

The Economic Impacts of High-Speed Transit in the I-70 Mountain Corridor

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Interstate 70 is the only major east-west interstate crossing Colorado, and the only continuous east-west thoroughfare through the I-70 Mountain Corridor, defined to be the 122-mile segment from the C-470/I-70 interchange in Jefferson County to the Eagle County Regional Airport. Crossing over the highest point in the U.S. interstate system, the I-70 Mountain Corridor is prone to avalanches, high winds, and other severe weather events, and is plagued by congestion and continuous road maintenance due to its heavy volume. In 2017, an estimated 13.6 million vehicles travelled in the I-70 Mountain Corridor.

A high-speed transit (HST) system was identified in the 2011 Record of Decision (ROD) issued by the Colorado Department of Transportation (CDOT) and the Federal Highways Administration¹ as part of the long-term solution to increase mobility, reduce congestion, and improve safety in the I-70 Mountain Corridor. The ROD established that the preferred alternative for improving transportation in the I-70 Mountain Corridor is a multimodal solution and includes three main components: 1) Non-infrastructure Components, 2) an Advanced Guideway System or high-speed transit, and 3) Highway Improvements.

The intent of this study is to evaluate the economic impacts, or the expected changes in visitor, business, and resident spending patterns, resulting from the introduction of a high-speed transit option in the I-70 Mountain Corridor. This study is not a financing plan or a feasibility study, and the economic activity identified herein should not be regarded as part of a financing package. Rather, this study presents but one more piece of the analysis needed to evaluate mobility options in the I-70 Mountain Corridor.

METHODOLOGY

Economic impact analysis is the analytical approach used to assess the measurable direct and indirect benefits and costs resulting from a project over a specific period. Only those benefits that can be measured or quantified are included. Intangible benefits, such as enhancement of community character or diversification of the job base, are not included. This study analyzes only the direct economic impacts, or business-to-business and consumer-to-business spending patterns. No indirect or economic multiplier effects have been included, so the analysis is conservative and represents the low end of potential benefits.

The on-going annual economic impact of a high-speed transit system is discussed in terms of how the costs and benefits accruing from visitors, businesses, and residents differs between today's situation (baseline scenario, no HST) and a situation in which a high-speed transit system would be operational (expansion scenario, with HST). The baseline scenario is defined to be the current period, based on data for 2017-18. As the timeline for development of a high-speed transit system has not been established, the expansion scenario estimates the costs and benefits related to these three groups as if the system were fully built out and operational today. The economic impact of a high-speed transit system is the difference between the two scenarios, excluding the temporary costs and benefits of all related construction activity. The economic impacts are described in terms of total spending or output, employment, and earnings.

Further, a high-speed transit system will require the development of transit stations along the Mountain Corridor. While the number and location of the stations are not known at this time, these transit stations will likely influence development patterns within the Corridor communities. The additional visitor, business, and resident spending resulting from the introduction of a high-speed system will support additional commercial and residential development. This new development may occur around transit stations or at infill or new locations around the communities.

¹ Colorado Department of Transportation. I-70 Mountain Corridor Record of Decision and Final Programmatic Environmental Impact Statement. June 16, 2011.

The impacts related to visitors, businesses, and residents are added together and presented in four inter-related areas: economic impacts, new development supported, new tax revenue generated, and travel cost savings. The inter-relationship between these areas is depicted in the following graphic, with each area explained in detail below.



DIRECT ECONOMIC IMPACTS

Adding the visitor, business, and resident components together reveals that **high-speed transit will result in \$711.7 million more in economic activity each year in the I-70 Mountain Corridor, which will be produced by 6,428 employees earning \$227.2 million.** These direct economic impacts will occur annually assuming similar future spending patterns. The components of the direct economic impacts are:

Visitor Impacts

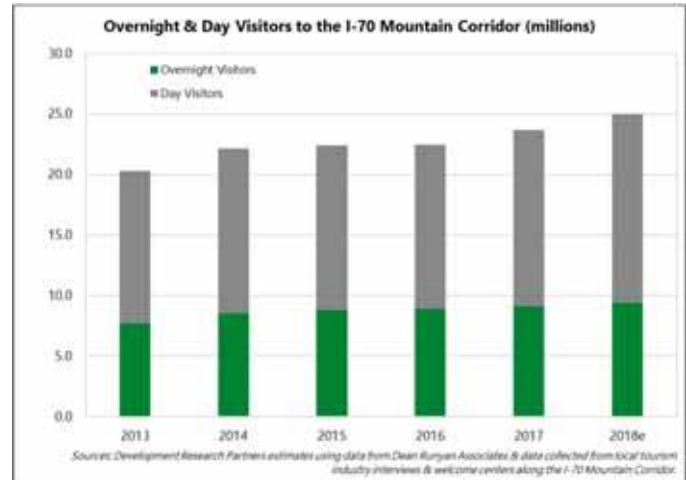
Colorado is an international hub of tourism and outdoor recreation, supported by its world-class facilities, abundant recreational opportunities, and diverse landscapes. In 2017, the state welcomed 84.7 million visitors, consisting of 37.9 million overnight visitors and 46.8 million day visitors. About 47 percent of these visitors (39.7 million) were from out-of-state, while the other 53 percent were Colorado residents taking business and pleasure trips within the state. Visitors spent \$18.8 billion in the state in 2017, consisting of \$15.3 billion spent by overnight

visitors and \$3.5 billion spent by day visitors. The out-of-state visitors tend to spend significantly more money on their travel than in-state residents, an estimated \$13 billion or 69 percent of the total visitor spending.²

Extending the analysis, it is estimated that about 25 million visitors recreated in the I-70 Mountain Corridor in 2018, of which about 37 percent were out-of-state visitors and 63 percent were in-state visitors. Most visitors to the I-70 Mountain Corridor are day visitors, representing about 63 percent of the total 25 million visitors.

About 85 percent of the visitors use I-70, resulting in an estimated 6.7 million visitor vehicles, or about 50 percent of the traffic. Converting visitor vehicles to the number of passengers, visitors comprise an estimated 77 percent of the total individuals travelling through the I-70 Mountain Corridor, individuals that could opt for a high-speed transit option.

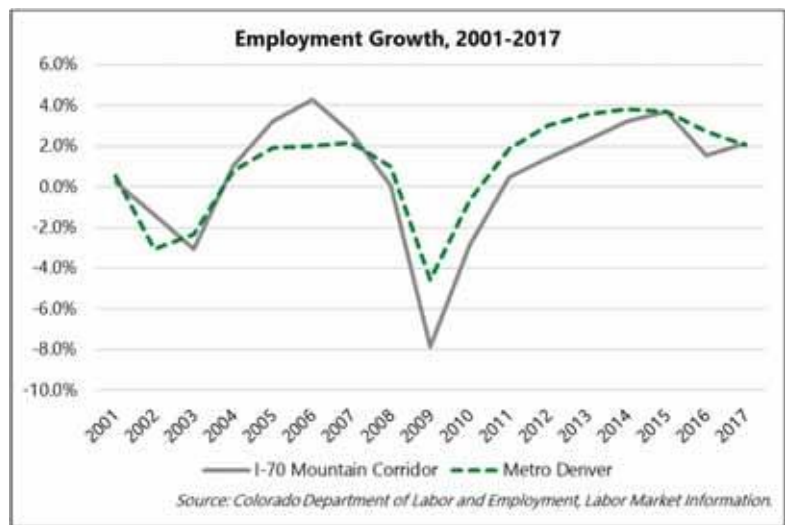
The high-speed transit system is expected to carry 5.4 million passengers each year. High-speed transit will make it easier for both in-state and out-of-state visitors to travel to the I-70 Mountain Corridor. If 77 percent of the HST passengers are visitors, the HST will bring 4.2 million additional visitors to the I-70 Mountain Corridor, resulting in **\$548.6 million in additional spending** on lodging, restaurants, entertainment, and other retail. This spending will directly support the employment of **4,660 new employees** expected to earn about **\$153.3 million in wages**.



Business Impacts

Employment in the I-70 Mountain Corridor is characterized by the large number of businesses that rely on tourism and recreation in the mountains. In 2017, about 40 percent of employment in the corridor was comprised of leisure and hospitality, a supersector that includes arts, entertainment, recreation, accommodation, and food services.

Employment in the Mountain Corridor has grown at about half the annual rate of growth in the Metro Denver region since 2001. Factors that have likely contributed to the slower pace of growth include the limited amount of residential development, the increasing congestion along I-70 that drives up the cost of commuting, and the higher cost of doing business in the corridor. However, the key limiting factor to employment growth is the lack of workers. The unemployment rate in the I-70 Mountain Corridor has generally been lower than the rate in the Metro Denver region and the labor



² Longwoods International, *Colorado Travel Year 2017* (Denver: Colorado Tourism Office, 2018).

force participation rate has been higher. This means that there is limited opportunity for I-70 Mountain Corridor businesses to attract additional labor from within the corridor.

I-70 Mountain Corridor businesses heavily rely on commuters from the Metro Denver region to sustain profitability and business growth. Based on the most recently available data, about 45 percent of the workers in the corridor also live in the corridor, and more than 27 percent of the workers in the corridor were residents of Metro Denver. Despite the heavy reliance on Metro Denver workers, the number and share of workers commuting to the Mountain Corridor from Metro Denver has declined since 2007.

There is evidence that businesses in the corridor have been understaffed for several years. Long-term understaffing impacts the profitability of businesses due to a lower quality of service, decreased productivity, and lower employee satisfaction, thereby increasing the likelihood of turnover or absenteeism.

A high-speed transit option through the corridor will improve connectivity from Metro Denver to the mountain communities, reducing congestion and commuting costs, and enlarging the accessible workforce. Metro Denver commuters would comprise an estimated 4.2 percent of trips on a high-speed transit system, or about 229,000 passengers. This translates into an additional **1,560 workers** that would travel to the I-70 Mountain Corridor for work. More employment in the corridor would increase corridor output by **\$131.6 million** and **wage and salary income by \$64.7 million**. Note that this employment increase is in addition to the employment supported by increased visitor and resident spending as these employees would be hired today by the existing businesses in the corridor to alleviate understaffing issues.

Resident Impacts

Residents of both Metro Denver and the I-70 Mountain Corridor travel along I-70 regularly for a variety of reasons, including commuting and business purposes, entertainment and recreation, and shopping or personal reasons. The most common use of I-70 for residents, especially during times of high demand and congestion, is related to entertainment and recreation.

There are 117,300 people living in the I-70 Mountain Corridor, and the population is expected to increase by 1.4 percent per year between 2018 and 2028. In addition to this level of “trend” population growth, a high-speed transit system would further increase the population. Economic growth throughout the region would be the main driver of the additional population growth, as greater demand for goods and services by visitors will encourage increased employment opportunities throughout the corridor. If the current distribution of 45 percent of the corridor workers both live and work in the corridor remains the same, the 4,660 additional workers needed to serve the additional visitors will result in over 2,100 additional workers living in the corridor.

Based on the number of workers per household and the typical household size, the total increase in the population related to the enhanced employment opportunities would be 3,350 additional people, or 1,360 additional households with estimated total income of \$71.6 million. After adjusting for both retail and services spending leakage, it is estimated that the new residents will spend an additional **\$31.5 million** in the Mountain Corridor each year. This additional spending will support a further increase in the employment base within the corridor of **208 workers earning \$9.2 million in wages**.

Economic Benefit of High-Speed Transit on Resident Spending Activity

Estimated Increase in Households	1,361
Estimated Household Income (\$M)	\$71.6
Total Retail Spending (\$M)	\$24.6
Total Services (\$M)	\$14.8
Less Non-Local Spending (\$M)	-\$7.9
Resident Spending Benefit (\$M)	\$31.5
Wages (\$M)	\$9.2
Employment	208

Source: Development Research Partners.

NEW DEVELOPMENT IMPACTS

The additional visitor and resident spending with the introduction of high-speed transit in the corridor will foster the development of over **1,360 new residential units and 2 million square feet of commercial space with a combined value of nearly \$1.2 billion**. The presence of transit stations in the corridor from a high-speed transit system may offer the opportunity for transit-oriented development in some of the mountain communities; however, the new development may or may not occur at the transit stops. No attempt was made to identify specifically where in the Mountain Corridor the development may occur.

- Residential Units:** Increased visitor and resident spending activity will bring more employment opportunities and population growth to the mountain communities. As noted above, the introduction of high-speed transit will bring 3,350 more people than expected trend population growth due to enhanced employment opportunities. These additional people will require about **1,360 additional housing units valued at \$639.7 million**.
- Commercial Development:** Increased demand for goods and services in the I-70 Mountain Corridor from new visitor and resident spending associated with a high-speed transit system will generate investment in new commercial real estate and increase the overall commercial stock in the corridor. The \$711.7 million in new spending (economic impact) will boost the level of hotel development, retail space, and to a lesser extent, office space by about **2 million square feet valued at \$516.5 million**.

Estimated Commercial Development Activity from High-Speed Transit in the I-70 Mountain Corridor

Property Type	Square Feet	Valuation (\$M)
Hotel*	1,409,000	\$349.9
Retail	591,000	\$163.4
Office	29,000	\$3.2
Total	2,029,000	\$516.5

**Based on the ownership structure of new hotel space in the corridor, a portion of the new space may be developed with the addition of condominium units.*

Source: Development Research Partners.

The construction of the new residential units and commercial development has a temporary economic impact in the I-70 Mountain Corridor from construction employment and purchases of construction materials and other related goods and services. The temporary economic impact, which occurs only during the construction period, is not included in this analysis.

NEW TAX REVENUE

New tax revenue from the increased economic activity and new development is estimated at **\$45.8 million each year**. This additional revenue is generally used to provide the additional governmental services required by more visitors, businesses, and residents. This report does not include a complete fiscal analysis as the additional tax revenue has not been offset by any additional cost of governmental services.

- Property Tax:** The addition of 2 million square feet of commercial space and over 1,360 residential units will increase property tax revenue in the corridor by about **\$12.5 million** each year.
- Sales Tax:** Based on estimated retail trade and food services spending by the additional visitors and new residents, the estimated annual sales tax revenue is **\$31 million**.
- Lodging Tax:** Visitor spending on lodging will generate lodging tax of about **\$2.3 million** for local governments each year.

Actual tax collections will vary depending on the distribution of development in the corridor and which local governments provide services for the new properties.

TRAVEL COST SAVINGS

High-speed transit potentially offers cost savings to users through time savings and lower vehicle fuel and maintenance costs. While a shift from spending on fuel and vehicle maintenance costs to high-speed transit fares represents a redistribution of transportation dollars and not new spending, the **\$12.7 million in travel time saved** per year may lead to increased economic activity and enhanced productivity.

- **Visitors:** In-state visitors would save an estimated \$2.1 million per year using high-speed transit and out-of-state visitors would save \$1.2 million. The entire **\$3.3 million** in travel cost savings for visitors is due to travel time savings as high-speed transit fare costs are higher per person than vehicle travel costs.
- **Metro Denver and Mountain Corridor Commuters:** Metro Denver commuters could save more than \$9.2 million in fuel and vehicle maintenance costs and \$2 million in travel time. The savings for Mountain Corridor commuters is even higher, at \$14.6 million in fuel and vehicle maintenance costs and \$6.4 million in travel time. Commuters receive the highest benefit with travel time savings of **\$8.4 million**.
- **Residents:** Mountain Corridor residents would save an estimated **\$1 million** per year using high speed transit. The entire travel cost savings is due to travel time savings as high-speed transit fare costs are higher per person than vehicle travel costs.

The value of time saved may result in either increased work or increased recreation hours, which may result in either higher incomes and more spending power or enhanced quality of life. While travel cost savings are a benefit of high-speed transit, how the savings will translate into greater economic activity cannot be estimated. Transit riders may experience increased travel reliability, reduced stress, and opportunities for activities other than driving during the ride. The intrinsic value to an individual of a potentially more pleasant HST trip is not estimated.

BEYOND THE NUMBERS

This study analyzed the economic impacts of a high-speed transit system in the I-70 Mountain Corridor. However, there are other quantitative and qualitative factors that should be considered in evaluating transportation options, many of which are included in the CDOT planning process.

The successful development and operation of an enhanced transportation system through the I-70 Mountain Corridor would position Colorado as a leader in innovative transportation options. There may also be business development options related to a high-speed transit system, providing enhanced commercial and job opportunities directly tied to mobility, and business opportunities stemming from providing greater access to Colorado recreation areas.

There may be “trickle-down” impacts to the residents of the region related to both high-speed transit and enhanced circulator system options. For example, seniors living in the Mountain Corridor may now have new transportation options to access healthcare and other services. Mountain Corridor residents would have greater access to cultural and entertainment facilities in Metro Denver, and Metro Denver residents that had previously foregone a trip to the mountains due to traffic could enjoy the view as they head to resort destinations.

