ratio of 0.6 in the Jefferson County Corridor Area (employment forecast is shown in **Table B-9**). As a result, this area will continue to function as a source of outflow commuters (destinations are predominantly to the Denver metropolitan area).

Table B-9. Jefferson County Corridor Area — Employment

Planning Area	Employment	
	2000	2025
Central Mountains	6,518	9,851
Evergreen	12,839	22,985
Total	**19,357**	**32,835**

B.5.3 Economics and Tourism

Chart B-18 and **Chart B-19** illustrate employment and sources of income in the Denver metropolitan area (which includes Jefferson County). Department of Local Affairs does not break down the basic industry analysis by county in the Denver metropolitan area. Economic activity for this area contrasts dramatically with the industry breakdowns for the Corridor counties. Local resident services (nonbasic economy) generate 39 percent of income and 45 percent of jobs in the metropolitan area, and tourism generates only 3 percent of total economic activity. Professional business services generate about 10 percent of industry activity, and remaining industries are balanced with the remaining economic activity for the metropolitan area.

The median sales price for a single-family home in Jefferson County is $243,000 (condominium or townhouse is $155,000), and the area median income for a three-person family is $62,900 (Colorado Division of Housing 2002).

Chart B-18. Denver Metropolitan Area Sources of Income

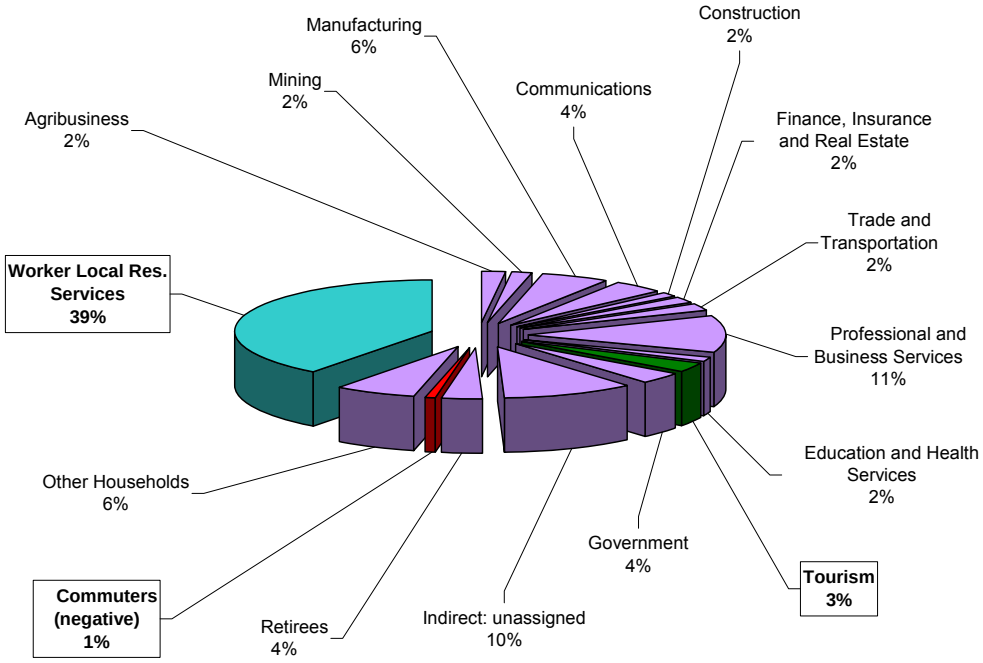
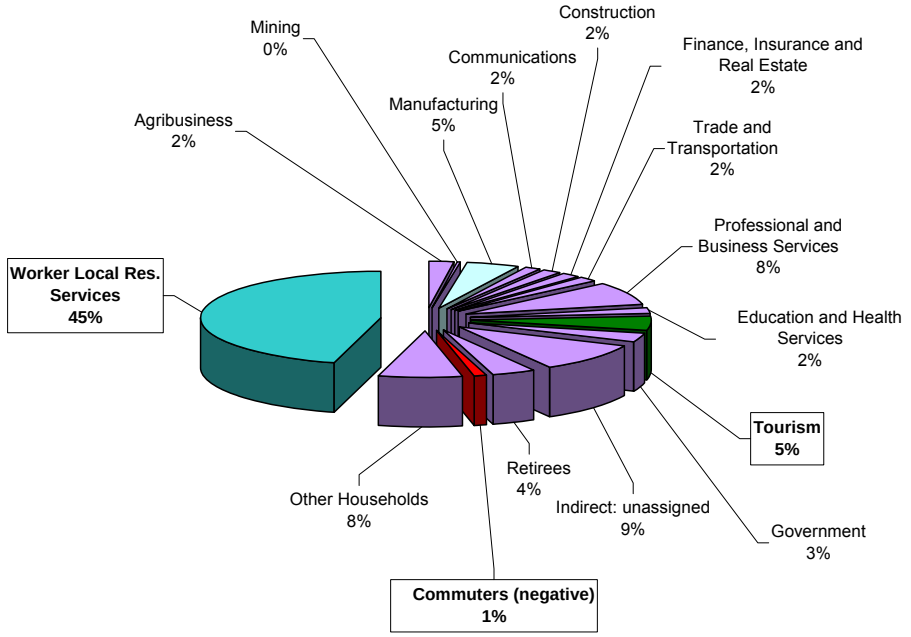


Chart B-19. Denver Metropolitan Area Jobs by Industry



Source: Department of Local Affairs, Demography Section.
Note: Local refers to activities that serve and sustain the people who reside in the county (for example grocery stores, movie theaters, post offices).

B.6 Lake County (Adjacent to the Corridor) Social and Economic Values

B.6.1 Population and Growth

Chart B-20 illustrates growth in population, employment, housing, and I-70 traffic from 1985 to 2001 for Lake County. The county population is forecast to increase to 18,458 by the year 2025, a 136 percent increase from the 2000 population (7,825 as per the 2000 U.S. Census). Leadville is the only incorporated community in the county and accounts for about 70 percent of the population.