Development of any solution to congestion leads to impacts on our environment including air quality, vegetation, wildlife, and water. Many business leaders and residents expressed good stewardship of the land and environment as an important goal in developing a solution to traffic congestion in the corridor. Further, global, national, and state studies show that people residing in congested or high traffic volume areas have higher risks for asthma, cancer, and other major health conditions. The introduction of a high-speed transit system potentially could reduce the environmental and health impacts related to congestion.

From a governmental service standpoint, the combination of adverse weather conditions, traffic congestion, and challenging geography can impact emergency response times in the event of traffic accidents or other events, including avalanche or rock slides along the I-70 Mountain Corridor. Emergency vehicles face difficulties in maneuvering through congested areas, particularly where shoulders are narrow or non-existent, increasing emergency response times. Options to reduce congestion could help emergency vehicles reach their destination more quickly.

A transit system connecting the I-70 Mountain Corridor and the Metro Denver urban corridor would provide an opportunity to improve the quality of life for people by reducing pollution, removing the stress of driving, potentially reducing personal transportation costs, and providing greater options for employment and housing options. A transit system that connects the Mountain Corridor to Metro Denver would provide additional opportunities for businesses to employ workers across a broader labor shed and for employees to explore work options in areas previously out of their range. A high-speed transit system would provide enhanced opportunities for increased economic activity, increased employment and earnings, and expanded residential and commercial development opportunities.

Interstate 70 is the only major east-west interstate crossing Colorado, and the only continuous east-west thoroughfare through the I-70 Mountain Corridor, defined to be the 122-mile segment from the C-470/I-70 interchange in Jefferson County to the Eagle County Regional Airport. Crossing over the highest point in the U.S. interstate system, the I-70 Mountain Corridor is prone to avalanches, high winds, and other severe weather events, and is plagued by congestion and continuous road maintenance due to its heavy volume.

A high-speed transit system was identified in the 2011 Record of Decision (ROD) issued by the Colorado Department of Transportation (CDOT) and the Federal Highways Administration³ as part of the long-term solution to increase mobility, reduce congestion, and improve safety in the I-70 Mountain Corridor. The ROD called for such a system to carry passengers and light freight and provide a direct connection among the communities between the Eagle County Regional Airport and the C-470/I-70 interchange. According to the ROD, both highway improvements and high-speed mass transit are necessary in this corridor to meet 2050 travel demands.

The intent of this study is to evaluate the economic impacts, or the expected changes in visitor, business, and resident spending patterns, resulting from the introduction of a high-speed transit option in the I-70 Mountain Corridor. Key assumptions and the study methodology are detailed below.

KEY ASSUMPTIONS

Technology Agnostic

This study is technology agnostic, meaning that it does not assume that a specific high-speed technology has been selected for the I-70 Mountain Corridor. CDOT has conducted multiple studies over the years to evaluate various technology options for moving both passengers and freight. The Advanced Guideway System (AGS) Feasibility Study,⁴ completed in August 2014, is the main report analyzing alternatives in the I-70 Mountain Corridor. System options could range from high-speed rail to magnetic levitation (maglev) or hyperloop technologies to inter-connected autonomous vehicles. Throughout this study we use the term “high-speed transit,” sometimes shortened to HST, to refer to the range of technologies already available and new technologies yet to come. Further, while the AGS study identified some preferred alignments and potential station locations, this study does not assume that these are specified.

Rather, a set of assumptions describing the preferred outcomes of such a system were used throughout the analysis. This set of assumptions was developed in cooperation with CDOT, which combined the data presented in the 2011 PEIS Traffic Technical Report⁵ with the ridership model used in the AGS study.

Geography

While the ROD called for a high-speed transit system from the intersection of C-470/I-70 to the Eagle County Regional Airport (EGE), it was determined that a system connecting Denver International Airport (DEN) and EGE would likely increase ridership. Therefore, this study assumes that a high-speed transit system would connect

³ Colorado Department of Transportation. I-70 Mountain Corridor Record of Decision and Final Programmatic Environmental Impact Statement. June 16, 2011.

⁴ Colorado Department of Transportation, *Advanced Guideway System (AGS) Feasibility Study*, August 2014. <https://www.codot.gov/library/studies/study-archives/AGSstudy>.

⁵ Colorado Department of Transportation, *I-70 Mountain Corridor PEIS Travel Demand Technical Report*, August 2010, Reissued 2011. https://www.codot.gov/projects/i-70mountaincorridor/final-peis/final-peis-documents/technical-reports/Vol1_I-70_Mntn_Corridor_Final_PEIS_Travel_Demand_TR.pdf.

EGE with DEN, a 155-mile stretch through the I-70 Mountain Corridor and the Metro Denver region. While there is a portion of Jefferson County included in this stretch, the I-70 Mountain Corridor throughout this study includes data for five counties: Clear Creek, Gilpin, Grand, Summit, and Eagle counties. Metro Denver is defined to consist of seven counties, which are Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson counties. The analysis focuses on the economic impact to the I-70 Mountain Corridor region, although parts of the analysis highlight impacts to Metro Denver.

Trip Length, Vehicle Miles Traveled, and Vehicle Estimate

While the high-speed transit system is assumed to stretch 155 miles from DEN to EGE, few riders would ride the entire line. Further, only a portion of the vehicles would travel the entire roadway. Rather, travelers would be entering and exiting the roadway or transit system at various points along the routes. To facilitate analysis across multiple user types for which the length of the trip varies, all trips have been normalized to 122 miles as follows:

According to 2017 traffic count data for the 33 segments that comprise the 122-mile I-70 Mountain Corridor, there were approximately 1.7 billion vehicle miles traveled in the corridor throughout the year.⁶ In 2017, the average number of vehicles that traveled the corridor was 13.6 million, estimated by dividing vehicle miles traveled by the length of the corridor. By way of comparison, there were 12.7 million vehicles that traveled through the Eisenhower-Johnson Memorial Tunnel (EJMT) in 2017, which increased by 5.4 percent in 2018 to reach 13.4 million.

Types of Vehicle Trips

In a report on travel demand in the I-70 Mountain Corridor, CDOT identified four main types of travelers, consisting of commuters, recreationalists, local non-work trips, and other trips such as truck traffic and through trips.⁷ For this study, traffic along I-70 was classified into five categories that broadly align with CDOT's trip designations. The following estimates of vehicles traveling the corridor by type of trip were derived utilizing various sources and data:

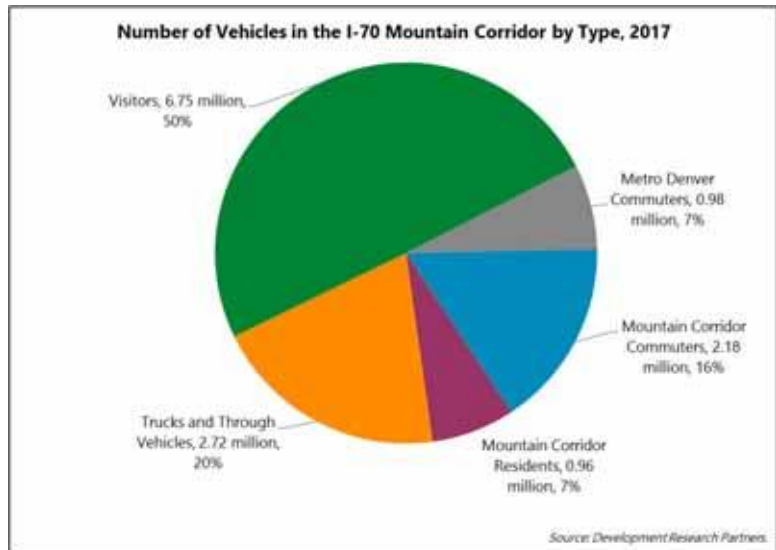
- **Trucks and Through Vehicles:** CDOT estimated that trucks and through traffic comprised about 20 percent of the vehicles in the EJMT in the 2014 AGS study. Applying this percentage to traffic along the corridor, there were an estimated 2.7 million trucks and through vehicles traveling the corridor in 2017.
- **Visitors (in-state and out-of-state visitors):** As will be explained in the Visitor Impacts section of this report, there were an estimated 23.7 million visitors to counties in the I-70 Mountain Corridor in 2017 based on estimates from visitor surveys published by Longwoods International and the Colorado Tourism Office. However, not all the visitors utilize I-70. For instance, many visitors to Gilpin County travel to Central City and Black Hawk via US Hwy 6. Some visitors cross into the corridor via US Hwy 24, US Hwy 40, US Hwy 285, CO Hwy 9, among others. Some visitors also utilize the EGE to get to the mountain communities. After adjusting visitors to account for those likely to use I-70 and based on an estimated 2.9 passengers per vehicle from Longwoods International survey data for size of travel party, there were an estimated 6.7 million visitor vehicles utilizing the I-70 Mountain Corridor in 2017, or about 50 percent of traffic.

⁶ Colorado Department of Transportation, Online Traffic Information System, Traffic Data Explorer, CDOT's Traffic Database, Accessed through February 15, 2019. dtdapps.coloradodot.info/otis/TrafficData.

⁷ Colorado Department of Transportation, *I-70 Mountain Corridor PEIS Travel Demand Technical Report*, August 2010, Reissued 2011. https://www.codot.gov/projects/i-70mountaincorridor/final-peis/final-peis-documents/technical-reports/Vol1_I-70_Mntn_Corridor_Final_PEIS_Travel_Demand_TR.pdf, 5.

- Metro Denver Commuters:** CDOT's PEIS Travel Demand report found that commuter trips comprised between 23 percent to 41 percent of traffic along various segments of the I-70 Mountain Corridor. Results of the resident surveys conducted by Development Research Partners for this study corroborated a value at the lower end of this range. Overall, it is assumed that 3.2 million vehicles traveled the corridor for commuting purposes in 2017, representing 23 percent of the trips.

Many of these commuter trips were residents from Metro Denver traveling to the corridor for work. Based on commuting patterns for these workers from U.S. Census Bureau data, an average number of weekly trips was assigned to various commute lengths along the corridor. Metro Denver workers in Clear Creek and Gilpin County are more heavily concentrated in leisure and hospitality industries where the average work week ranges from between 26 to 31 hours. Workers traveling to Eagle and Grand Counties likely commute only a few times a week while maintaining living arrangements in the mountains. Based on employee locations of residence and work, assuming typical workers commuting to Clear Creek and Gilpin Counties commute four days each week, and assuming commuters going to Summit, Grand, and Eagle Counties commute twice per week, Metro Denver commuters comprised an estimated 7 percent of vehicles in the I-70 Mountain Corridor in 2017.⁸ This estimate was adjusted for the number of commuters likely traveling to Gilpin County via U.S. Highway 6 and for an estimated 1.1 persons per vehicle from CDOT traffic demand estimates.⁹



- Mountain Corridor Commuters:** Subtracting Metro Denver commuters from the total commuting traffic implies that about 16 percent of the traffic in the corridor is associated with I-70 Mountain Corridor residents using I-70 to get to and from their place of employment either inside or outside the corridor. As with Metro Denver commuters, the analysis assumes 1.1 persons per vehicle.
- Mountain Corridor Residents (non-work trips):** The remainder of vehicles on the I-70 Mountain Corridor were assumed to be used by Mountain Corridor residents for non-work trips either inside or outside of the corridor, such as for shopping, to access personal services, and to visit family and friends. Mountain Corridor residents accounted for an estimated 961,000 vehicles or about 7 percent of the trips. As in the 2014 AGS

8. For example, a commuter traveling from Adams County to Vail would travel an estimated once per week to the corridor and back, for a total of two trips per week and 104 trips along the corridor each year. In total, the commuter would travel about 170 miles each week along I-70 from the C-470/I-70 interchange to Vail, or about 8,840 vehicle miles traveled in a year. If there were 630 people commuting from Adams County to Vail to work, they would account for an estimated 65,520 passenger trips in a year. Based on 1.1 commuters per vehicle these commuters would account for an estimated 59,600 vehicle trips along the I-70 corridor in a year and 5.1 million vehicle miles traveled from the C-470/I-70 interchange to the EGE. Based on the 122-mile length of the segment, these vehicles would comprise about 0.3 percent of the average vehicles along the corridor.

9. An estimated 20 percent of employees to Gilpin County use I-70 for commuting based on business interviews conducted for the analysis.

study, the analysis assumes average vehicle occupancy of 2.4 persons. Approximately 116,100 people lived in the Mountain Corridor in 2017, which means that residents traveled 2.75 miles per capita per day.

Estimated Annual Vehicles, Passengers, and Transit Riders by Type

	Number of Vehicles	Percent of Vehicles	Passengers Per Vehicle	Total Passengers	Percent of Passengers	Transit Riders	Percent of Riders
Trucks and Through Vehicles	2,717,000	20.0%	NA	NA	NA	NA	NA
Visitors	6,747,000	49.7%	2.9	19,566,000	77.1%	4,156,000	77.1%
Metro Denver Commuters	979,000	7.2%	1.1	1,077,000	4.2%	229,000	4.2%
Mountain Corridor Commuters	2,183,000	16.1%	1.1	2,401,000	9.5%	510,000	9.5%
Mountain Corridor Residents	961,000	7.1%	2.4	2,326,000	9.2%	494,000	9.2%
TOTAL	13,587,000			25,370,000		5,389,000	

NA=Not Applicable

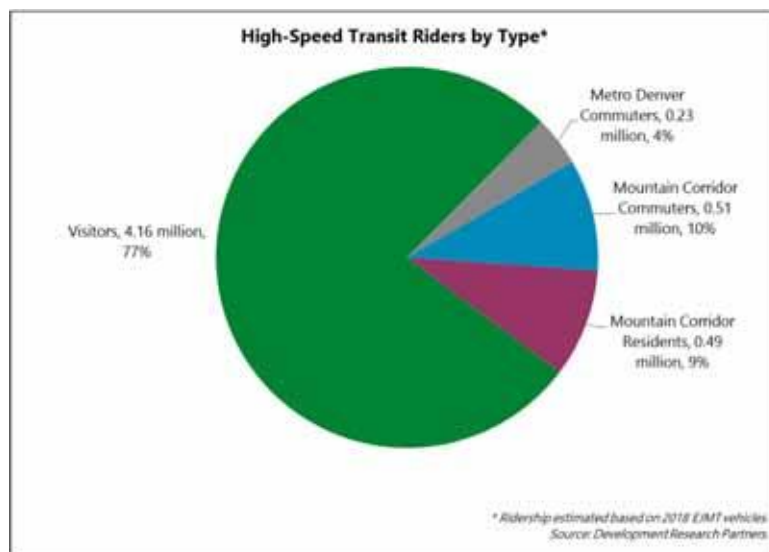
Note: the number of vehicles and passengers is based on 2017 data. The number of riders was calculated based on 2018 EJMT traffic.

Source: Development Research Partners.

High-Speed Transit Ridership

As estimated by Stephen Harelson from CDOT,¹⁰ an estimated 6.3 million riders would take a high-speed transit system from DEN to EGE in 2035. Traffic forecasts suggest that 15.8 million vehicles with 2.4 persons per vehicle will pass through the EJMT in 2035, which represents 37.9 million travelers. Therefore, high-speed transit ridership in 2035 represents 16.6 percent of the total expected EJMT travelers. EJMT travelers, as opposed to all travelers, was used in this calculation as travel forecasts are based on specific points as opposed to all vehicles along the corridor.

In 2018, there were 13.4 million vehicles that passed through the EJMT, or an estimated 32.5 million travelers based on 2.4 persons per vehicle. If high-speed transit existed today and assuming that 16.6 percent of the EJMT travelers would opt for high-speed transit, ridership would be 5.4 million travelers.



Estimated high-speed transit ridership is estimated by the same categories as the types of vehicle trips assumption, with the trucks and through vehicles subtracted and omitted from the analysis. To estimate the number of potential riders by type for high-speed transit, the number of vehicles by trip type was multiplied by the number of passengers per vehicle by trip type. These potential passengers were assumed to ride the high-speed transit system in the same proportion as their share of vehicle trips along the corridor. Therefore, of the estimated 5.4 million high-speed transit riders per year, an estimated 4.2 million trips were attributed to visitors, 229,000 trips were attributed to Metro Denver

¹⁰ Stephen Harelson, Colorado Department of Transportation, "Combining the data presented in the 2011 PEIS Traffic Technical Report with the Ridership model shown in the 2014 AGS Study, Draft, September 19, 2018.

commuters, 510,000 trips were attributed to Mountain Corridor commuters, and 494,000 trips were attributed to corridor residents.

Travel Time for Vehicles Versus High-Speed Transit

Under free flow conditions (that is, a vehicle traveling at the speed limit and unhindered by congestion, weather, accidents, or any other impediments to travel), it would take approximately two hours (120 minutes) to travel from the C-470/I-70 interchange to EGE.