Chart B-20. Lake County Trends

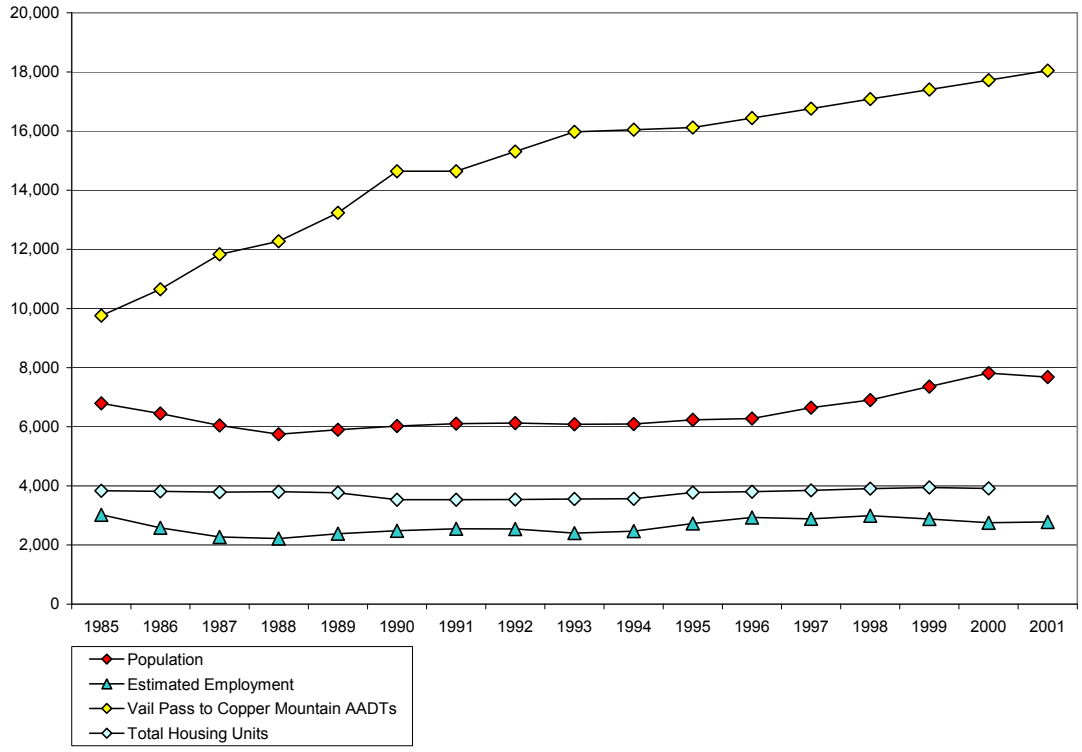


Table B-10 shows the 2000/2001 residential households and second homes. The Lake County ratio of resident households to second homes is expected to increase from 5:1 over the planning horizon. Both Leadville and the unincorporated areas of Lake County are expected to absorb most of this growth, in similar proportions (on a percent increase basis).

Table B-10. Lake County: Residential Households and Second Homes

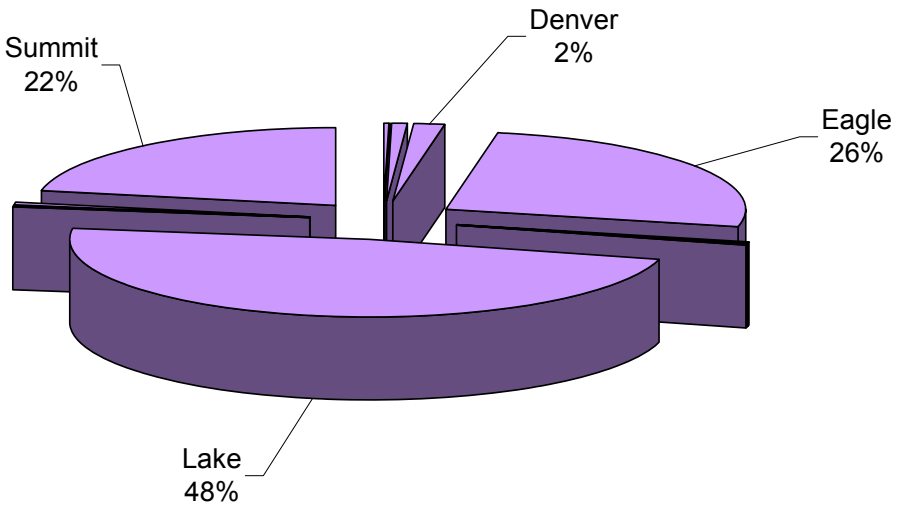
County/Subarea	2000 Resident Households	2000 Second Homes	2001 Resident Households	2001 Second Homes
Lake County	2,977	585	2,999	975
Leadville area	1,964	141	1,249	272
Unincorporated areas and balance of county	1,013	444	1,750	703

Source: Department of Local Affairs,2002 and United States Census Bureau, 2000.
Legend:
Resident = Occupied. *Second Homes = Vacant.*

B.6.2 Employment and Commuting

Employment opportunities in Lake County are forecast to more than double (149 percent increase) by 2025 (from 2,385 to 5,932), with Leadville possessing more than 95 percent of Lake County jobs in 2025. Based on Department of Local Affairs projections, the 2025 county employment-to-population ratio is forecast at 0.32. Because labor demands are expected to increase in both Summit and Eagle counties, Lake County is expected to continue to serve as a significant source of workers. Fifty-two percent of resident workers (2,049) commute to other counties (primarily Summit and Eagle counties) according to the 2000 Census (see **Chart B-21**). Forty-five percent of county commuters travel more than 30 minutes to work, and 30 percent travel more than 45 minutes (CTPP, 2000).

Chart B-21. Lake County Workplace Destinations by County



B.6.3 Economics and Tourism

In 2001, Lake County generated a total industry income of $89 million (2,774 jobs) and personal income of $187 million. Of this, tourism income/jobs account for 10 percent/15 percent of economic activity (see **Chart B-22** and **Chart B-23**). Lake County is highly dependent on Summit and Eagle counties' economies due to the influx of income/jobs from commuters. Commuter households bring in (from other counties) the most significant amount (about 37 percent) of all jobs and income to the county. Other households and retiree households are also significant economic contributors.

The median sales price for a single-family home in Lake County is not available (the benchmark home value for a 1,300 square-foot home is $146,605), and the area median income for a three-person family is $41,400 (Colorado Division of Housing, 2002).

Chart B-22. Lake County Sources of Income

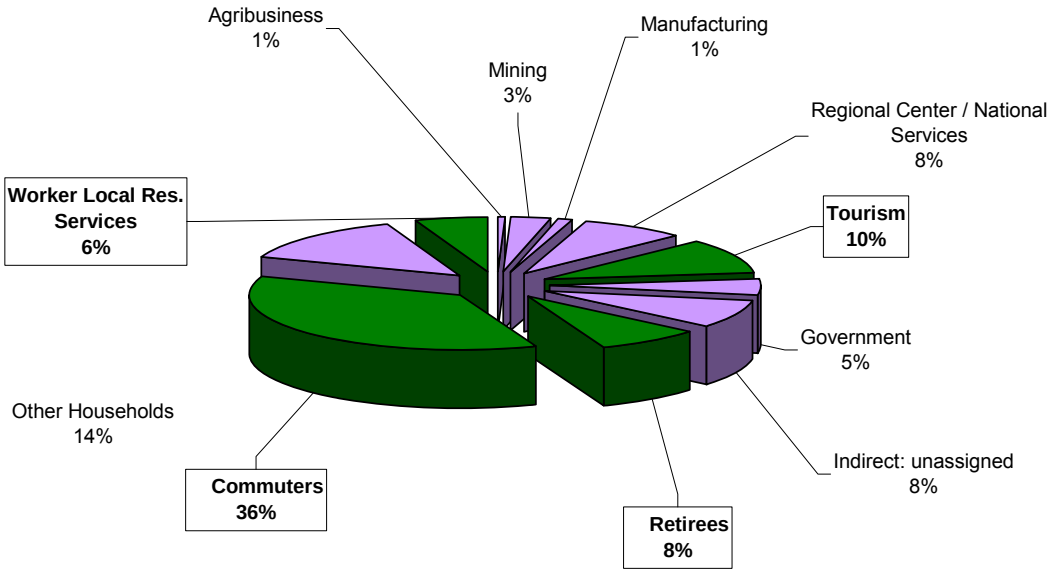
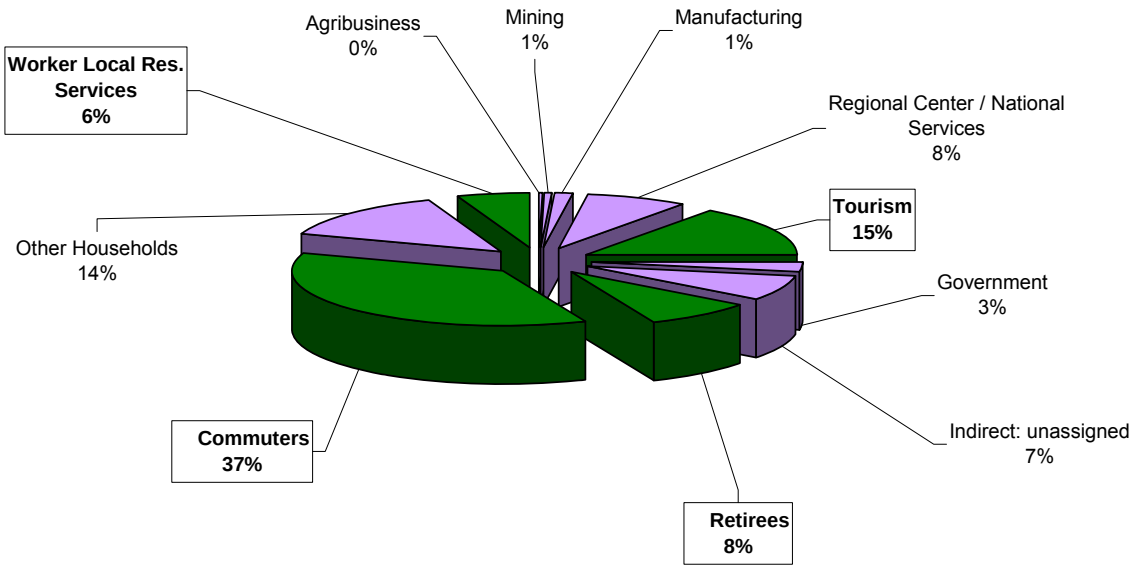