However, not all travel through the I-70 Mountain Corridor occurs under free flow conditions. According to CDOT, there are 22 hours of peak travel periods in the westbound direction and 12 hours in the eastbound direction during winter and summer weekends. Specifically, westbound peak travel generally occurs on Friday from 12:00 pm to 8:00 pm, Saturday from 6:00 am to 2:00 pm, and Sunday from 6:00 am to 12:00 pm. Eastbound peak travel generally occurs on Saturday from 2:00 pm to 7:00 pm and Sunday from 12:00 pm to 7:00 pm.

Development Research Partners analyzed CDOT data detailing typical travel times by hour by day for the highway segment from the C-470/I-70 interchange to East Vail for the peak travel hours identified above for all weekends (not just summer and winter) for which data was available in 2018. During these peak travel times, the average trip delay per vehicle was 13.2 minutes. Combining this data with traffic count data by hour by day revealed that 21.7 percent of the total annual vehicles in the I-70 Mountain Corridor were on the road during these peak hours throughout the year. Travel delay varied greatly during congested periods throughout the year based on season and hour.

Travel time delays also regularly impact commuters, residents, and commercial vehicles along the I-70 Mountain Corridor during the weekdays. Based on the average travel time each hour from 8:00 am to 6:00 pm from Monday to Thursday, the average delay per vehicle was about 4 minutes.

A high-speed transit system would provide 24 round trips daily, representing 30-minute service frequencies during peak periods (6 hours of the day) and 60-minute service frequencies at all other times (12 hours of the day). The system would run seven days per week. CDOT estimates that a high-speed transit system would save travelers between 35 to 45 minutes under unobstructed traffic conditions between DEN and EGE. Assuming the higher end of this estimate, a ride on a high-speed transit system from the C-470/I-70 interchange to EGE would take 1 hour and 25 minutes (85 minutes).

Transportation Costs for Vehicles Versus High-Speed Transit

The cost of automobile travel is estimated as the Internal Revenue Service standard mileage rates used to calculate the deductible costs of operating an automobile for business purposes of \$0.545 per mile during 2018. The standard mileage rate for business use is based on an annual study of the fixed and variable costs of operating an automobile. Extending vehicle costs to per passenger costs results in costs ranging from \$0.188 per mile for visitors (2.9 passengers per vehicle) to \$0.495 per mile for commuters (1.1 passengers per vehicle). While the total cost of a vehicle trip from DEN to EGE is estimated to be about \$84, the cost per passenger varies according to the number of passengers per vehicle. The per passenger cost ranges from about \$29 per visitor to \$77 per commuter.

Per CDOT estimates, the fare on a high-speed transit system is \$0.26 per mile per rider, resulting in a total fare of about \$40 per rider for travel from DEN to EGE.

Depending upon the type of traveler, the cost of time spent traveling is based on 50 percent or 100 percent of the average hourly wage for all industries in either the I-70 Mountain Corridor or the Metro Denver region. The rate

used is specified in the relevant section of the study. The 2017 average hourly wage for all industries for Metro Denver was \$30.51 per hour and \$20.14 per hour in the Mountain Corridor.

METHODOLOGY

Economic impact analysis is the analytical approach used to assess the measurable direct and indirect benefits and costs resulting from a project over a specific period. Only those benefits that can be measured or quantified are included. Intangible benefits, such as enhancement of community character or diversification of the job base, are not included. This study analyzes only the direct economic impacts, or business-to-business and consumer-to-business spending patterns. No indirect or economic multiplier effects have been included, so the analysis is conservative and represents the low end of potential benefits.

The on-going annual economic impact of a high-speed transit system is discussed in terms of how the costs and benefits accruing to visitors, businesses, and residents differs between today's situation (baseline scenario, no HST) and a situation in which a high-speed transit system would be operational (expansion scenario, with HST). The baseline scenario is defined to be the current period, based on data for 2017-18 or the most recent years available. As the timeline for development of a high-speed transit system has not been established, the expansion scenario estimates the costs and benefits accruing to these three groups as if the system were fully built out and operational today.

The economic impact of a high-speed transit system is the difference between the two scenarios, excluding the temporary costs and benefits of all related construction activity. That is, the analysis is focused on how the annual level of economic activity will likely differ with a high-speed transit system compared with the baseline situation of no high-speed transit system, as measured in 2018 dollars. The economic impacts are described in terms of total spending or output, employment, and earnings.

Specifically, there are three types of economic impacts discussed:

- **Spending or Output:** The total value of the spending or output is estimated as the value of goods and services purchased from the Mountain Corridor businesses. Gross output includes the value of both intermediate goods and final products, so this is a larger value than gross domestic product (GDP) for the region.
- **Employment:** The total direct employment needed in the region to produce or support this level of spending or output is determined. These employees may be full-time or part-time, local or non-local workers.
- **Salary & Wages:** The analysis includes an estimate for the typical direct salary and wages associated with the employment. The earnings values are included in the total value of spending or output; salary and wages are not in addition to the value of the spending or output.

In addition, a high-speed transit system will require the development of transit stations along the Mountain Corridor. While the number and location of the stations are not known at this time, these transit stations will likely influence development patterns within the Corridor communities. The additional visitor, business, and resident spending resulting from the introduction of a high-speed system will support additional commercial and residential development. This new development may occur around transit stations or at infill or new locations around the communities.

The new commercial and residential development will generate additional property tax revenue. Further, the additional visitor, business, and resident spending occurring at the new commercial and lodging development will generate additional sales tax and lodging tax revenue. For informational purposes, the tax revenue related to the new development is included as a fiscal benefit of a high-speed transit system. However, this additional revenue is

generally used to provide the additional governmental services required by more visitors, businesses, and residents. This report does not include a complete fiscal analysis as the additional cost of governmental services is not included.

Induced Demand

This analysis specifically assumes that expected population and employment growth trends will continue in the I-70 Mountain Corridor with or without high-speed transit. The introduction of a high-speed transit system will cause growth above trend, based upon the increased spending patterns associated with the riders, due to induced demand.

According to CDOT's *I-70 Mountain Corridor PEIS Travel Demand Technical Report*,¹¹ induced travel demand suggests that if a transportation system is improved and provides higher quality options than existed previously, the system will attract additional users. Introducing additional capacity, either highway or transit, into the I-70 Mountain Corridor will influence unmet or suppressed travel demand and induce additional trips. For example, if a high-speed travel option opened in the corridor, faster travel times along I-70 initially would be expected. This results in additional users being attracted to the corridor because of at least one of six reasons:

- Users make longer distance trips in the same amount of time;
- Users divert from another roadway to this roadway;
- Users divert from transit to the freeway;
- Users move near the roadway because it now can provide improved service to other areas;
- Users adjust their travel times and now go closer to their desired time of arrival; and
- Users choose to make more trips.

As a result, induced and unmet demand will also increase the number of visitors and visitor spending, supporting additional business opportunities, and encouraging population growth. The business and resident surveys conducted by Development Research Partners support the idea that additional demand in the I-70 Mountain Corridor is likely with the introduction of high-speed transit. However, this level of induced demand is assumed to support the existing trend growth in the Mountain Corridor. It is only the spending of the new travelers to the Mountain Corridor on the high-speed system that create additional economic impacts in the region.

Project Parameters and Study Variables

Development Research Partners estimated the economic impacts described in this report based on primary data collected through over 3,700 business and resident survey responses, and 50 interviews with businesses, visitor organizations, and governmental entities. The summary results from the surveys are included in the Appendices, along with the list of the businesses and organizations interviewed. All individual survey responses and interview discussions are confidential, so results are discussed in the aggregate or in such a manner as to maintain the confidentiality of the participants' responses.

In addition, data from a variety of secondary sources including data from the U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, and state and local governments was used. Development Research Partners made every attempt to collect necessary additional or missing information and believe the information used in this report is from sources deemed reliable but is not guaranteed.

¹¹ Colorado Department of Transportation, *I-70 Mountain Corridor PEIS Travel Demand Technical Report*, (Denver, CO: Colorado Department of Transportation, 2010, Reissued 2011), 13, https://www.codot.gov/projects/i-70mountaincorridor/final-peis/final-peis-documents/technical-reports/Vol1_I-70_Mntn_Corridor_Final_PEIS_Travel_Demand_TR.pdf.

Some numbers in the study may not add exactly due to rounding. In general, numbers reported in the text of the report are rounded to the nearest hundred thousand if over \$1 million. Figures that are less than \$1 million are rounded to the nearest thousand. All values are measured in 2018 dollars.

REPORT ORGANIZATION

Following the Introduction, section two describes the current and historic traffic conditions along the I-70 Mountain Corridor. Sections three through five describe the economic benefits that a high-speed transit system would provide to visitors, businesses, and residents in the I-70 Mountain Corridor. In each of these chapters, current trends are discussed first, followed by the analysis of the economic impacts. Section six evaluates how a high-speed transit system may influence real estate development patterns along the I-70 Mountain Corridor. Increases in visitor, business, and resident spending patterns will lead to increased hotel, retail, office, and residential development, although no attempt is made to identify specifically where this development may occur.

This economic impact analysis assesses the likely changes in visitor, business, and resident spending patterns resulting from the introduction of a high-speed transit system. However, the development of such a system is likely to generate impacts that either cannot be quantified or are beyond the scope of this report. These other quantitative and qualitative impacts are still important to the project and are highlighted in section seven.

All economic impacts are combined and summarized in the Summary section of the report.

II. CURRENT AND HISTORIC TRAFFIC CONDITIONS

I-70 runs through the Rocky Mountains over several mountain passes including the highest point of the U.S. Interstate System just east of the Eisenhower-Johnson Memorial Tunnel (EJMT). Additionally, I-70 provides access to numerous mountain communities via smaller highways that branch off the interstate. Because of its location, I-70 in the Mountain Corridor is prone to avalanches, rockslides, and can often be closed due to adverse weather conditions and traffic accidents. Due to these factors, and to the highway's significance in connecting eastern and western Colorado, this stretch of I-70 requires continuous road maintenance and is plagued by congestion fueled by Colorado's fast-growing population and increased visitor activity.

INCREASING CONGESTION

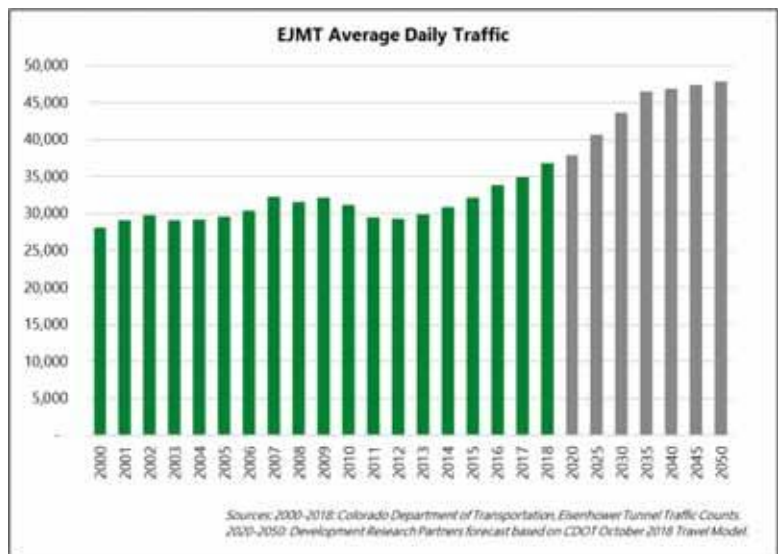
Due to the concentration of outdoor recreation activities in the I-70 Mountain Corridor, the region is a major destination for Colorado residents as well as for out-of-state and international visitors. The region's increasing traffic volume reflects its popularity. There were 36,800 vehicles that passed through the EJMT each day on average in 2018, and at peak times the number rises to between 52-54,000 vehicles. Traffic through the tunnel has increased 30 percent since 2000, and the volume is expected to grow by another 25 percent over the next 20 years.¹²

Colorado has experienced significant population and business growth in recent years, placing more pressure on infrastructure

as people flocked to the state for career opportunities and the outdoor recreation lifestyle. Colorado's population increased 1.5 percent per year from 2012 to 2018, from 5.2 million to 5.7 million people.¹³ About 84 percent of the state's population is located along the Front Range, stretching from Larimer and Weld counties to Pueblo County. Population along the Front Range, which is where most of Colorado's in-state visitors reside, grew at a faster pace of 1.7 percent per year during the same period. In addition, Colorado out-of-state tourism increased 4.2 percent per year from 2012 to 2018. The increase in both in-state and out-of-state visitors plus extreme weather events, road construction, accidents, and large volumes of intra and inter-state freight along the main east-west route through Colorado have all contributed to the increased congestion on I-70. Further, the population growth pressures are not expected to subside as Colorado's population is expected to increase 1.4 percent annually through 2025 and the Front Range population is expected to grow at a faster 1.5 percent annual pace.

Peak Travel Periods

Congestion on I-70 is continuous throughout the year, and peak travel periods occur daily, weekly, and seasonally. For travel between Metro Denver and the Mountain Corridor Region, there are 22 hours of peak travel periods in the westbound direction and 12 hours in the eastbound direction during winter and summer weekends. Specifically, westbound peak travel generally occurs on Friday from 12:00 pm to 8:00 pm, Saturday from 6:00 am to 2:00 pm, and Sunday from 6:00 am to 12:00 pm. Eastbound peak travel generally occurs on Saturday from 2:00



¹² Steve Harelson, CDOT, Travel Model_Oct2018, received via email 10/26/2018.

¹³ State Demography Office, Preliminary Population Forecasts for Colorado Regions, 2000 – 2050.

II. CURRENT AND HISTORIC TRAFFIC CONDITIONS

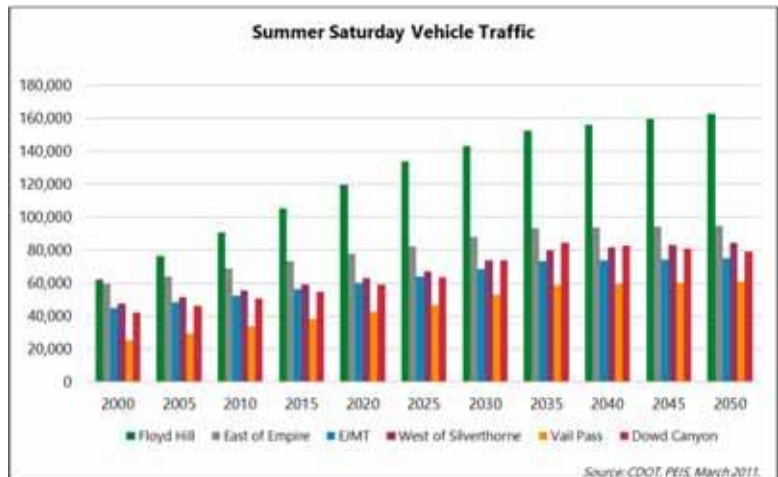
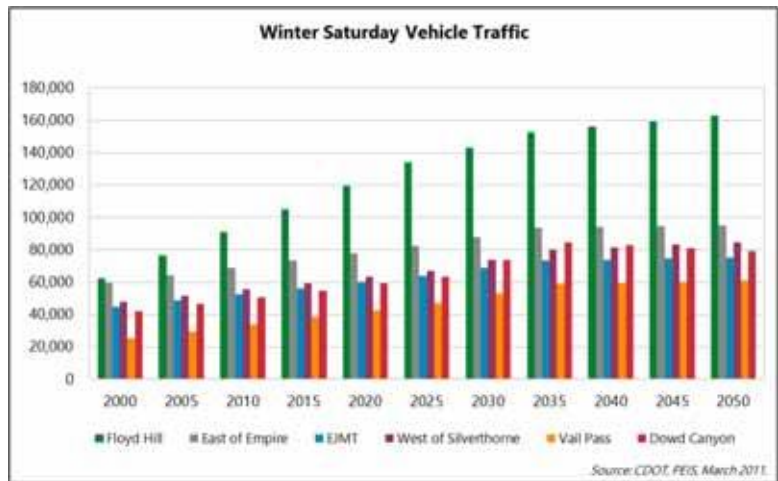
pm to 7:00 pm and Sunday from 12:00 pm to 7:00 pm. Travel during peak periods can sometimes extend a typical one-hour trip from Silverthorne to C-470 to up to two and a half hours travel time. Winter traffic can be further delayed by weather while summer traffic must contend with necessary road maintenance and improvement projects. Seasonally, summer peak travel occurs between June and August, especially over holiday weekends such as July 4th. Winter peak travel occurs between January and March, although traffic volume starts increasing around late November and into December.¹⁴ As the two charts to the right show, there is little difference between Winter Saturdays and Summer Saturdays in terms of the total number of vehicles on I-70 during a 24-hour period at the various points along the corridor.

If current traffic patterns continue, peak travel periods will become more congested. Recreational travelers may choose to postpone or take their trip early to avoid rush hour traffic. While this will temporarily relieve some rush hour traffic, it will simply expand the peak travel times in the long run. According to CDOT's PEIS, by 2025 Thursday westbound summer traffic is expected to double from 2005 baseline levels, and it is expected to meet or exceed the weekend traffic volume experienced in 2005.

Commuter traffic, though more constrained by working hours, may begin to spread out of the peak travel times as well. Workers may opt to use flex schedules or change routes to avoid maximum traffic flows if possible. In some cases, workers are opting out of jobs in the Mountain Corridor due to commuting costs and longer commute times. As 40 percent of workers in the corridor work in visitor-related industries, their schedules are tied to recreation and restaurant hours to service visitors and have less flexibility to travel in the I-70 corridor during less congested times. Many businesses throughout the Mountain Corridor run bus or van services to recruit and retain employees who otherwise would seek employment elsewhere.

ROAD CLOSURES AND DELAYS

Adverse weather, rock slides, and avalanches all contribute to the disruption of traffic along the I-70 corridor. For example, Vail Pass closed 27 times during the 2017/2018 winter season. There are over 750 locations statewide recognized as having chronic rockfall hazards and CDOT maintains a regular program to prevent and address rock



¹⁴ Steve Harelson, CDOT, Travel Model_Oct2018, received via email 10/26/2018.

II. CURRENT AND HISTORIC TRAFFIC CONDITIONS

slides. For example, the department undertook rockfall blasting on I-70 near Dumont in 2017 and Georgetown Hill in 2011-2012. Every winter, CDOT regularly monitors and/or controls some 278 of the 522 known avalanche paths in Colorado to help prevent avalanches from impacting Colorado highways. The I-70 Mountain Corridor includes five avalanche corridors with 104 avalanche paths that CDOT actively monitors and controls.

Traffic accidents account for most trip delays and road closures, and despite strong efforts to improve safety on the roads, Colorado's rising population has led to an increase in vehicle accidents. CDOT reported a total of 121,149 crashes in 2016, with 63 percent caused by human error and 25 percent related to weather conditions including snow, sleet, hail, and rain. During 2016 3,346 traffic accidents occurred in the Mountain Corridor.

Whether it is repairs or improvements, construction activities increase travel time for vehicles along I-70. For example, during the Veterans Memorial Tunnels expansions westbound and eastbound in 2014 – 2015, detours, lane closures, tunnel blasting, and rock cut blasting lengthened travel times for all vehicles. Routine road repair work is concentrated during the late spring through early fall during more favorable weather conditions.

CAPACITY

The current capacity of I-70 throughout the Mountain Corridor region is variable based on weather conditions, time of day or year, and the condition of the road. Free flow capacity of the six-lane segments is 112,320 vehicles per day and the four-lane segments is 74,800 vehicles per day. This means that the highway today is at or over capacity during much of the peak travel time. I-70 is 25 percent over capacity on the two-lane segment from Floyd Hill to the Veterans Memorial Tunnels. West of Silverthorne, the highway is currently below capacity, absent weather events or other natural disasters. Capacity on I-70 in the Mountain Corridor is significantly lower than what is expected on flat, straight highways. For example, a flat grade section of highway can carry 30 percent more vehicles than two lanes on a steep 6 percent up or down grade.

As capacity continues to lag demand, I-70 traffic volume in the Mountain Corridor will reach higher levels of excess congestion. This level of congestion adversely affects the local economy and residents as well as visitors to the area. I-70 motorists will be less willing to stop at local towns while in traffic or may avoid the region altogether. The Colorado Department of Transportation estimates that by 2035, up to 17 percent of winter season motorists who would normally travel I-70 in the Mountain Corridor on a Saturday will choose not to travel. I-70 traffic demand will decline by up to 19 percent in the summer as Metro Denver residents choose not to travel due to congestion. Even with travelers opting out, traffic counts continue to rise in the corridor.

TRANSPORTATION IMPROVEMENTS

The Record of Decision,¹⁵ which is the final step in the Tier 1 National Environmental Policy Act (NEPA) process, established that the preferred alternative for improving transportation in the I-70 Mountain Corridor is a multimodal solution and includes three main components: 1) Non-infrastructure Components, 2) the Advanced Guideway System, and 3) Highway Improvements.

Many of the non-infrastructure components can be carried out without federal involvement and include a broad range of demand management strategies led by the I-70 Coalition. Some of these strategies include converting day trips to overnight stays, programs for improving truck movements, promoting high-occupancy travel and

¹⁵ Colorado Department of Transportation. *I-70 Mountain Corridor Record of Decision and Final Programmatic Environmental Impact Statement*. June 16, 2011.

II. CURRENT AND HISTORIC TRAFFIC CONDITIONS

public transportation, and the use of technology advancements and improvements to keep travelers informed of traffic conditions.

As for the second component, the 2014 Advanced Guideway System feasibility study determined that there were feasible AGS technologies, but funding for such a system has not been identified.

Road improvements, including the already completed expansion of the Veterans Memorial Tunnels, will be followed by the Floyd Hill redesign and widening westbound to six lanes from Floyd Hill to east of Idaho Springs. Non-infrastructure operational improvements include the eastbound express toll lane and a westbound mountain express lane, anticipated to open late 2020. CDOT and its partners are also exploring technology solutions to create smarter roadways with more informed drivers and, eventually, self-driving cars that can communicate with each other and the roads on which they travel.

Improvements have provided at least temporary relief for congestion. For example, the eastbound I-70 express toll lane in operation during peak travel times has delivered more consistent, faster speeds and reduced travel times for all lanes. During the 2017 winter season, vehicle travel volumes increased 9 percent compared with the 2016 winter season, traffic incidents declined by 22 percent, and incident response times improved by four minutes.¹⁶

Together, state and local governments and businesses have put together various measures to ease congestion, including hotel and restaurant incentives to delay and disperse peak travel, proper tire tread laws, and local transit options for commuting residents. The inclusion of a high-speed transit option would provide a significant boost in capacity, has the potential to lower vehicle miles traveled, relieve driver stress, and provide an environmentally friendly solution to preserve the Mountain Corridor.

¹⁶ Colorado Department of Transportation, *2017 Annual Report*.

Colorado is an international hub of tourism and outdoor recreation, supported by its world-class facilities, abundant recreational opportunities, and diverse landscapes. In 2017, the state continued an eight-year streak of record-setting growth in visitors, visitor spending, and tax generation. The state welcomed 84.7 million visitors, consisting of 37.9 million overnight visitors and 46.8 million day visitors.¹⁷ About 47 percent of these visitors (39.7 million) were from out-of-state, while the other 53 percent were Colorado residents taking business and pleasure trips within the state. Colorado ranked among the top 10 tourist-attracting states in 2017.¹⁸

Visitors spent \$18.8 billion in the state in 2017, consisting of \$15.3 billion spent by overnight visitors and \$3.5 billion spent by day visitors. The out-of-state visitors tend to spend significantly more money on their travel than in-state residents, an estimated \$13 billion or 69 percent of the total visitor spending.¹⁹ These visitors also generated a total of nearly \$1.3 billion in state and local tax revenue.²⁰

I-70 MOUNTAIN CORRIDOR VISITOR TRENDS

Colorado tourism has grown consistently since the Great Recession in 2009, with domestic visitors increasing by 41 percent, or more than double the national growth rate of 20 percent.²¹ Over the last several years, several trends continue to drive the increase in visitors to the state including population growth, the state's increasing popularity, and the Colorado Tourism Offices' "Come to Life" marketing campaign. Further, ski towns in the Mountain Corridor looking to diversify have transformed themselves into four-season destinations, offering numerous year-round activities.

Within Colorado, I-70 is a primary route to major ski resorts and recreational areas. Colorado's visitor growth relies on the state's ability to continue to provide an excellent experience, enough lodging, and ease of accessibility to the Mountain Corridor via I-70.

Recreational Activities

Colorado is a major destination for general touring trips and outdoor trips. Within the state, over 90 percent of Colorado adult residents participate in outdoor recreational activities throughout the year.²² Further, outdoor recreation is a significant driver in Colorado's economy. Outdoor recreation's economic impact in Colorado has more than doubled in the past four years, adding \$62.5 billion to the state's economy and supporting 511,000 jobs. Further, \$9.4 billion was generated in local, state, and federal tax revenue. Outdoor recreation is expected to grow as the state's population increases and tourism grows.

According to the Colorado 2019 Statewide Comprehensive Outdoor Recreation Plan (SCORP), the Northwest and North Central regions—which include Clear Creek, Eagle, Gilpin, Grand, and Summit counties—were the two areas where the largest proportions of outdoor recreation participants visited, with 49 percent and 46 percent of Colorado adults taking part in outdoor recreation activities in those regions, respectively. The value of outdoor recreation output in these two areas represented 46 percent of the total economic impact of outdoor recreation to the state and generated 253,616 jobs.

¹⁷ Longwoods International, *Colorado Travel Year 2017* (Denver: Colorado Tourism Office, 2018), 82-83.

¹⁸ Ed Sealover, "Colorado Moves Up Ranks of Top 10 Tourist-Attracting States," *Denver Business Journal*, June 28, 2018, <https://www.bizjournals.com/denver/news/2018/06/28/colorado-top-10-tourist-attracting-states.html>.

¹⁹ Longwoods International, *Colorado Travel Year 2017*, 98-120.

²⁰ John Wenzel, "Colorado's Record Tourism Growth Hits New Milestone: 86 Million Visitors, \$1.28 Billion in Tax Revenue," *Denver Post*, June 28, 2018, <https://www.denverpost.com/2018/06/28/colorado-tourism-record-2017>.

²¹ Wenzel, "Colorado's Record Tourism."

²² Colorado Parks and Wildlife, *The 2017 Economic Contributions of Outdoor Recreation in Colorado*, (Fernandina Beach, FL: Southwick Associates, 2018), 2. https://cpw.state.co.us/Documents/Trails/SCORP/2017EconomicContributions_SCORP.pdf.

Economic Contribution of Outdoor Recreation in Colorado by Region, 2017

	North					South		Colorado
	Northwest ¹	Central ²	Metro	Northeast	Southeast	Central	Southwest	
Output (\$M)	\$14,879	\$13,846	\$10,648	\$505	\$1,648	\$6,384	\$5,009	\$62,540
Salaries & Wages (\$M)	\$5,088	\$4,384	\$3,862	\$166	\$494	\$1,845	\$1,673	\$21,372
GDP Contribution (\$M)	\$8,276	\$7,487	\$6,167	\$254	\$808	\$3,201	\$2,657	\$34,997
State/Local Taxes (\$M)	\$1,231	\$1,002	\$743	\$51	\$184	\$615	\$490	\$4,369
Federal Taxes (\$M)	\$1,195	\$1,074	\$934	\$39	\$121	\$439	\$380	\$5,125
Jobs	133,658	119,958	86,976	5,709	20,209	68,321	53,090	511,059

¹ The Northwest Region includes Eagle, Garfield, Grand, Jackson, Mesa, Moffat, Pitkin, Rio Blanco, Routt, & Summit counties.

² The North Central region includes Adams, Arapahoe, Boulder, Clear Creek, Gilpin, Larimer, & Weld counties.

Source: Colorado Parks and Wildlife, 2019 Statewide Comprehensive Outdoor Recreation Plan.

This area includes numerous state parks for camping, county open spaces for hiking and biking, and public waterways for fishing. These five Mountain Corridor counties are home to 11 major ski areas:

- Arapahoe Basin
- Beaver Creek Resort
- Breckenridge Ski Resort
- Copper Mountain
- Echo Mountain
- Granby Ranch
- Keystone Resort
- Loveland Ski Area
- Ski Cooper
- Vail Ski Resort
- Winter Park Resort

Two national forests in these counties include White River National Forest and the Arapaho and Roosevelt National Forest. Other activities include mountaineering, rock climbing, biking, camping, four wheeling, snowmobiling, and snowshoeing, among others. Federal public lands abound, with some of the state's best hunting and tributaries to the Colorado River that offer outstanding white water and fishing adventures. In fact, Grand Lake is the deepest natural lake in Colorado and hosts anglers, boaters, hikers, and ATV riders. The area also includes 125 miles of groomed trails offering snowmobiling, cross-country skiing, and ice fishing.

Recreational visitors traveling to or through the I-70 Mountain Corridor create a significant amount of traffic congestion year-round. With 70 percent of day trips originating in state²³, the congestion caused by in-state recreational visitors is most clearly observed on weekends in the winter and summer. Ski and snowboarder traffic cause major traffic delays due to concentrated travel times with travelers destined for a limited number of locations in the winter time. A growing number of summer visitors, attracted to the same ski resort destinations by festivals and new on-mountain activities including mountain biking, hiking, and recreation parks, are creating the same, if not worse, traffic conditions during the summer months.

²³ Longwoods International, *Colorado Travel Year 2017*, 28.

The busiest travel seasons for Colorado’s high country tend to be winter and summer. The winter generally spans from November through mid-to-late April, or when the ski resorts close. Summer activities generally take place between June through the middle of September. Shoulder seasons occur every spring and fall and are characterized by cooler temperatures and fewer visitors.

Winter (November–April)

Winter visitors to Colorado have a multitude of recreational opportunities from which to choose. Winter visitors to the Mountain Corridor region can ski or snowboard at major resorts, snowshoe and Nordic ski along hundreds of backcountry trails, go snowmobiling, engage in ice climbing,

try ice fishing, or attend a cultural event in many of the mountain resort towns. In 2018, more than 39 percent of visitor trips to Colorado occurred during the winter.²⁴ Based on interviews with the tourism industry in the I-70 Mountain Corridor, nearly 60 percent of winter visitors were out-of-state overnight visitors, while about 13 percent were in-state overnight visitors and the remaining were day visitors.

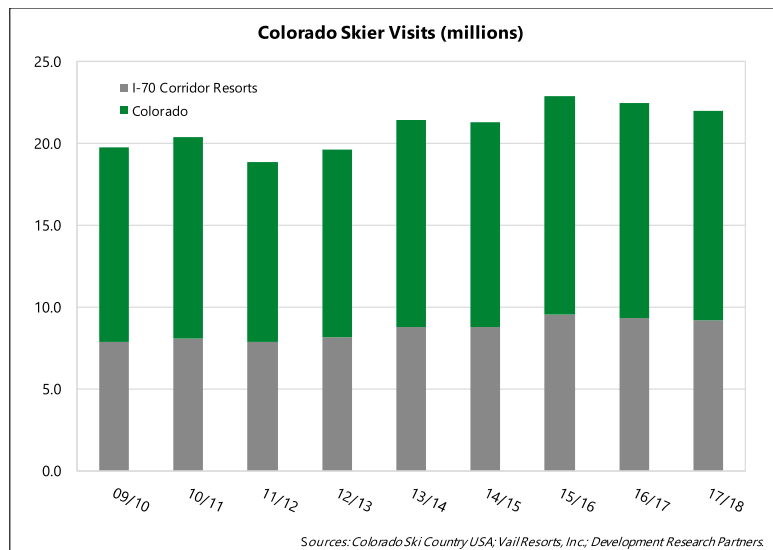
Colorado remains the number one ski destination in the country with over 21 percent of the market share.²⁵ Colorado is a top three ski and snowboard state, with 77 percent of the state’s resorts in the top 100 U.S. ski resorts.²⁶ The state is home to 28 ski and snowboard resorts offering 330 ski lifts and 67,490 skiable acres.²⁷ Estimates from Colorado Ski Country

Colorado Ski Resorts



Source: Colorado Tourism Office.

Colorado Skier Visits (millions)



Sources: Colorado Ski Country USA; Vail Resorts, Inc.; Development Research Partners.

²⁴ Winter is defined as November 1 through mid-April, which may vary across mountain towns since the end of the winter season is officially over when the ski resorts close. Visitors by season was derived using proprietary data from the Colorado Tourism Office.

²⁵ Longwoods International, *Colorado Travel Year 2017*, 20.

²⁶ Tess Cagle, "TurnKey Vacation Rentals' 2018 Ski Report," Turnkey (blog), November 26, 2018. <https://blog.turnkeyvr.com/turnkey-vacation-rentals-2018-ski-report>.

²⁷ On The Snow, "Colorado Ski Statistics," February 26, 2019, <https://www.onthesnow.com/colorado/ski-resorts.html>.

USA and Vail Resorts, Inc. indicate that the number of skier visits during the 2017-18 ski season declined by about 2.4 percent compared with the prior season, falling to about 12.8 million skier visits. Colorado skier visits—or the count of persons skiing or snowboarding for any part of one day—peaked during the 2015-16 season at 13.4 million visits.

The 11 resorts located along the I-70 Corridor hosted approximately 9.2 million visitors or 72 percent of total ski/snowboard visitors during the 2017-18 season. Like the trend across the state, the number of skier and snowboard visits to these 11 resorts during the 2017-18 ski season declined by 1.5 percent compared with the prior season and peaked during the 2015-16 season at 9.5 million visits.