Chart B-23. Lake County Jobs by Industry



Source: Department of Local Affairs, 2002
Note: Local refers to activities that serve and sustain the people who reside in the county (for example grocery stores, movie theaters, post offices).

B.7 Grand County (Adjacent to the Corridor) Social and Economic Values

B.7.1 Population and Growth

Chart B-24 illustrates growth in population, employment, housing, and I-70 traffic from 1985 to 2001 for Grand County. The county population is forecast to increase to 25,598 by the year 2025. This increase more than doubles (104 percent increase) the county's 2000 population. The estimated buildout capacity population (56,070) is more than double the 2025 population, and buildout is not expected by 2025.

Chart B-24. Grand County Trends

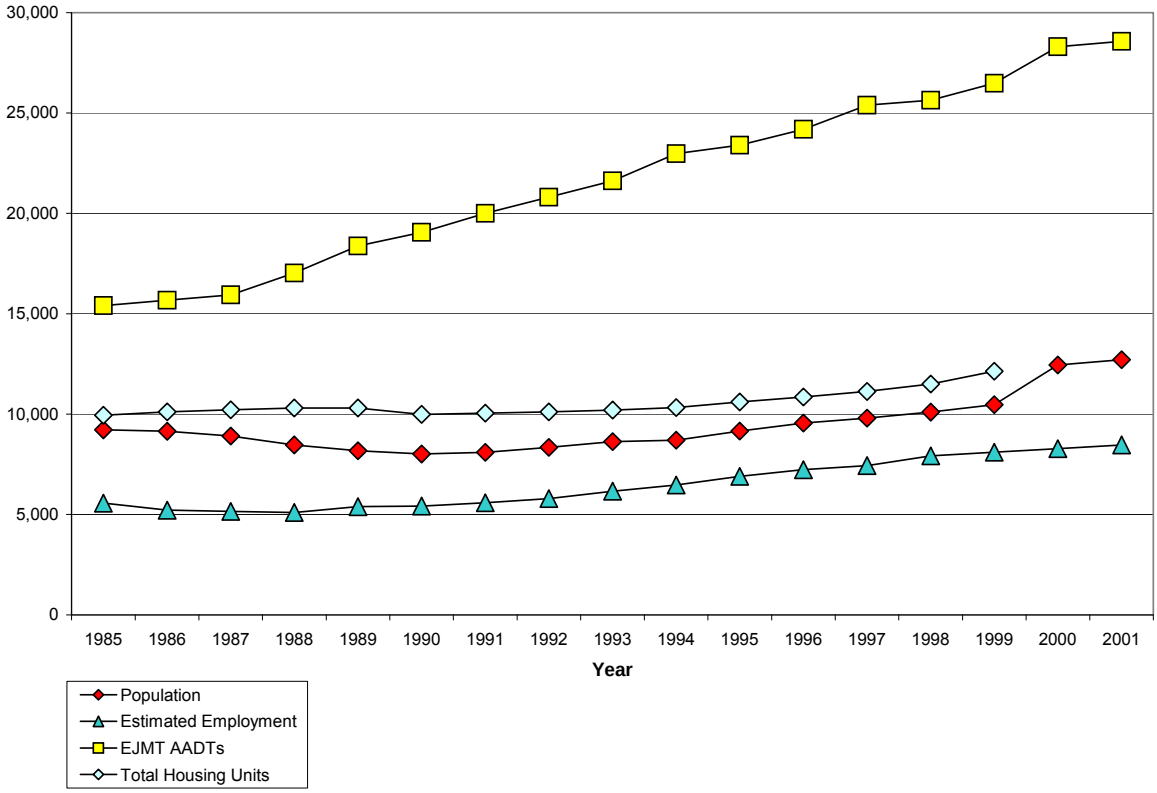


Table B-11 shows 2000/2001 residential households and second homes. Based on Department of Local Affairs vacant housing units, second homes represent 53 percent of total housing units in the county. However, a recent NWCCOG (2003) study indicates 63 percent of county homes are not locally owned (see **Table B-11**). Winter Park had the highest rate (80 percent), and Kremmling had the lowest rate (16 percent) of nonlocal home ownership.

Table B-11. Grand County — Second Homes/Nonlocal Home Ownership

Jurisdiction	Census 2000		Second Home/Nonlocal (NLO) Ownership			
	Seasonal # Units	Seasonal Percent	Parcels Total	Owners Total	NLO Total	NLO Percent
Grand County	4,783	43.9%	6,479	10,058	6,360	63.2%
Town of Fraser	165	26.5%	239	529	288	54.4%
Town of Granby	16	2.5%	400	469	101	21.5%
Town of Grand Lake	507	67.8%	409	645	492	76.3%
Town of Hot Sulphur Springs	18	7.9%	167	170	39	22.9%
Town of Kremmling	14	2.2%	415	418	67	16.0%
Town of Winter Park	703	57.1%	357	1,582	1,263	79.8%
Unincorporated areas	3,360	49.5%	4,492	6,245	4,110	65.8%

Source: NWCCOG, 2003.

B.7.2 Employment and Commuting

Employment opportunities in Grand County are forecast to increase 38 percent by 2025 (from 9,280 to 14,108). This is considerably lower than the projected population increase. Most of these jobs are expected to exist in Winter Park (approximately 40 percent) and in smaller communities in the northern areas of Grand County. Combining this relatively low job growth rate with the forecast population doubling will yield a 2025 Grand County employment-to-population ratio of over 1:2. Due to the substantial increase in population versus employment, Grand County is expected to contribute a greater percent of commuter outflow to other counties in 2025. Only 11 percent (800 workers) of county workers commute to other counties (2000 Census). Twenty-five percent of resident commuters (about 2,000) travel more than 30 minutes to work.

B.7.3 Economics and Tourism

Grand County generated $224 million (8,468 jobs) of total industry income and $334 million of personal income in 2001. Tourism accounts for about 50 percent of county income and jobs (see **Chart B-25** and **Chart B-26**). The ski industry accounts for 38 percent of these tourism jobs, followed by 20 percent in outdoor recreation (CBEF 2001). The second home industry also provides a substantial portion of tourism economic activity. Local resident services and households supply the next largest (about 20 percent) portion of economic activity.

The median sales price for a single-family home in Grand County is not available (the benchmark home value for a 1,300 square-foot home is $260,685), and the area median income for a three-person family is $48,900 (Colorado Division of Housing 2002).

Chart B-25. Grand County Sources of Income

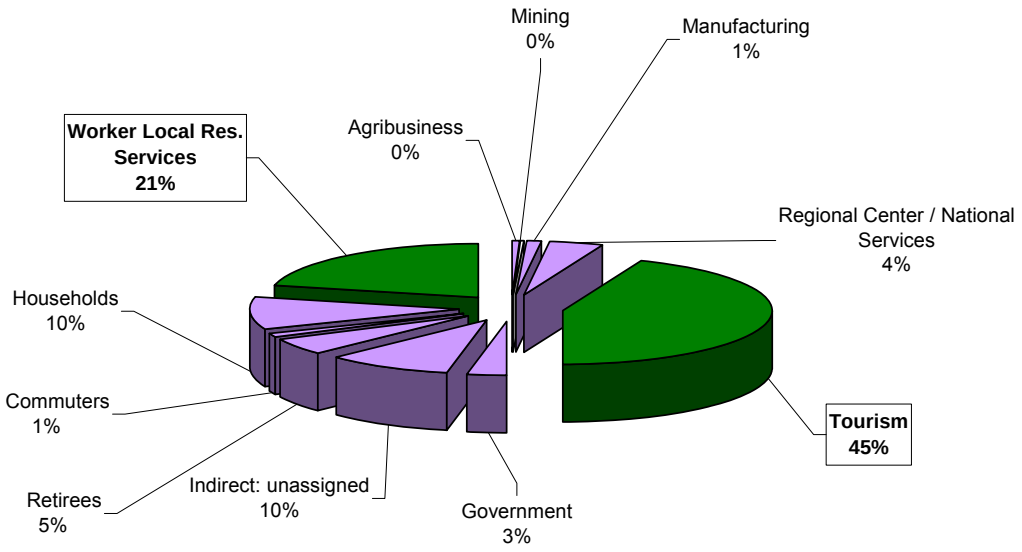
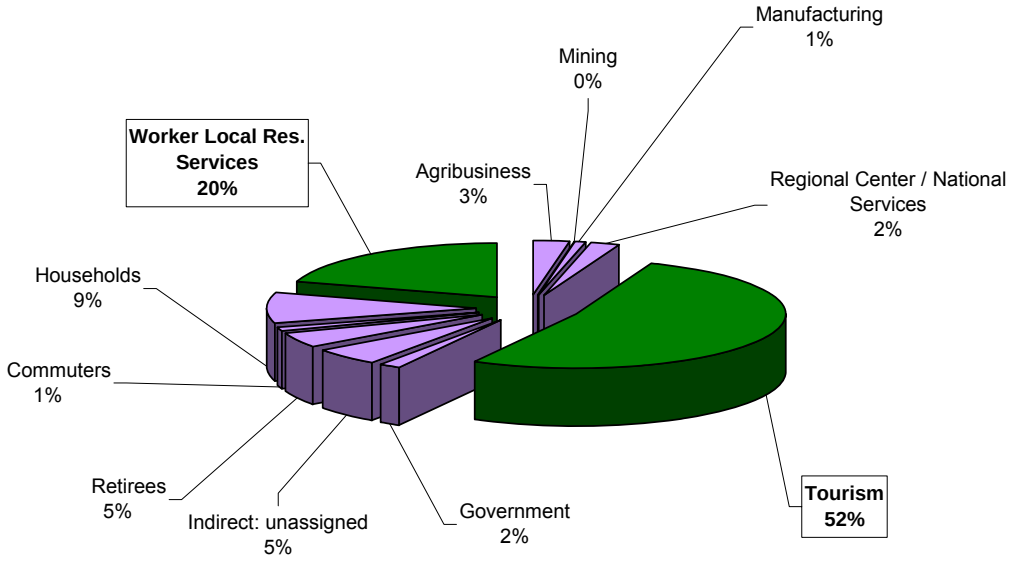


Chart B-26. Grand County Jobs by Industry



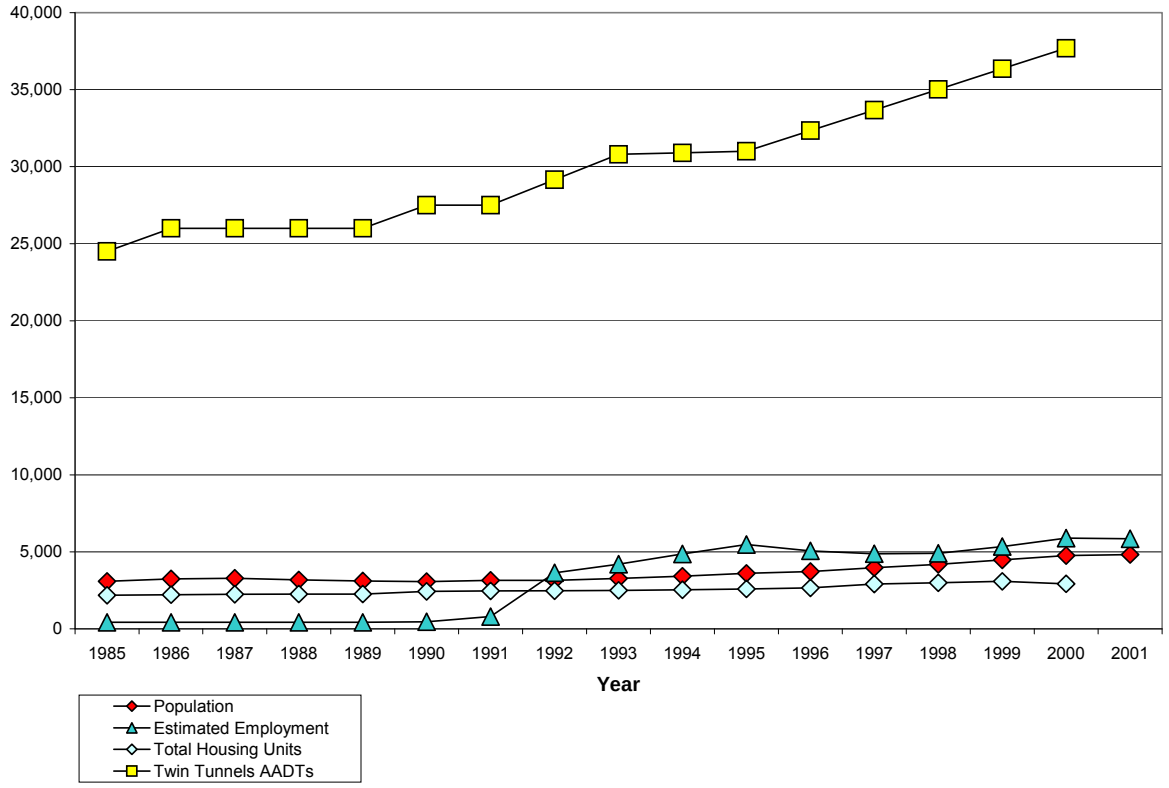
Source: Department of Local Affairs, Demography Section.
Note: Local refers to activities that serve and sustain the people who reside in the county (for example grocery stores, movie theaters, post offices).