Among the places and attractions visited in Colorado, about 30 percent were to mountain towns and ski resorts in the I-70 corridor. While ski and snowboard visitors represent only 5 percent of all visitors to the state, skiers and snowboarders contribute a relatively high proportion of total visitor spending (13 percent), with Colorado overnight ski visitors spending \$1,248 per capita per trip.²⁸

Colorado's ski industry generates a \$4.8 billion annual economic impact, comprising a significant portion of the state's tourism and recreation sectors and supporting a sizeable share of the employment and tax base in Colorado's mountainous regions. Skiing and snowboarding in Colorado support more than 46,000 year-round equivalent jobs, or about 14 percent of total leisure and hospitality jobs in the state, generating \$1.9 billion in earnings per year.²⁹

Summer (June-September)

Colorado is a top destination for summer recreational visitors. In 2018, more than 35 percent of visitor trips to Colorado occurred during the summer.³⁰ Based on interviews with the tourism industry in the I-70 Mountain Corridor, nearly 50 percent of summer visitors were out-of-state overnight visitors, while about 15 percent were in-state overnight visitors and the remaining were day visitors. Hiking/backpacking and visiting national parks represent two of the top activities for Colorado leisure visitors.³¹ Rocky Mountain National Park, with a portion of the park located in Grand County, is one of the most visited national parks in the nation and along the I-70 Mountain Corridor. Further, the White River Forest and Arapaho-Roosevelt National Forest, located along I-70, are two of the most visited national forests in the U.S., attracting a combined 18.5 million visitors spending \$2.2 billion annually.³²

According to the SCORP, nine out of the top 10 activities in Colorado are summer-related. Walking, hiking/backpacking, and picnicking/tent camping represent the three most popular outdoor recreation activities, as calculated by total statewide activity days. Among the popular trails are the six mountain peaks over 14,000 feet ("14ers") in the I-70 corridor. Other summer recreational opportunities visitors have access to in the I-70 Mountain Corridor include boating, camping, canoeing, fishing, golf, horseback riding, jet skiing, kayaking, motorcycle touring, rock climbing, water skiing, and rafting. While the great outdoors is a significant attractor of tourism, the state is a year-round destination featuring a variety of attractions and festivals, concerts, events, arts and culture, and history and heritage.

²⁸ Longwoods International, *Colorado Travel Year 2017*, 25.

²⁹ Colorado Ski Country USA, "Economic Study Reveals Ski Industry's \$4.8 Billion Annual Impact to Colorado," accessed March 8, 2019, https://www.coloradoski.com/media_manager/mm_collections/view/183.

³⁰ Summer is defined as June 1 through mid-September. Visitors by season was derived using proprietary data from the Colorado Tourism Office.

³¹ Longwoods International, *Colorado Travel Year 2017*, 44.

³² USDA Forest Service, *National Visitor Use Monitoring*, accessed March 8, 2019, <https://apps.fs.usda.gov/nvum/results>.

Shoulder Seasons

The Colorado high country has two distinct shoulder seasons. The spring and fall seasons offer visitors reasonable accommodations and select restaurants offer discounts and dining deals. Top shoulder season activities in the I-70 Mountain Corridor include hiking, biking, fishing, arts and culture, and historic walking tours, among others. Colorado's shoulder seasons have become increasingly popular over the last five years, based on information collected from numerous interviews conducted for the study. In fact, about 10 percent of visitor trips to Colorado occurred during the spring shoulder season and 16 percent occurred during the fall shoulder season.³³

Year-Round Activities

While Colorado is well-known for its outdoor recreation activities, year-round entertainment and cultural options also exist for residents and visitors. The state's long tradition of stellar cultural events, performing arts series, and festivals are major contributors to tourism and economic activity. Venues in the I-70 corridor regularly host world-class orchestra and dance performances, cultural events, festivals, art exhibits, and musical artists.

Gaming

Central City and Black Hawk are two of Colorado's major gambling destinations located along the I-70 Mountain Corridor, with a total of 22 casinos. Black Hawk is located adjacent to Central City, forming the designated Central City/Black Hawk National Historic District. The Central City Parkway, which was completed in 2004, connects the gaming areas directly to I-70.

Black Hawk is home to 16 casinos generating \$621.4 million in gaming revenue in 2017, up 1.9 percent over 2016. Black Hawk welcomes about 20,000 visitors daily or about 7.3 million visitors annually. Central City is home to 6 casinos generating \$71.9 million in gaming revenue in 2017, up 3.2 percent over 2016. The 2017 gaming revenue total was the highest ever recorded by Colorado's commercial casino industry, surpassing the previous record set in 2007 and reflecting strong growth in the Colorado economy.³⁴ In 2017, average expenditures were \$237 per person on casino trips in Colorado.³⁵

Regional Airports

Two commercial service airports—Eagle County Regional Airport (EGE) and Denver International Airport (DEN) and two general aviation airports—Granby-Grand County and Kremmling-McElroy Field—are located along the I-70 Mountain Corridor. Commercial service airports provide scheduled air carrier and/or commuter service, and many also offer services for recreational and corporate travel. General aviation airports provide services to the recreational and corporate traveler, in addition to training facilities.

In 2017, just under 6 in 10 out-of-state vacationers drove to the state, while most of the remainder flew in. About 3 in 10 out-of-state visitors rented a vehicle while visiting and about 2 in 10 flew in, then rented a car for their touring trip. Among those visitors who flew in, the majority of leisure travelers arrived at DEN (86 percent), with most of the remainder split among other regional airports including EGE (4 percent).³⁶ Further, air travel serving

³³ Visitors by season was derived using proprietary data from the Colorado Tourism Office.

³⁴ Colorado Department of Revenue, Division of Gaming, *2017 Fact Book and Abstract*, (Golden, CO: Colorado Department of Revenue Enforcement Division-Gaming, 2018), https://www.colorado.gov/pacific/sites/default/files/DOG_2017_Fact%20Book%20and%20Abstract%20Final.pdf.

³⁵ Longwoods International, *Colorado Travel Year 2017*, 24.

³⁶ Longwoods International, *Colorado Travel Year 2017*, 40.

the I-70 Corridor accounts for about 6 percent to 8 percent of all person trips within the Corridor.³⁷ Over the last several years, airlines have expanded seasonal service from DEN to EGE during the winter months to increase traveler convenience and support growing demand. Given increased demand, the number of winter flights from DEN to EGE over the last year grew from 48 to 65. Approximately one-third of destination guests in Eagle County travel through the EGE. According to the Vail Valley Partnership, these visitors stay longer and spend more money than other visitors. Increased air access also allows flexibility for local businesses to utilize EGE for connections to major markets, which potentially saves staff time and increases business productivity.

If a high-speed transit option were introduced, more visitors may choose to take this option rather than fly to or connect to other regional airports located in the I-70 Mountain Corridor. If enplanements and deplanements decline in the I-70 Mountain Corridor, the region could lose out on several sources of revenue including food, lodging, and rental cars or taxi services. This may create fewer jobs in the areas surrounding the regional airports. For example, the average annual salary in Colorado for an airfield operations specialist is \$57,830 and \$209,830 for airline pilots, copilots, and flight engineers.³⁸ These highly-paid employees spend money on lodging, food, and recreation while they are in the community.

High-speed transit has led to major changes in the supply of interurban transportation for those areas that have extended their high-speed transit networks and services. One of the main impacts has been the replacement of demand for other modes, most notably air transportation.³⁹ This intermodal competition could lower the cost of existing ticket prices from DEN to other regional airports in the I-70 Corridor, making it more cost effective for these visitors. For example, the average ticket price at DEN is \$296.49 compared with EGE of \$689.18 in 2018.⁴⁰ Alternatively, reduced ticket prices may encourage more air travel between DEN and other regional airports, thus increasing visitors, increasing spending, generating additional tax revenue, and increasing employment and earnings for those workers at the regional airports. As a result, the impact of a high-speed transit system on air travel in the I-70 Mountain Corridor is indeterminate.

Economic Impact of Regional Airports Along the I-70 Mountain Corridor, 2013

	Direct + Indirect Employees	Total Wages (000s)	Wages/ Employee	Economic Activity (000s)	Visitors
<i>Commercial Service Airports</i>					
Denver International Airport	183,878	\$8,478,226	\$46,108	\$25,815,248	6,900,000
Eagle County Regional Airport	6,294	\$217,511	\$34,559	\$635,901	196,000
<i>General Aviation Airports</i>					
Grandby-Grand County	21	\$776	\$36,952	\$2,340	830
McElroy Field (Kremmling)	19	\$595	\$31,324	\$2,047	3,000

Source: Colorado Department of Transportation.

³⁷ Colorado Department of Transportation and the U.S. Department of Transportation, Federal Highway Administration, *I-70 Mountain Corridor Final Programmatic Environmental Impact Statement*, (Denver, CO: Colorado Department of Transportation, 2011), 1-12, https://www.codot.gov/projects/i-70mountaincorridor/final-peis/final-peis-documents/MainText_combined_withTabs.pdf.

³⁸ U.S. Bureau of Labor Statistics, "Wages by Area and Occupation May 2018," last modified February 28, 2017, <https://www.bls.gov/bls/blswage.htm>.

³⁹ Dani Albalade, Germà Bel, and Xavier Fageda, "Competition and Cooperation Between High-Speed Rail and Air Transportation Services in Europe," *Journal of Transport Geography* 42, (January 2015): 166-174, <http://dx.doi.org/10.1016/j.jtrangeo.2014.07.003>.

⁴⁰ U.S. Bureau of Transportation, Bureau of Transportation Statistics, "Average Domestic Airline Itinerary Fares by Origin City for Q3 2018," accessed February 26, 2019, <https://www.transtats.bts.gov/averagefare/>.

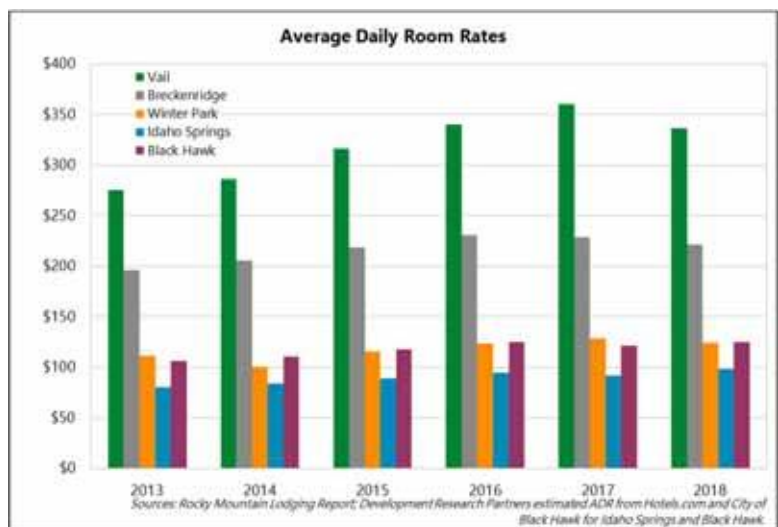
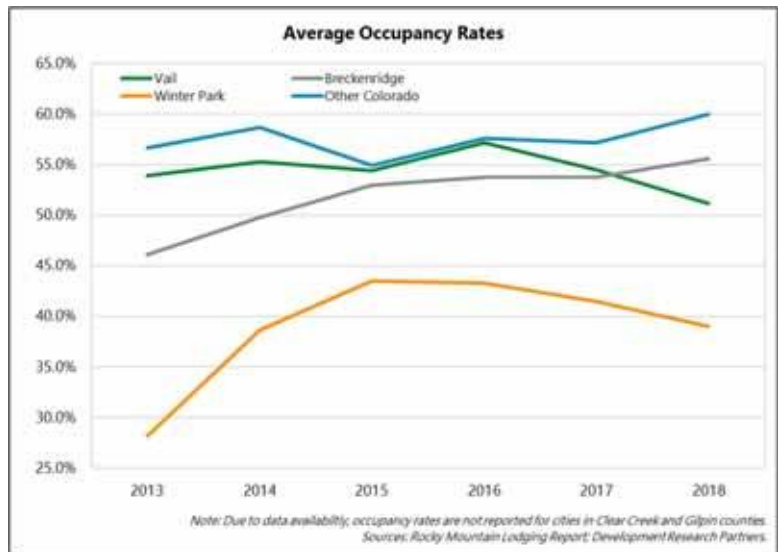
Lodging & Occupancy Rates

Lodging reservations is an indicator of a healthy tourist-based economy. As the numbers of visitors has increased over the last several years to the I-70 Mountain Corridor, occupancy rates and average daily room (ADR) rates have also increased. At the same time, several hotel and lodging projects are underway or were completed between 2013 and 2018, which has led to fluctuations in occupancy rates and ADR across the individual areas in the I-70 Mountain Corridor.

Occupancy rates have generally increased since 2013 for most communities along the I-70 Mountain Corridor. However, following declines in skier visits in 2017 and 2018, Winter Park and Vail experienced declines in occupancy rates. Strong weekday visitor demand and a growing summer tourism base continue to support reasonable occupancy levels. Signaling increased demand by visitors in the I-70 Mountain Corridor, the ADR has also generally increased for all areas between 2013 through 2018.

Rising interest by visitors has led to elevated demand for hotel development throughout the I-70 Mountain Corridor. Several notable projects over the last several years included:

- Antlers at Vail will undergo a \$4 million remodeling project in April 2019 that will transform the property's lobby, front desk, and reception area.
- Vail Marriott Mountain Resort launched the \$25 million renovation project in 2018 that will include new guest rooms and meeting spaces.
- A \$65 million renovation transformed the former Vail Cascade Resort & Spa into the Hotel Talisa, a luxury 285-room property.
- The Inn at Keystone was remodeled and rebranded as the Hyatt Place Keystone in 2018 and opened with 103 rooms and 16 suites.
- The Monarch Casino & Resort, Inc. broke ground in 2017 on its hotel tower and casino expansion. The expansion will nearly double the 30,000 existing square feet of casino space and add a 23-story hotel tower with approximately 500 guest rooms and suites, which is slated for completion in mid-2019.
- A Residence Inn opened in Breckenridge at the end of 2016, replacing the Breckenridge Mountain Lodge.
- The Hampton Inn & Suites opened in Silverthorne in December 2015 with 88 rooms, 625 square feet of meeting space that can accommodate 100 people, and a fitness center.



ECONOMIC IMPACT OF HIGH-SPEED TRANSIT ON VISITORS

Visitors

The I-70 Mountain Corridor attracts visitors year-round from throughout the state, the country, and the world, generating substantial economic activity. The following 2018 data was estimated by Development Research Partners based on published 2013 through 2017 visitor studies.

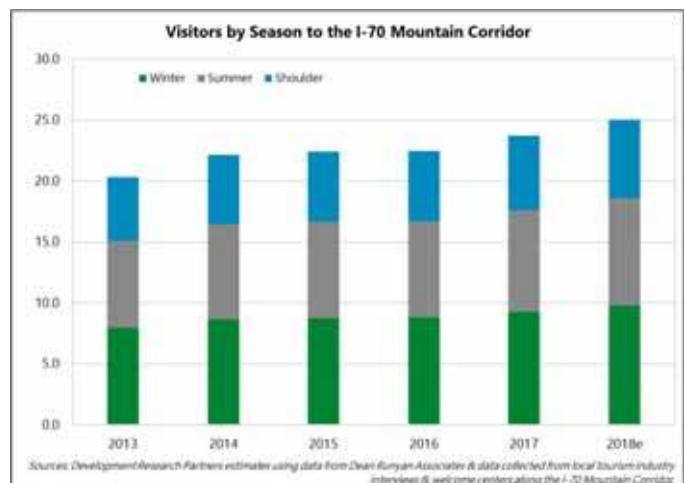
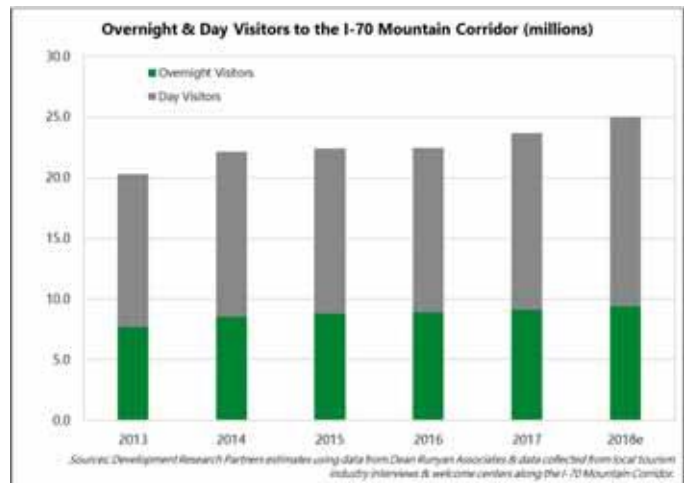
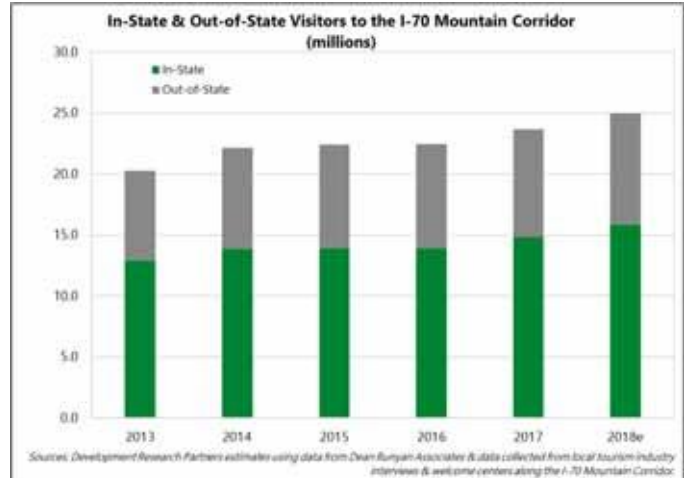
The estimated number of visitors to the I-70 Mountain Corridor totaled 25 million in 2018, rising 4.3 percent over-the-year. Of the 25 million visitors, about 37 percent were out-of-state visitors and 63 percent were in-state visitors.