B.8 Gilpin County Social and Economic Values

B.8.1 Population and Growth

Chart B-27 illustrates growth in population, employment, housing, and I-70 traffic from 1985 to 2001 for Gilpin County, which is adjacent to the Corridor. The county population is forecast to increase to 7,175 by the year 2025 according to Department of Local Affairs — a 50 percent increase from the county's population in 2000 (4,775). The county buildout estimate of 16,000 is very dependent on access issues, and Central City anticipates significant growth with the construction of the Central City Parkway (to I-70). However, a significant portion of such growth would take place after 2025. The *Gaming Area Access DEIS* (May 2003) indicates that growth impacts from gaming access might increase Gilpin County's housing units and population by 1,800 and 4,000 (as compared to Department of Local Affairs projections), respectively, in 2025.

Chart B-27. Gilpin County Trends



Based on Department of Local Affairs vacant housing, second homes represent 30 percent of all housing units (see **Table B-12**).

Table B-12. Gilpin County: Residential Households and Second Homes

County/Subarea	2000 Resident Households	2001 Resident Households	2001 Second Homes
Gilpin County	2,043	2,080	832
Black Hawk	54	54	25
Central City	261	259	137
Unincorporated areas and balance of county	1,728	1,767	770

Source: Department of Local Affairs.
Legend:
Resident = Occupied. *Second Homes = Vacant.*

B.8.2 Employment and Commuting

Employment opportunities in Gilpin County are projected to increase by 24 percent over the planning horizon (from 5,747 to 7,131) at a rate slightly less than population growth. In 2025, more than 86 percent of Gilpin County jobs are expected to be in Black Hawk and Central City (64 percent and 22 percent, respectively). Fifty-nine percent of Gilpin County resident workers (1,758 workers) worked outside the county (primary destination is the Front Range) in 2000. However, due to the county's demand for gaming workers, the county has a net commuter inflow. (Note that this net commuter flow quantity is minimal relative to other counties in the Corridor.) The vast majority of this commuter inflow is attributed

to gaming industry employees living in Clear Creek County, Jefferson County, and the Denver metropolitan area. Black Hawk and Central City do not provide the population and housing base necessary to meet the employment demands of the gaming industry.

B.8.3 Economics and Tourism

Gilpin County generated $171 million (5,843 jobs) total industry income and $156 million personal income in 2001. Of this, tourism accounts for more than 70 percent of county employment and income (see **Chart B-28** and **Chart B-29**). More than 97 percent of this tourism activity is based in one tourism subgroup: resorts, recreation, and lodging (which highlights the significance of the gaming industry in Black Hawk and Central City). Local resident services account for more than 10 percent of county economic activity.

The median sales price for a single-family home in Gilpin County was not available (the benchmark value of a 1,300 square-foot home is $167,114), and the average median income for a three-person family is $73,500 (Colorado Division of Housing 2002).

Chart B-28. Gilpin County Sources of Income

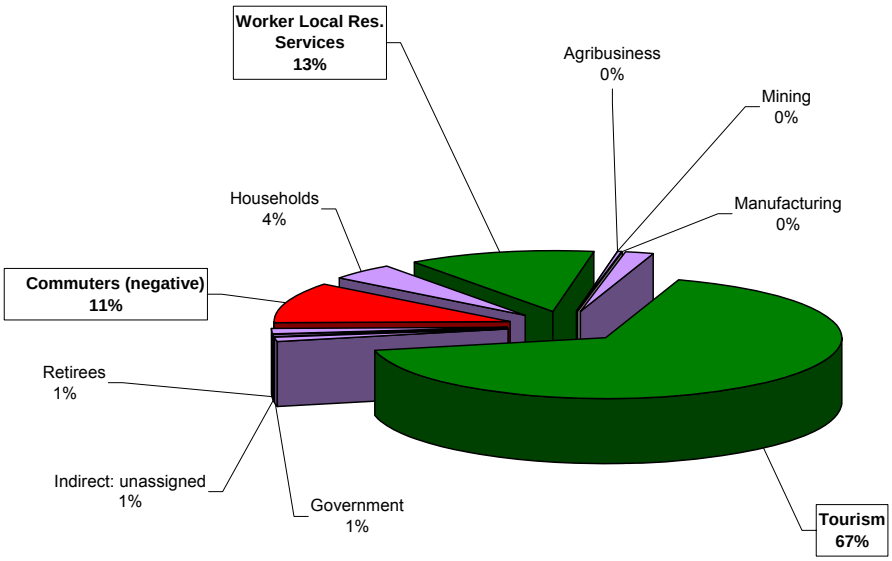
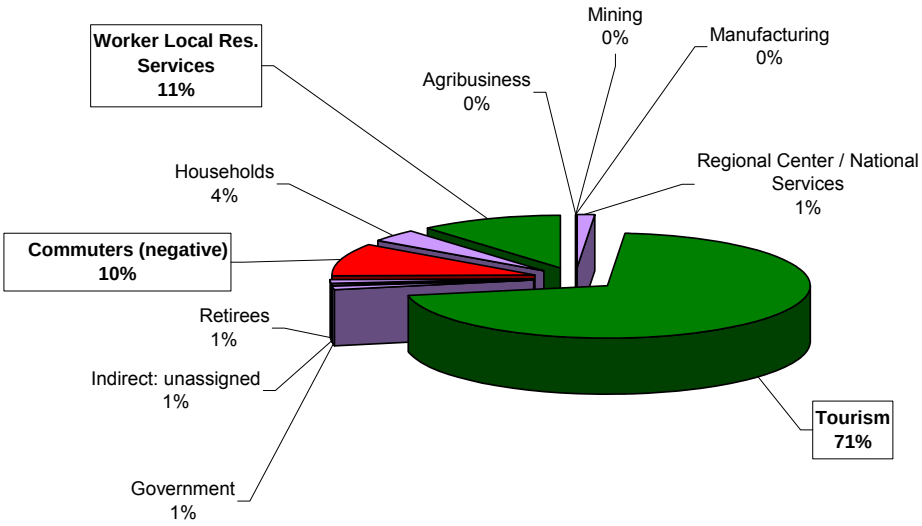


Chart B-29. Gilpin County Jobs by Industry



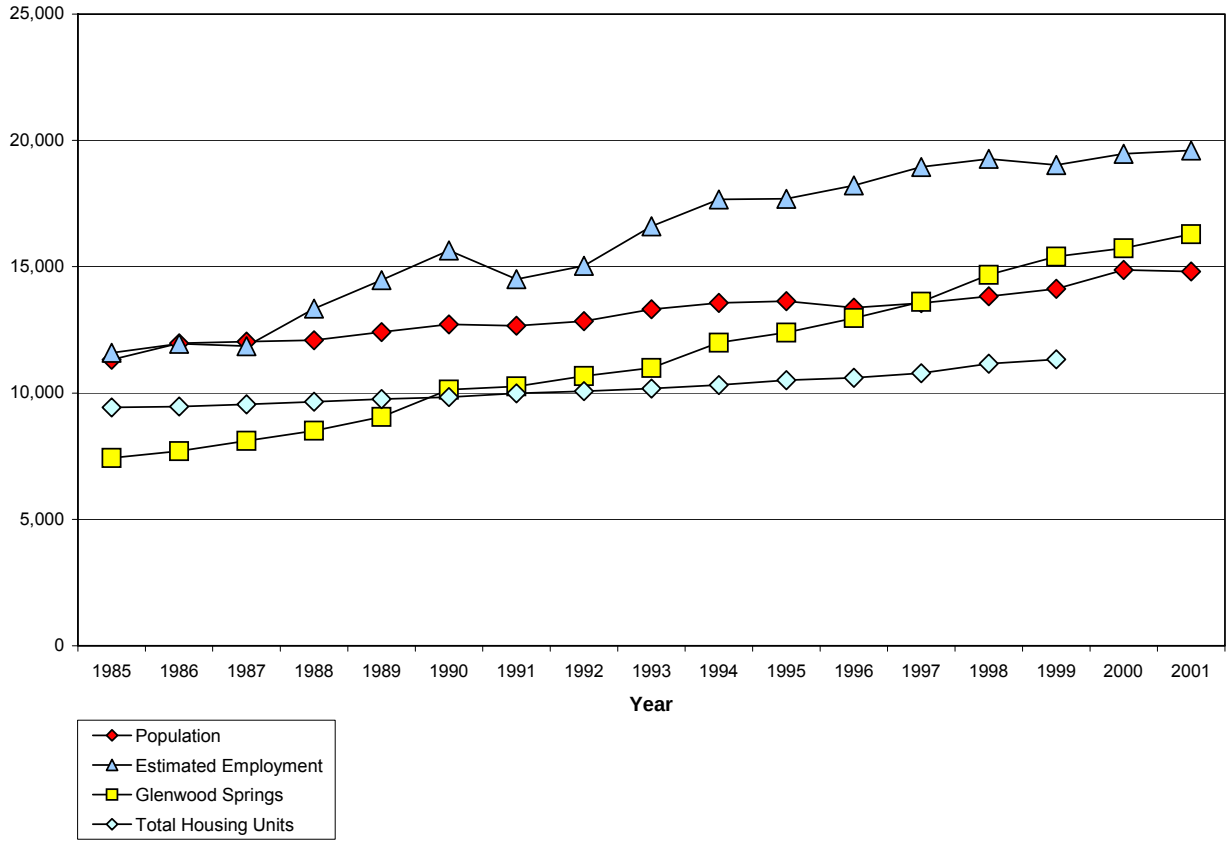
Source: Department of Local Affairs, Demography Section.
Note: Local refers to activities that serve and sustain the people who reside in the county (for example grocery stores, movie theaters, post offices).

B.9 Pitkin County (Adjacent to the Corridor) Social and Economic Values

B.9.1 Population and Growth

Chart B-30 illustrates growth in population, employment, housing, and I-70 traffic from 1985 to 2001 for Pitkin County. The county population is forecast to increase to 23,719 by the year 2025. This is a 59 percent increase from the county's population in 2000 (14,943 as per the 2000 U.S. Census). The primary growth center of Pitkin County — Aspen — is not located along I-70, and population growth is not directly related to increased I-70 traffic.

Chart B-30. Pitkin County Trends



Based on vacant units, second homes represent 33 percent of total housing units in the county. However, a recent NWCCOG (2003) study indicates 55 percent of county homes are not locally owned (see **Table B-13**). Nonlocal ownership, or the "second home rate," is 73 percent in Snowmass Village and 51 percent in Aspen.

Table B-13. Pitkin County — Second Homes/Nonlocal Ownership

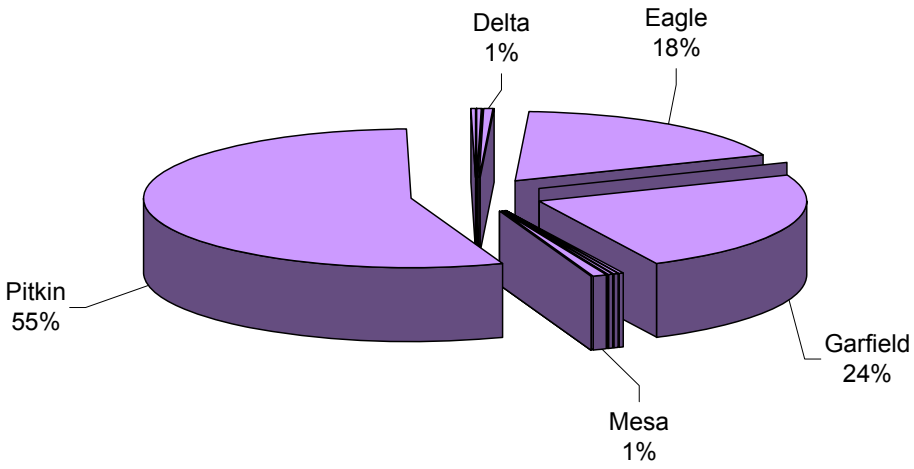
Jurisdiction	Census 2000		Second Home/Nonlocal Ownership (NLO)			
	Seasonal # Units	Seasonal Percent	Parcels Total	Owners Total	NLO Total	NLO Percent
Pitkin County	2,728	27.0%	10,185	10,185	5,618	55.2%
City of Aspen	1,121	25.7%	4,409	4,409	2,247	51.0%
Snowmass Village	814	46.9%	2,575	2,575	1,884	73.2%
Unincorporated areas	793	19.8%	3,201	3,201	1,487	46.5%

Source: NWCCOG preliminary data.

B.9.2 Employment and Commuting

Employment opportunities in Pitkin County are projected to increase by 104 percent over the planning horizon (from 19,191 to 39,217), almost double the rate of population growth. As a result, the rate of commuter inflow (almost 4,000 workers from Eagle and Garfield counties as illustrated in **Chart B-31**) that is already required to support the workforce is expected to increase. Only 8 percent of Pitkin County resident workers (712 workers) worked outside the county in 2000. These workers primarily commuted to Garfield and Eagle counties.

Chart B-31. Pitkin County Workers by County of Residence



B.9.3 Economics and Tourism

Pitkin County generated a total industry income of $858 million (19,599 jobs) and a personal income of $1.1 billion in 2001. Of this, tourism accounts for approximately 40 percent of total county employment and 33 percent of income (See **Chart B-32** and **Chart B-33**). The ski industry accounts for 27 percent of tourist jobs, followed by "special events" jobs at 26 percent (Center for Business and Economic Forecasting, 2001). Local resident services account for almost 20 percent of county economic activity.

The median sales price for a single-family home in Pitkin County is $460,000, and the area median income for a three-person family is $79,000 (Colorado Division of Housing, 2002).