Of the 25 million visitors to the Mountain Corridor, 9.4 million were overnight visitors, an increase of 3.1 percent over-the-year. The Mountain Corridor's 37 percent share of overnight visitors compares with 45 percent of the state's total visitors being overnight visitors.

Most visitors to the I-70 Mountain Corridor are day visitors, representing about 63 percent of the total 25 million visitors. Day visitors across the state represented about 55 percent of the total 84.7 million visitors, or 46.8 million visitors in 2017.

The 23-week winter season represents the largest share of visitors to the I-70 Mountain Corridor. In 2018, winter visitors to the I-70 Mountain Corridor represented about 39 percent of the Corridor's total visits or about 9.8 million visitors. The 15-week summer season is also popular among visitors and represents about 35 percent of the Corridor's total visitors. Visitors to the I-70 Mountain Corridor during the summer totaled about 8.8 million visitors. The remainder of visitors were dispersed among the Mountain Corridor's shoulder seasons in the spring and the fall.

Not all the visitors to the Mountain Corridor use I-70, as some access the region via US Hwy 6, US Hwy 24, US Hwy 40, US Hwy 285, CO Hwy 9, and other routes. Some visitors also utilize the EGE to get to the mountain communities. Based on the estimate that about 85 percent of the visitors use I-70 and that there



are 2.9 passengers per vehicle from Longwoods International survey data for size of travel party, there were an estimated 6.7 million visitor vehicles utilizing the I-70 Mountain Corridor in 2018, or about 50 percent of the traffic.

Converting visitor vehicles to the number of visitors, visitors comprise an estimated 77 percent of the total likely passengers that would use a high-speed transit option. Applying this to estimated ridership for 2018, there would be an estimated 4.2 million additional visitors that could use the high-speed transit option. In total, there will be an estimated 29.2 million total visitors to the I-70 Mountain Corridor with the additional visitors using the high-speed transit option. This is an increase of 16.6 percent over the baseline conditions visitor total of 25 million. Using the 2018 existing proportions of overnight and day visitors, about 1.6 million of the additional 4.2 million visitors will be overnight visitors and 2.6 million will be day visitors. Additionally, over 63 percent of the additional visitors will be in-state and 37 percent of the additional visitors will be from out-of-state. About 39 percent or about 1.6 million of additional visitors who could use the high-speed transit option would be visitors during the winter and about 35 percent or nearly 1.5 million of the additional visitors would be visitors during the summer. Visitors during the shoulder seasons would represent the remaining 1.1 million visitors.

Visitor Spending

According to Dean Runyan Associates, total direct travel spending in Colorado increased 6.5 percent between 2016 and 2017, more than twice the national average increase of 3 percent. Visitor spending on air travel was up 5.8 percent and lodging tax receipts increased 6.9 percent. Further, increased gas prices contributed to increased traveler spending across the state. The state’s travel industry generated \$1.3 billion in local and state tax revenue in 2017, up 5.7 percent from 2016.

Visitors & Visitor Spending for Colorado & the I-70 Mountain Corridor, 2017

	Colorado		Mountain Corridor		Mountain Corridor/Colorado
Total Visitors (M)	84.7		23.7		28.0%
In-State	45.0	53.1%	14.8	62.6%	33.0%
Out-of-State	39.7	46.9%	8.9	37.4%	22.3%
Total Visitors (M)	84.7		23.7		28.0%
Day Visitors	46.8	55.3%	14.6	61.5%	31.1%
Overnight Visitors	37.9	44.7%	9.1	38.5%	24.1%
Total Visitor Spending (\$B)	\$18.8		\$3.1		16.2%
In-State (\$B)	\$5.9	31.2%	\$1.6	52.4%	27.3%
Out-of-State (\$B)	\$13.0	68.8%	\$1.5	47.6%	11.2%
Total Visitor Spending (\$B)	\$18.8		\$3.1		16.2%
Day Visitors (\$B)	\$3.5	18.5%	\$0.6	18.5%	16.2%
Overnight Visitors (\$B)	\$15.3	81.5%	\$2.5	81.5%	16.2%

Sources: Longwoods International; Development Research Partners estimates using data from Dean Runyan Associates and data collected from local tourism industry interviews and welcome centers along the I-70 Mountain Corridor.

The estimated visitor spending in the I-70 Mountain Corridor totaled \$3.2 billion in 2018, rising 6.1 percent over-the-year. The share of visitor spending in the I-70 Mountain Corridor represents about 16 percent of the total visitor spending across the state. Colorado out-of-state visitors spend more on average per day than in-state visitors. The average daily expenditure of out-of-state visitors during 2017 was \$327, compared with \$130 for in-state visitors. Out-of-state visitors to the I-70 Mountain Corridor spent nearly \$1.6 billion, totaling 48 percent of total spending to the Corridor. About 52 percent of total spending was attributed to in-state visitors, totaling about \$1.7 billion.

According to Longwoods International, the average daily expenditure of Colorado day visitors during 2017 was \$75, while the average daily expenditure of overnight visitors was \$405. Therefore, the estimated 9.4 million overnight visitors to the I-70 Mountain Corridor spent roughly \$2.6 billion in 2018, an increase of 6.1 percent over-the-year. Day visitor spending totaled \$601.2 million in 2018 to the I-70 Mountain Corridor, increasing an average 8.1 percent per year since 2013. Although day visitors represent 63 percent of the total visitors to the region,

III. VISITOR IMPACTS

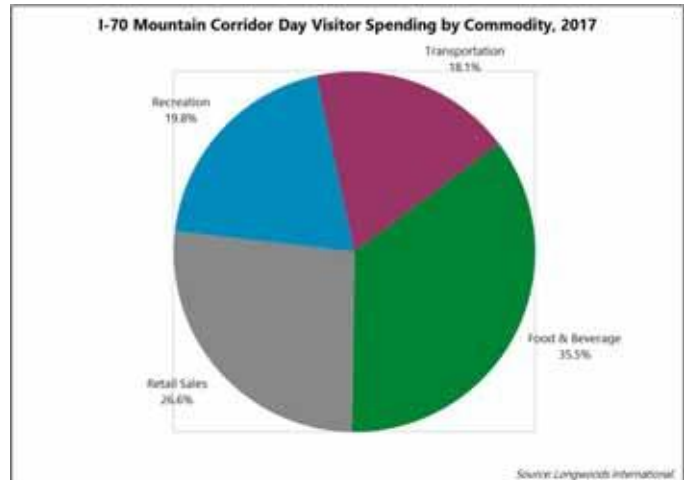
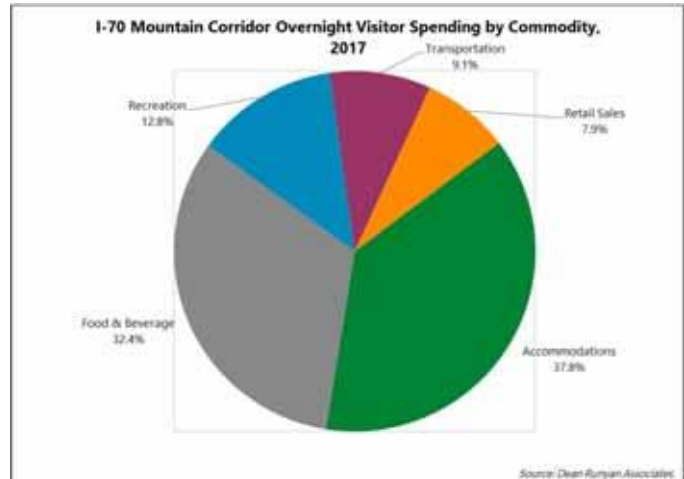
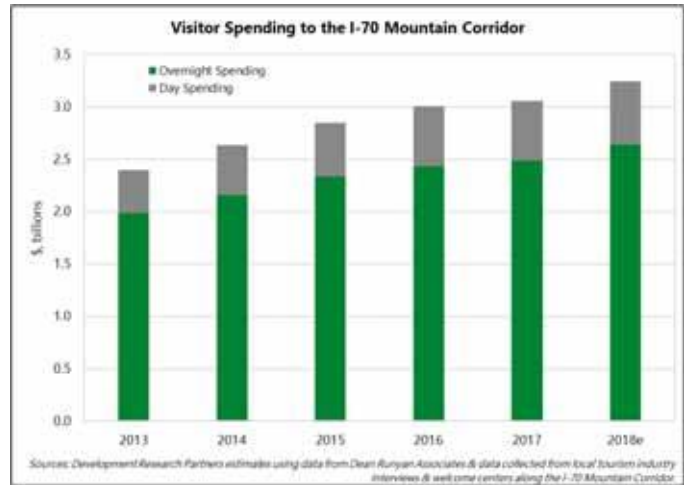
spending by day visitors represents only 19 percent of total spending. Further, overnight visitors represent a smaller 37 percent of visitors to the I-70 Mountain Corridor but represent 81 percent of total spending to the five-county area.

Based on Dean Runyan Associates' existing proportions of visitor spending by commodity purchased in the Mountain Resort region, lodging expenses (including campgrounds) accounted for about 38 percent of all overnight visitor spending to the I-70 Mountain Corridor. Food and beverage services accounted for 32 percent of all overnight visitor spending, and arts, entertainment, and recreation represented 13 percent of total overnight visitor spending. Retail sales accounted for about 8 percent of total overnight visitor spending, while 4 percent was spent on ground transportation and fuel. The remainder was spent on air transportation services.

Since day visitors do not have lodging expenses, they spend a higher proportion on other commodities. Based on data from Longwoods International, food and beverage services accounted for 35 percent of all day visitor spending in Colorado. Retail sales accounted for 27 percent of all-day visitor spending, followed by arts, entertainment, and recreation representing 20 percent and transportation and fuel accounted for 18 percent of all day visitor spending. This analysis assumes that spending patterns are similar for all day visitors across all parts of the state.

Increased visitors to the I-70 Mountain Corridor because of a high-speed transit option would result in additional visitor spending. Estimated non-lodging expenditures, which include food and beverage services; arts, entertainment, and recreation; and retail, in the I-70 Mountain Corridor is based on per diem reimbursement rates for meals and incidental expenses for each of the five counties in the corridor from U.S. General Services Administration data. Arts, entertainment, and recreation spending is estimated using data from Dean Runyan Associates for Mountain Resort overnight spending by category and Longwoods International day spending by category.

The direct economic benefit of non-lodging expenditures would be an estimated \$403.6 million. Of this total, about 61 percent would be spent on food and drinking services, followed by 34 percent spent on arts, entertainment, and recreation, and the remaining 5 percent spent on retail.



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The 1.6 million additional overnight visitors would demand an estimated 700,000 room-nights at regional hotels and motels. The average room rate in 2018 for each of the five counties was estimated based on interviews with the tourism and business community in the I-70 Mountain Corridor, and data from the Colorado Hotel and Lodging Association's *Rocky Mountain Lodging Report*. The estimated direct economic benefit of additional visitor spending on lodging is nearly \$145 million.

Economic Impact of High-Speed Transit on Visitor Activity

	Baseline, 2018 (1)	Expansion (2)	Increased Activity (2-1)
Visitors (Millions)	25.0	29.2	4.2
Overnight Visitors (M)	9.4	10.9	1.6
Day Visitors (M)	15.6	18.2	2.6
Visitor Spending (\$M)	\$3,242.9	\$3,791.4	\$548.6
Non-Lodging Expenditures (\$M)	\$2,243.8	\$2,647.4	\$403.6
Lodging Expenditures (\$M)	\$999.1	\$1,144.1	\$145.0
Wages (\$M)	\$1,189.9	\$1,343.2	\$153.3
Employment	35,740	40,400	4,660
Room Nights of Demand (Millions)	4.2	4.9	0.7

*Note: Totals may not sum due to rounding.
Source: Development Research Partners.*

Combined, the total direct economic benefit of the additional 4.2 million visitors that could use the high-speed transit option is an estimated \$548.6 million. This additional spending, combined with the estimated \$3.2 billion from the baseline scenario, totals nearly \$3.8 billion. Visitor spending increased 16.9 percent over the estimated baseline spending patterns. Of this total, about 63 percent or \$345.1 million in additional spending is generated from overnight visitors and 37 percent or \$203.5 million is generated from day visitors.

Employment & Wages

Visitor spending also supports employment and wages in the regional economy. Based on employment and wages data from the Colorado Department of Labor and Employment for the accommodation and food services; arts, entertainment, and recreation; and retail supersectors in the I-70 Mountain Corridor, visitor spending in 2018 provided employment for 35,740 direct workers earning estimated wages of nearly \$1.2 billion.

Additional visitors and visitor spending in the I-70 Corridor creates increased employment opportunities and additional earnings for those workers. Specifically, spending on lodging and accommodations; food services; arts, entertainment, and recreation; and retail supports additional workers and earnings in the I-70 Mountain Corridor. The additional employees and earnings supported by additional visitor spending on lodging and accommodations was calculated using the estimated number of additional rooms needed for visitors, the average square foot per room, and the number of full-time equivalent employees per room. The additional employees and earnings supported by additional visitor spending on food services and retail was estimated using the square footage of food services and retail space demanded, occupancy rates for retail space, and square feet per



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employee. Additional employees and earnings supported by additional visitor spending on arts, entertainment, and recreation was calculated using the proportion of wages to GDP from the U.S. Bureau of Economic Analysis for this supersector in Colorado and average annual wages for this supersector from the Colorado Department of Labor and Employment.

Based on these calculations, there will be an additional 4,660 visitor-related employees in the I-70 Mountain Corridor because of increased visitor spending. Of the total additional employees, about 45 percent or 2,097 of those employees are likely to reside in the I-70 Mountain Corridor, based on commuting pattern data described in the Business Impacts section of this report. Based on the average annual wages from the Colorado Department of Labor and Employment for the accommodation and food services; arts, entertainment, and recreation; and retail supersectors, the 4,660 employees supported by visitor spending would have estimated wages of \$153.3 million.

Travel Cost Savings

High-speed transit offers cost savings to users through time savings and lower vehicle fuel and maintenance costs. The largest user of I-70 through the Mountain Corridor and what would be the largest user of a high-speed transit system are residents of Colorado who are traveling for recreation and tourism, representing 48.9 percent of travelers likely to use a high-speed transit system. The travel cost savings is calculated using the key assumptions described in the Introduction section of this report regarding trip length, travel time for vehicles versus high-speed transit, and transportation costs for vehicles versus transit. In addition, the value of travel time is based on 50 percent of the average hourly wage for all industries for Metro Denver of \$30.51 per hour and an average of 2.9 people per vehicle.

Based upon these assumptions, the average estimated cost for an in-state visitor travelling in a vehicle is \$54.08.⁴¹ Using a high-speed transit system rather than using a vehicle will save an in-state visitor \$0.80 per trip.⁴² Based on traffic counts and expected ridership, residents of Colorado traveling for recreation and tourism would account for 2.6 million trips annually, saving an estimated \$2.1 million per year.

In-State Visitor Travel Cost Savings

Annual number of in-state visitors in vehicles	12,397,865
Total annual time and vehicle costs (\$M)	\$670.4
Cost per In-State Visitor in Vehicle	\$54.08
Annual number of in-state visitors on HST	2,633,296
Total annual time and HST costs (\$M)	\$140.3
Cost per In-State Visitor on HST	\$53.28
Cost savings per HST trip	\$0.80
Total Cost Savings (\$M)	\$2.1

Source: Development Research Partners.

Out-of-State Visitor Travel Cost Savings

Annual number of out-of-state visitors in vehicles	7,167,490
Total annual time and vehicle costs (\$M)	\$387.6
Cost per Out-of-State Visitor in Vehicle	\$54.08
Annual number of out-of-state visitors on HST	1,522,369
Total annual time and HST costs (\$M)	\$81.1
Cost per Out-of-State Visitor on HST	\$53.28
Cost savings per HST trip	\$0.80
Total Cost Savings (\$M)	\$1.2

Source: Development Research Partners.

⁴¹ The cost of a vehicle trip consists of the cost of time plus the vehicle cost. The vehicle cost is \$0.545 per mile multiplied by 121.5 miles divided by 2.9 persons per vehicle. The vehicle cost per visitor is \$22.83. The time cost is based on 78.3 percent of the visitors travelling during a free flow time of 120 minutes and 21.7 percent of the visitors travelling during a congested period with an average of 13.2 minutes of delay. The average time cost per visitor is \$31.25.

⁴² The cost of a high-speed transit trip consists of the cost of time of \$21.69 (1.42 hours x \$15.26 per hour) plus the HST fare of \$31.59 (121.5 miles x \$0.26 per mile).

III. VISITOR IMPACTS

Out-of-state tourists are the next largest user of I-70 and represent 28.3 percent of travelers likely to use a high-speed transit system. Using the same variables as above, an estimated 1.5 million trips on a high-speed transit system would save users about \$1.2 million per year.

The travel costs associated with either mode of transportation generally result in a redistribution of transportation dollars and do not represent new spending. However, the value of time saved may ultimately result in either increased work or increased recreation hours, which may result in additional spending by the visitors. However, it is indeterminate as to how much of the travel cost savings would be spent in Colorado. Further, transit riders may experience increased travel reliability, reduced stress, and opportunities for activities other than driving during the ride. The intrinsic value to an individual of a potentially more pleasant trip is not estimated.

Employment in the I-70 Mountain Corridor is characterized by the large number of businesses that rely on tourism and recreation in the mountains. In 2017, about 40 percent of employment in the corridor was comprised of leisure and hospitality, a supersector that includes arts, entertainment, recreation, accommodation, and food services. For comparison, only 11.3 percent of employees in Metro Denver were employed in the leisure and hospitality supersector.

I-70 MOUNTAIN CORRIDOR BUSINESS TRENDS

Industry Employment and Wages

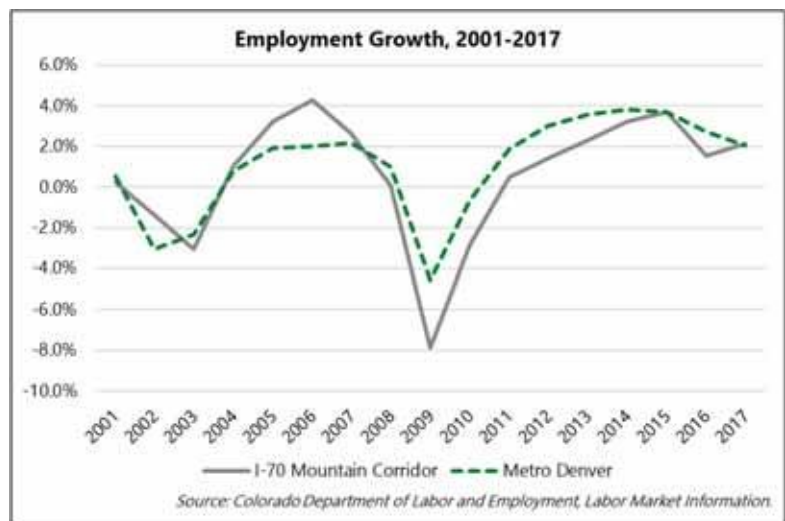
Because of the strong concentration of leisure and hospitality workers, the share of workers in nearly every other supersector in the Mountain Corridor was lower than the share in Metro Denver, except for natural resources and construction. Natural resources and construction employment in the Mountain Corridor comprised nearly 8 percent of workers, while the share was 6.8 percent in Metro Denver. The largest supersectors in the corridor after leisure and hospitality were wholesale and retail trade (11.9 percent), government (11.8 percent), and professional and business services (8.1 percent).

Supersector	I-70 Mountain Corridor		Metro Denver	
	2017 Employment	Percent	2017 Employment	Percent
Natural Resources & Construction	5,447	7.9%	109,773	6.8%
Manufacturing	745	1.1%	87,070	5.4%
Wholesale & Retail Trade	8,255	11.9%	233,211	14.5%
Transportation, Warehousing, & Utilities	1,228	1.8%	56,290	3.5%
Information	469	0.7%	55,136	3.4%
Financial Activities	4,076	5.9%	111,824	6.9%
Professional & Business Services	5,606	8.1%	296,938	18.4%
Health Care & Educational Services	4,481	6.5%	205,112	12.7%
Leisure & Hospitality	27,690	40.0%	181,370	11.3%
Other Services	1,907	2.8%	50,331	3.1%
Government	8,171	11.8%	223,451	13.9%
Total All Industries	69,205	100.0%	1,610,777	100.0%

Source: Colorado Department of Labor and Employment, Labor Market Information.

Employment in the Mountain Corridor has grown at about half the annual rate of growth in the Metro Denver region since 2001. From 2001 to 2017, Mountain Corridor employment grew at an annual rate of 0.6 percent compared with 1.1 percent in Metro Denver. Several factors have likely contributed to the slow pace of growth in the corridor despite record numbers of visitors recreating in Colorado's mountain communities:

- Residential and commercial development opportunities are limited in several communities from C-470 to Eagle County due to topography. The limited amount of residential development and older demographic along the corridor constrains growth in the available workforce locally.

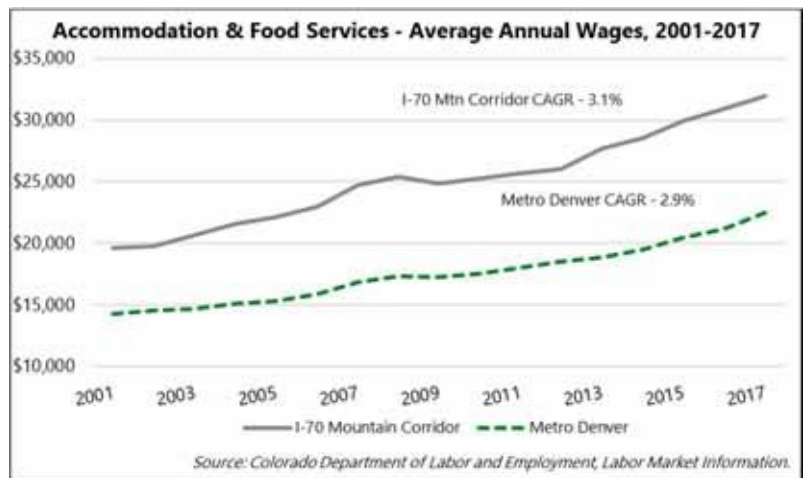
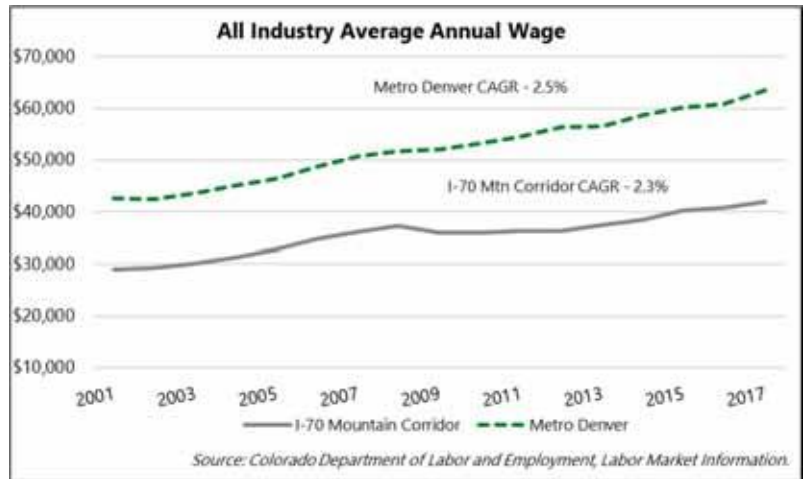


IV. BUSINESS IMPACTS

- The increasing congestion along I-70 in the Mountain Corridor drives up the cost of commuting from the Metro Denver region and limits growth in the available regional workforce.
- The higher cost of doing business in the corridor due to seasonality, including higher costs for wages, shipping, and capital investment, may limit profit growth and expansion activity in the corridor communities.

One notable trend in the Mountain Corridor is the slow pace of employment growth in the leisure and hospitality supersector. The supersector has increased only slightly faster than employment in all industries in the corridor since 2001 and has increased at a much slower rate compared with Metro Denver. The slow employment growth was not solely because of the recession as growth was slower in the corridor both before and after the recession. In addition, leisure and hospitality employment in Metro Denver fell more steeply in 2009 than in the corridor. Yet, post-recession leisure and hospitality employment in Metro Denver grew by a robust 4 percent annual rate from 2011 to 2017 while supersector employment in the corridor grew by just 1.3 percent each year.

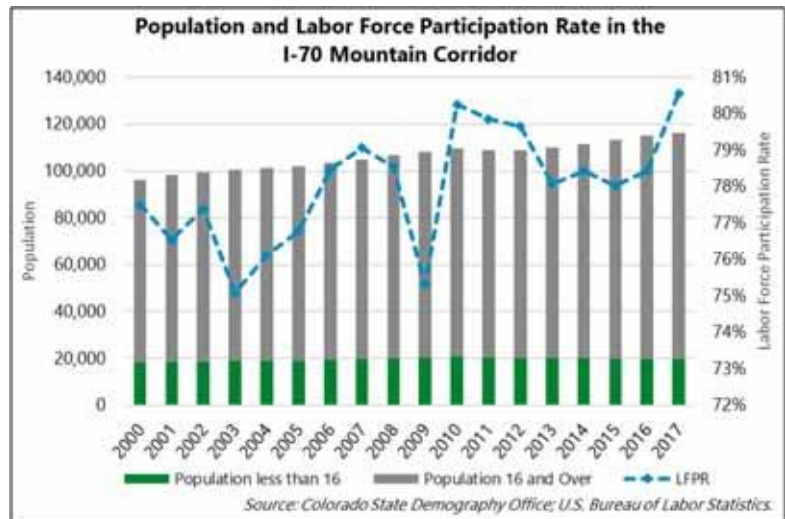
Due to the industry mix in the Mountain Corridor, the average annual wage for all industries is about 34 percent lower than in Metro Denver. Metro Denver has benefited from an influx of highly-educated workers in several well-paid industries ranging from information to professional and business services. Overall, the average annual wage for all industries in Metro Denver has grown faster than the all industry average in the Mountain Corridor since 2001. However, there are exceptions among various sectors. Jobs in both the retail sector and the accommodation and food services sector pay higher wages in the Mountain Corridor than in Metro Denver. As corridor employers in these sectors compete for the Metro Denver labor force, average wages in these sectors have risen faster than in Metro Denver as employers must compensate employees for the high cost of living in the corridor and for increasing commuting costs.



For retail, the average wage in Metro Denver was higher than in the corridor in 2001. However, by 2017 corridor employers paid employees about 2 percent more on average than in Metro Denver. In contrast, wages in the corridor’s accommodations and food services sector have traditionally been higher than in Metro Denver. Yet the gap has increased over time. In 2017, employers in accommodations and food services paid employees an average annual wage nearly \$9,500 higher in the Mountain Corridor than in Metro Denver. Wages in the sector grew at an annual rate of 3.1 percent in the corridor compared with 2.9 percent each year in Metro Denver. Despite the strong wage growth in the sector, employment growth has fallen behind the Metro Denver region.

Unemployment and Labor Force Trends

The unemployment rate in the I-70 Mountain Corridor has generally been lower than the unemployment rate in the Metro Denver region, but has followed a similar cycle since 2001. The unemployment rate in both areas peaked in 2010, with the rate in Metro Denver about 0.5 percentage points higher than in the corridor. Both areas recorded historically low unemployment rates in 2017, 2.2 percent in the Mountain Corridor and 2.7 percent in Metro Denver. In 2017, there was an average of just 1,660 unemployed workers in the Mountain Corridor. The tight labor market effects how easily businesses can match skills and find the right workers to fill open



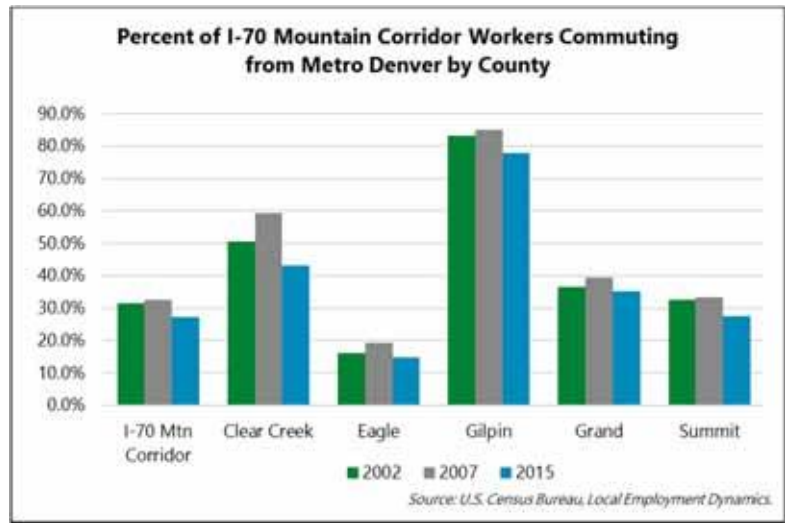
positions. Based on data from the Colorado Department of Labor and Employment, there was an average of 5,200 job openings each month in the Mountain Corridor during the last six months of 2018.

Unique to the Mountain Corridor, the estimated labor force participation rate has increased from an average of about 76.5 percent from 2001 to 2005, to between 79 and 81 percent in 2017.⁴³ The trend stands in contrast to the trend nationally and in Colorado where levels remain significantly below levels recorded in 2000, despite a recent increase in the state’s rate over the past two years. As of 2017, the state labor force participation rate was about 68 percent. Economic and demographic trends in the corridor have resulted in a situation where most of the available residents in the corridor are actively participating in the labor force. High housing prices and costs of living may necessitate more earners in the corridor. In addition, many residents of the corridor are from higher income households that are likely healthier and more able to participate in the labor force than in other areas of the state. Anecdotally, businesses interviewed for this analysis reported hiring overqualified workers and traditionally retiree-aged workers for jobs ranging from retail to recreation. Considering the labor force of the Mountain Corridor, it is likely another factor constraining employment growth as there is a limited opportunity to pull additional labor in from the sidelines.

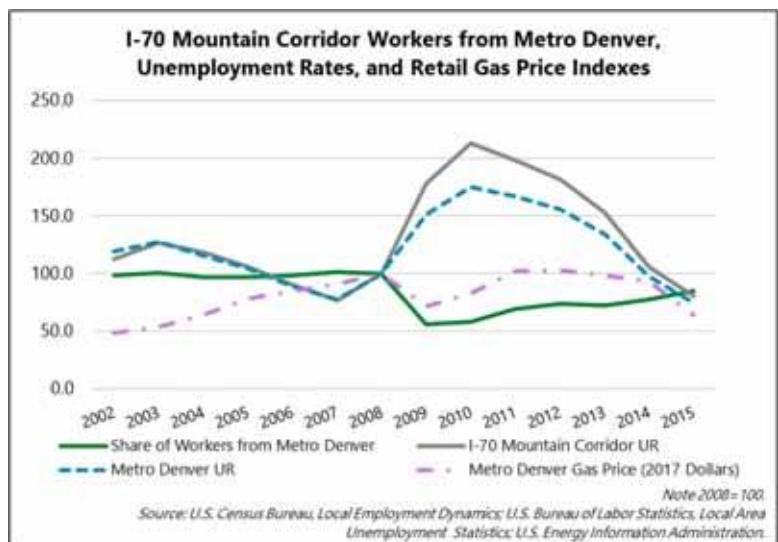
⁴³ In 2017, upper and lower bounds for the labor force participation rate in the I-70 Mountain Corridor were estimated by assuming 100 percent of the population 16 years and over was included in the civilian, non-institutionalized population, and assuming that the civilian non-institutionalized population equaled the state rate of 97.9 percent.

Commuting Patterns

I-70 Mountain Corridor businesses heavily rely on commuters from the Metro Denver region. Based on the most recently available data, more than 27 percent of workers in the corridor were residents of Metro Denver in 2015. The reliance on the Metro Denver labor force varies along the corridor. For instance, nearly 78 percent of the workers in Gilpin County commute from Metro Denver. Indeed, the casinos and resorts in Central City and Black Hawk heavily subsidize travel costs for workers from Metro Denver. The businesses reportedly utilize many third-party transportation providers to provide free or significantly reduced-price bus rides from across the Metro Denver region to the mountains. Clear Creek is another area that heavily relies on workers from Metro Denver, where commuters from the region comprised more than 43 percent of the workers in 2015. The share of workers from Metro Denver predictably diminishes for counties that are further away from the region. However, nearly 15 percent of workers in Eagle County still have a primary residence in the Metro Denver area.