Chart B-32. Pitkin County Sources of Income

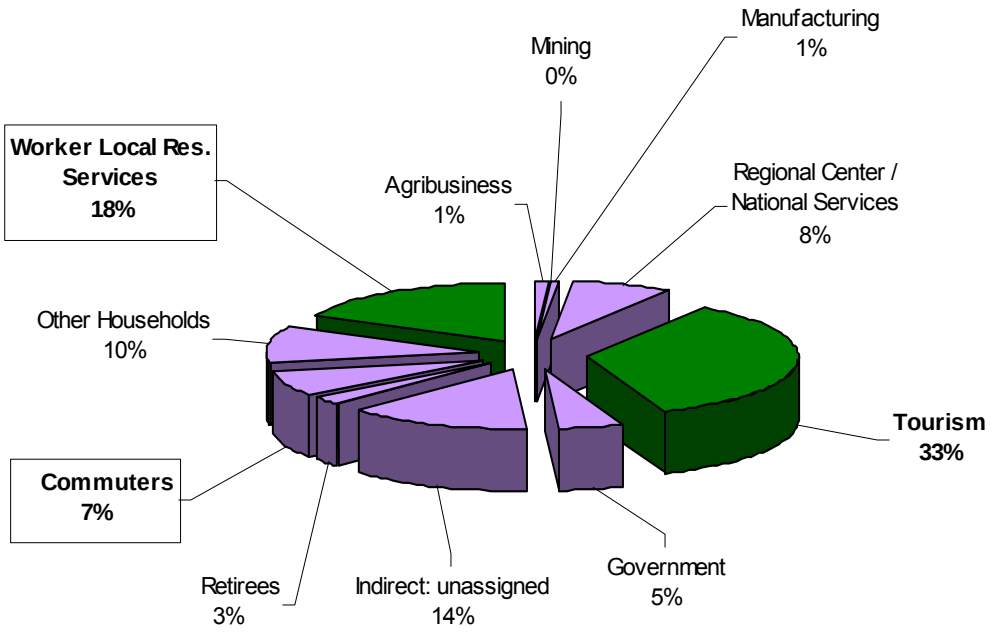
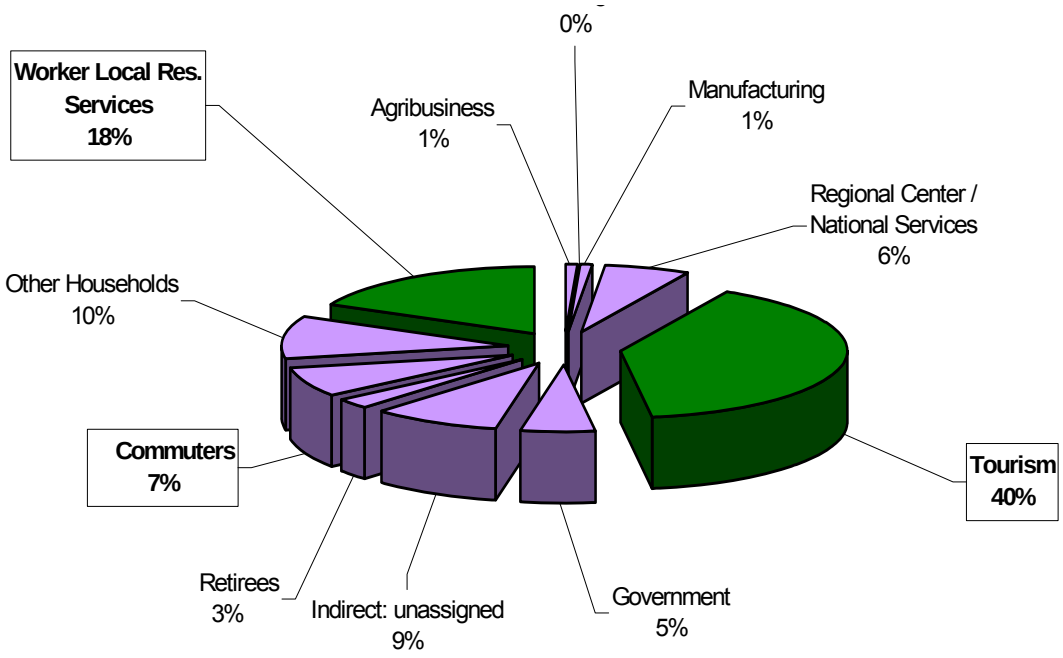


Chart B-33. Pitkin County Jobs by Industry



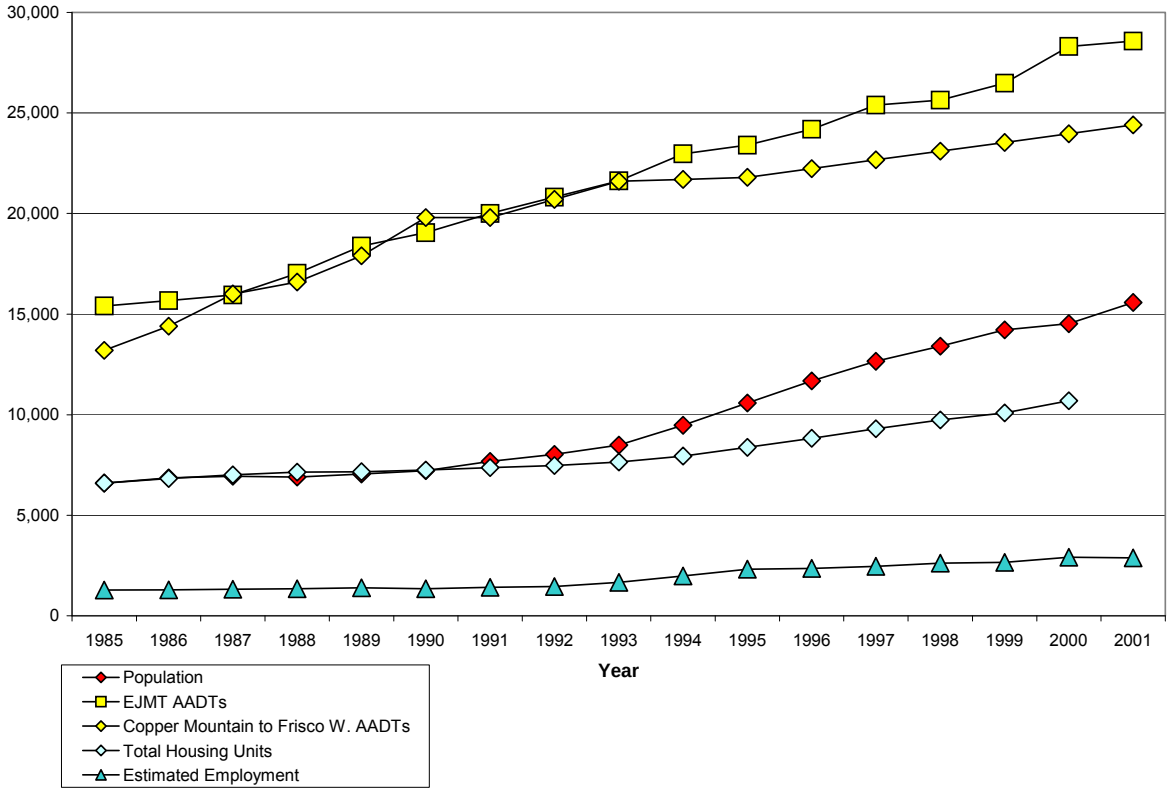
Source: Department of Local Affairs, 2002
Note: Local refers to activities that serve and sustain the people who reside in the county (for example, grocery stores, movie theaters, post offices).

B.10 Park County (Adjacent to the Corridor) Social and Economic Values

B.10.1 Population and Growth

Chart B-34 illustrates growth in population, employment, housing, and I-70 traffic. The Park County population is forecast to increase to 56,100 (67,588 per Department of Local Affairs 2002) by the year 2025, a 282 percent increase from the county's population in 2000 (14,679 as per the 2000 U.S. Census). If all of the county's 27,000 platted lots were to be used for new homes by 2025, the population would be much higher, possibly in the 65,000 to 75,000 range. However, only half of the lots have improvements (such as adequate water supply), indicating the probability of slower growth.

Chart B-34. Park County Trends



Park County had 5,894 households occupied by 14,453 people in 2000 (see **Table B-14**), and the county has 27.9 percent of its stock in new homes (those built in the 5-year period 1995 to 2000). Housing projections for 2025 indicate a 141 percent increase in households from 2000 numbers. Growth in the Bailey/Shawnee/Pine Junction area can be attributed to its proximity to the Denver metropolitan area, which is only 40 miles away. The Alma/Fairplay area is expected to grow considerably over the long term as it has proved to be an affordable place to live for employees of Summit County's ski areas. This part of the county has also become attractive to retirees and the semiretired.

Table B-14. Park County: Population and Residential Housing Units

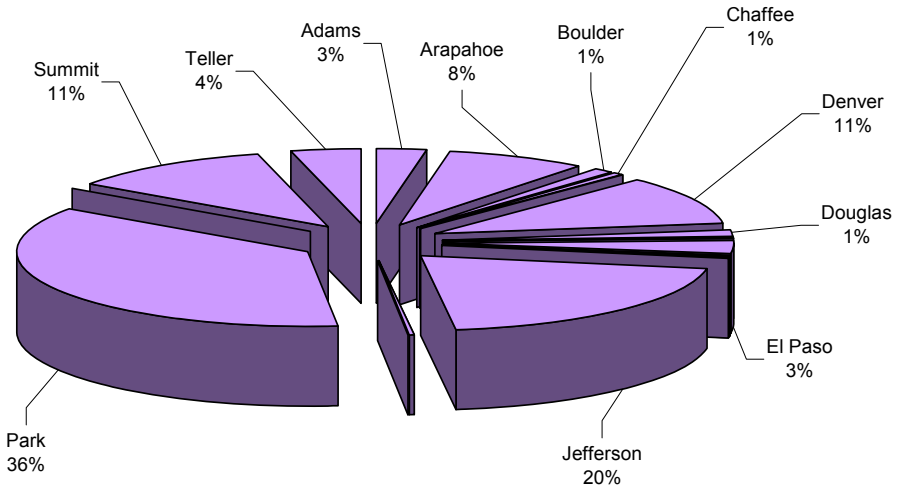
County/Subarea	2000 Population	2025 Forecast Population	Population % Increase	2000 Housing Units (Built)	2025 Forecast Housing Units
Park County	14,523	56,100	286%	10,697	34,938
Bailey, Pine Junction, Shawnee, Grant	5,528	20,000	117%	2,805	—
Kenosha Mountains	3,676	20,000	117%	1,653	—
Fairplay, Alma	1,956	29,000	731%	1,641	—
Tarryall, Hartsel, Jefferson, Como	1,535	29,000	731%	2,465	—
Lake George, Guffey	1,828	6,200	239%	2,133	—

Source: Pikes Peak Area Council of Governments 2002.

B.10.2 Employment and Commuting

Employment opportunities in Park County are projected to increase by only 2 percent over the planning horizon (from 2,931 to 2,994). The county's 2025 employment-to-population ratio will be very low (reaching 0.05) by 2025, and the net commuter outflow is expected to increase. Sixty-four percent (4,878 workers) of Park County resident workers worked outside the county in 2000 (see **Chart B-35**). These workers traveled to the Front Range (via Highway 285) and to Summit County (via Hoosier Pass/State Highway (SH) 9). Hoosier Pass is not a substantial barrier to commuters traveling from Alma to Breckenridge on a daily basis. Sixty-five percent of county commuters travel more than 30 minutes to work, and 53 percent (1,800 workers) travel more than 45 minutes to work (CTPP, 2000).

Chart B-35. Park County Work Destinations by County



B.10.3 Economics and Tourism

Park County generated $188 million of total industry income (2,881 jobs) and a total personal income of $431 million in 2001. Of this, tourism accounts for more than 10 percent of total county employment and income (see **Chart B-36** and **Chart B-37**). Almost 80 percent of tourism income is attributed to the second home industry. Households account for the most substantial portion (more than 50 percent) of the county economic activity. Commuter households bring in the most substantial portion of household

economic activity (more than 40 percent) to the county (via Front Range and Summit County income and jobs).

The median sales price for a single-family home in Park County is not available (the benchmark home value for a 1,300 square-foot home is $240,299), and the area median income for a three-person family is $48,000 (Colorado Division of Housing 2002).

Chart B-36. Park County Sources of Income

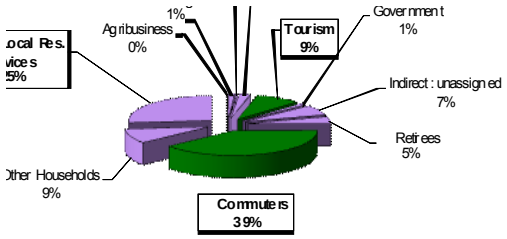
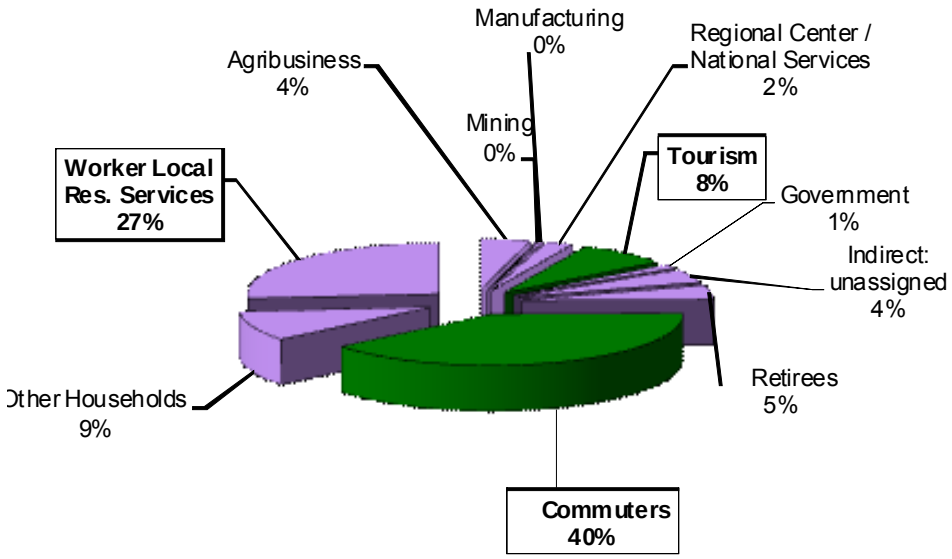


Chart B-37. Park County Jobs by Industry



Source: Department of Local Affairs, 2002
Note: Local refers to activities that serve and sustain the people who reside in the county (for example, grocery stores, movie theaters, post offices).

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