Despite the heavy reliance on Metro Denver workers, the number and share of workers commuting to the Mountain Corridor from Metro Denver has declined since 2007. In 2007, the share of workers commuting to the corridor from Metro Denver peaked at 32.5 percent. While the recession contributed to a decline in commuters to the corridor, the expansion has coincided with only a partial recovery of workers. As of 2015, there were nearly 2,300 fewer workers commuting to the corridor than in 2007. The year 2007 is a notable comparison for several reasons. The Colorado and Metro Denver economies were near an expansionary peak and unemployment rates had bottomed out. In both the prior and current economic expansions, Mountain Corridor businesses were competing with a tightening Metro Denver labor market. In addition, gas prices were rising rapidly and were more than \$1.00 higher per gallon than in 2015 on an inflation-adjusted basis. Both factors indicate that congestion on I-70 has increased the cost and decreased the convenience of traveling to the mountain communities for work, limiting employment growth along the corridor.



The share of workers commuting from Metro Denver has declined for each county in the Mountain Corridor. For example, in Clear Creek County the share of workers from Metro Denver fell from about 59 percent in 2007 to 43 percent in 2015. In Gilpin County, the share fell from 85 percent to 78 percent over the same time. Summit County experienced a nearly 6 percentage point drop in the percentage of workers commuting from Metro Denver, Eagle County had a 4.5 percentage point decline, and Grand County fell by 4.2 percentage points.

While the number of commuters and share of employees from Metro Denver has likely increased since 2015, the share in 2017 is certainly below the 2007 peak. Assuming the number of commuters from Metro Denver increased in 2016 and 2017 at the annual rate posted from 2012 to 2015, there would be 21,170 commuters. This means the share of commuters in 2017 would be about 30.6 percent, nearly 2 percentage points below the 2007 peak, and the number of commuters would be about 1 percent below the peak posted in 2008. A share of commuters equal to the 2007 peak in the corridor would have boosted employment growth in the Mountain Corridor by nearly 5,500 employees by 2017.

ECONOMIC IMPACT OF HIGH-SPEED TRANSIT ON BUSINESS

Employment Growth and Access to Metro Denver Workforce

According to the results of the Mountain Corridor Business Survey, about 56 percent of respondents placed some level of importance on I-70 to recruit and retain employees, corroborating data on commuting patterns for the area. Indeed, access to workforce was one of the main issues of businesses in the corridor based on numerous company interviews conducted for the study. There is evidence that businesses in the corridor have been understaffed for several years. For instance, the “2017-18 Workforce Survey Report” prepared by the Vail Valley Partnership and Vail Valley Economic Development found that in Eagle County 31 percent of companies reported the number of unfilled positions at their companies was increasing. *Vail Daily* recently reported on the high number of local businesses with unfilled job positions in Eagle County heading into the holiday season.⁴⁴ The article noted there were more jobs than available workers, driving up wages and benefits for many businesses trying to attract more employees. An article in the *Summit Daily* reported the same issue for Summit County where many businesses have had “Help Wanted” signs posted most of the year.⁴⁵ The feeling from businesses is that the struggle to find employees has become worse in the last couple years.

Long-term understaffing impacts the profitability of businesses. Not only is the level of business activity dampened because money that otherwise would be is not being spent on wages and investment, Mani et al. note that for retail businesses, companies need labor to provide a certain level of service to drive sales⁴⁶ Labor can increase sales “conversion rates,” or the movement of a customer from interest to a purchase. Likewise, understaffing that results in a lower quality of service could drive customers to shop elsewhere. Understaffing can also increase costs and decrease productivity for a business. Understaffing can impact employee satisfaction, thereby increasing the likelihood of turnover or absenteeism. Unsatisfied employees are also less productive.

The high cost of living and limited housing options for workers in the corridor impedes employment growth from residents of the corridor. Additionally, several communities are built out, with limited options for additional development beyond infill and redevelopment projects. Many of the needed jobs in the corridor are for relatively low-paying, service positions in retail, leisure, and hospitality. Despite efforts to build more workforce housing in the corridor, housing costs will continue to be prohibitively expensive for many the employees. Combined with a labor force participation rate near its upper limit, businesses will continue to rely on commuters to sustain profitability and business growth. A high-speed transit option through the corridor will improve connectivity from

⁴⁴ Scott Miller, “Vail Valley Businesses Need Lots of Seasonal Help: There Are 1,600 Job Openings,” *Vail Daily*, December 14, 2018, <https://www.vaildaily.com/news/vail-valley-businesses-need-lots-of-seasonal-help-there-are-1600-job-openings>.

⁴⁵ Eli Pace, “Summit County’s Unemployment Rate Hits an All-Time Low, Vexing Businesses Struggling to Hire,” *Summit Daily*, November 8, 2018, <https://www.summitdaily.com/news/summit-countys-unemployment-rate-hits-an-all-time-low-vexing-businesses-struggling-to-hire>.

⁴⁶ Vidya Mani, Saravanan Kesavan, and Jayashankar Swaminathan, “Estimating the Impact of Understaffing on Sales and Profitability in Retail Stores,” *Production and Operations Management*. 24, 2, 201-218 (2015).

Metro Denver to the mountain communities, reducing congestion and commuting costs, and enlarging the accessible workforce.

Estimated employment growth in the corridor from Metro Denver commuters is directly associated with high-speed transit system ridership. As noted in the Introduction section of the report, Metro Denver commuters could comprise about 4.2 percent of trips on a high-speed transit system, or about 229,000 trips. To estimate the number of employees that could be associated with this number of trips on a high-speed transit system, the number of trips each year that an average Metro Denver commuter travels to the corridor along I-70 for work was estimated. After dividing commuter ridership by the average number of annual trips to the corridor for commuters, the introduction of high-speed transit would boost employment in the corridor by an estimated 1,560 workers. This estimate is exclusive from the employment supported by increased visitor and resident spending as these employees are people that existing businesses in the corridor would hire today if available. The addition of these workers would have boosted the annual rate of employment growth in the corridor by 0.2 percentage points to 0.8 percent from 2001 to 2017 and brought the share of corridor workers from Metro Denver to an estimated 32.1 percent.

More employees in the corridor would relieve understaffing and increase business activity. Persistently unfilled positions represent reduced spending on wages, investment in equipment, and reduced profitability. Based on the estimates of job openings by industry and average annual wages for each industry in the Mountain Corridor, an additional 1,560 employees would represent an additional \$64.7 million in wage and salary income for Metro Denver households. Based on estimates of wages and salaries as a percentage of GDP for industry sectors in Colorado, more employment in the corridor would be associated with an increase in corridor output of \$131.6 million. Recent estimates of county-level GDP for the Mountain Corridor indicate that increasing commuters from Metro Denver through high-speed transit would increase GDP in the corridor by 1.7 percent above 2015 levels, the most recent data available.

While the Metro Denver labor market is tight with a historically low unemployment rate recorded over the past couple of years, labor force participation in Metro Denver is well below peak levels posted in 2000 and an additional 1,560 employed persons is a small fraction of the potentially available workers in the region.

The increase in employment opportunities and income for Metro Denver households would also increase business activity in the Metro Denver region.⁴⁷

Economic Benefit of High-Speed Transit Due to Greater Access to Metro Denver Workforce

	Baseline, 2018 (1)	Expansion (2)	Increased Activity (2-1)
I-70 Mountain Corridor			
Employment	70,820	72,380	1,560
Metro Denver Commuters	21,170	22,730	1,560
Value of Output (\$M)	\$8,574.1	\$8,705.7	\$131.6
Wages (\$M)	\$3,047.0	\$3,111.7	\$64.7
Metro Denver			
Value of Output (\$M)	\$233,222.4	\$233,241.1	\$18.7

Note: Employment baseline is an estimate based on 3Q 2018 data from the Colorado Department of Labor and Employment. Baseline output is 2015 estimates of GDP from the U.S. Bureau of Economic Analysis inflated to 2018 based on the CPI from the U.S. Bureau of Labor Statistics. Baseline commuters estimated from U.S. Census Bureau data for 2015 and inflated to 2018 from the annual growth rate of commuters from 2012 to 2015.

Source: Development Research Partners.

⁴⁷ Estimated wages and salaries for Metro Denver commuters to the corridor is associated with an estimated \$78.5 million in earnings, a value that includes wages and salaries as well as a portion of employee benefits likely to be spent locally. Based on multipliers from the U.S. Bureau of Economic Analysis Regional Input-Output Modeling System II (RIMS II) for the Metro Denver region, the value-added to the region was estimated based on the increase in household earnings. Value-added, which is comparable to regional measures of GDP, was adjusted downward by the estimated substitution of spending from Metro Denver businesses to the Mountain Corridor to derive a net increase in regional GDP.

However, part of the increase in GDP estimated for the Mountain Corridor would substitute for purchases and sales made at Metro Denver area businesses. As discussed in the Visitor Impacts section, out-of-state visitor spending comprised an estimated 69 percent of total visitor spending in Colorado in 2017. Assuming Metro Denver resident spending comprises 31 percent of the increased business activity in the corridor, representing a substitution from Metro Denver businesses, higher household incomes in Metro Denver would increase the metro area's GDP by \$18.7 million.

Employee Turnover Cost Savings

Long and costly commutes increase employee turnover and make retaining new hires more difficult. In turn, increased employee turnover is costly for businesses as they find, train, and replace new workers. Market research and individual analyses have found commutes are among the leading causes of voluntary turnover. A recent example reported in several media outlets⁴⁸ cited research by Robert Half staffing that found that about 23 percent of U.S. workers have left a job because of a bad commute. A report in *Forbes* noted similar research from ADP that found commute time was among the top reasons for voluntary turnover.⁴⁹ The effect could be especially pronounced for industries with high turnover such as leisure and hospitality where the annual quit rate is as high as 40 percent.⁵⁰

Based on commute distance and number of commuters between Metro Denver and the Mountain Corridor counties from U.S. Census Bureau data, the average commute time to the Mountain Corridor for Metro Denver residents can be more than three times the 27.4-minute average for the Metro Denver region, even under free flow conditions. Commutes are often exasperated by weather events, traffic incidents, and congestion. As congestion along the corridor has increased, working at companies that depend on weekend visitors has likely contributed to the declining share of metro area commuters to the corridor and has potentially increased turnover.

Applying national quit rates to the supersector mix in the Mountain Corridor, an estimated 26.4 percent of employees in the corridor voluntarily leave work each year. Based on an estimated number of quits for Metro Denver commuters to the corridor, if 23 percent left because of the commute, the estimated turnover would be about 1,290 employees each year. The cost of each employee leaving could be as high as 20 percent of the employee's wage for employees earning less than \$50,000 annually.⁵¹ Based on the average annual wage in the corridor, the cost per quit is an estimated \$8,380. In total, the cost of turnover to businesses in the Mountain Corridor due to commute is an estimated \$10.8 million. While reducing congestion likely will reduce turnover, resulting in cost savings to businesses, the reduction in cost from reduced congestion and how those cost savings would be distributed is unknown.

⁴⁸ PRNewswire, "Nearly One-Quarter of Workers Have Left a Job Due to a Bad Commute, According to Robert Half Survey," September 24, 2018, <https://www.prnewswire.com/news-release/nearly-one-quarter-of-workers-have-left-a-job-due-to-a-bad-commute-according-to-robert-half-survey-300716675.html>.

⁴⁹ Todd Wasserman, "Why are Employees Leaving? The Economy is Only Part of the Reason," *Forbes*, March 19, 2018, <https://www.forbes.com/sites/adp/2018/03/19/why-are-employees-leaving-the-economy-is-only-part-of-the-reason/#1b0c35ae378d>.

⁵⁰ U.S. Bureau of Labor Statistics, Job Openings and Labor Turnover Survey, December 2018. Data released February 12, 2019.

⁵¹ Boushey, Heather and Sarah Jane Glynn, Center for American Progress. "There are Significant Business Costs to Replacing Employees." November 16, 2012.

Employee Travel Cost Savings

Commuting from Metro Denver to communities in the I-70 Mountain Corridor has a significant cost, even under free flow traffic conditions. Assuming each commuter drives a passenger vehicle to the corridor, the average cost of commuting to the corridor on an annual basis is an estimated \$9,000 per year. Some employers have responded to commuting costs by offering company cars, providing shuttle services for employees, contracting with third-party transportation providers, and offering discounted local and regional transit fares. In addition to the creative ways employers along the corridor provide and subsidize transportation options to their Metro Denver employees, employers have also had to compensate through higher wages and salaries. About 35 percent of the employers responding to the business survey noted that I-70 congestion had resulted in increases in wages and benefits for employees, with 19 percent noting a small increase of 10 percent or less, and 16 percent noting an increase of 10 percent or more over the past five years. Part of the commuting cost is born by employers through higher wages and benefits, and part of the cost is born by commuters.

High-speed transit offers cost savings to commuters through time savings and vehicle fuel and maintenance costs. The travel cost savings is calculated using the key assumptions described in the Introduction section of this report regarding travel time for vehicles versus high-speed transit and transportation costs for vehicles versus transit. In addition, the value of travel time is based on the average hourly wage for all industries in the Mountain Corridor of \$20.14 per hour.

Applying the time and cost savings to commuters using high-speed transit along the corridor, the average commuter from Metro Denver could save an estimated \$3,000 per year in costs. In total, Metro Denver commuters could save more than \$9.2 million in fuel and vehicle maintenance costs and \$2 million in travel time.

In addition, Mountain Corridor commuters will also benefit from increased mobility, better access to jobs in both Metro Denver and within the corridor, and travel-time savings. Applying the same key assumptions as the Metro Denver residents to the Mountain Corridor residents using I-70 to get to work, Mountain Corridor commuters could save an estimated \$14.6 million in fuel and vehicle maintenance costs and \$6.4 million in travel time.

While cost savings on fuel and vehicle maintenance costs represent a redistribution of transportation dollars and not new spending, the travel time savings may lead to more productivity and increased economic activity. The benefit of the increase in productivity and economic activity will be split between employees and businesses. The benefit to employees may consist of either increased work or increased leisure hours, which could lead to higher incomes and more spending power. The benefit to businesses would potentially be increased profitability due to increased productivity. Assuming 50 percent of the commute cost savings go to businesses and 50 percent to

Estimated Commute Cost for Metro Denver Residents Working in the I-70 Mountain Corridor

Estimated Commuters Utilizing I-70	17,364
Estimated Annual VMT (M)	161.2
Estimated Annual Vehicle Cost (\$M)	\$87.8
Estimated Annual Hours of Travel (M)	3.4
Estimated Annual Travel Time Cost (\$M)	\$69.0
Total Annual Commute Cost (\$M)	\$156.8
Average Cost per Commuter	\$9,000

Note: Vehicle cost based on I.R.S. reimbursement rate of \$0.545 per mile for vehicle fuel and maintenance and an average hourly wage in the I-70 Mountain Corridor of \$20.14.
Source: Development Research Partners.

Estimated Commute Cost for Mountain Corridor Residents Utilizing I-70 for Work Trips

Estimated Annual # of Commuters (M)	2.4
Estimated Annual VMT (M)	265.2
Estimated Annual Vehicle Cost (\$M)	\$144.5
Estimated Annual Hours of Travel (M)	\$4.9
Estimated Annual Travel Time Cost (\$M)	\$99.0
Total Annual Commute Cost (\$M)	\$243.5

Note: Vehicle cost based on I.R.S. reimbursement rate of \$0.545 per mile for vehicle fuel and maintenance and an average hourly wage in the I-70 Mountain Corridor of \$20.14.
Source: Development Research Partners.

commuters, the benefit of time savings for Metro Denver commuters will be an estimated \$1 million to businesses in the corridor and \$1 million increase to the Metro Denver employees. For Mountain Corridor commuters, all benefit of travel-time savings is assumed to be in the corridor, or an estimated \$6.4 million annual benefit.

Travel Cost Savings of High-Speed Transit on Commuters

	Baseline (1)	Expansion (2)	Cost Savings (1-2)
Time Cost, 2018			
Metro Denver Commuters	\$69.0	\$67.0	\$2.0
Mountain Corridor Commuters	\$99.0	\$92.6	\$6.4
I-70 Mountain Corridor Cost Savings			\$7.4
Metro Denver Household Cost Savings			\$1.0

Source: Development Research Partners.

Shipping Cost Savings

Businesses along the I-70 Mountain Corridor have typically dealt with the higher costs of transporting goods to the mountains. Trucking goods to the mountain communities costs more in terms of fuel, driver skill levels, risk of weather events and accidents, risk of missed or delayed shipments, and driver stress. Congestion results in wasted fuel, increased labor costs, safety costs, and vehicle wear and tear. In addition, congestion has secondary costs in terms of inefficiencies such as delayed deliveries. In fact, the American Transportation Research Institute reports that the average cost per hour of congestion for trucking is an estimated \$63.66.⁵²

In 2017, trucks comprised 8.5 percent of the vehicle miles traveled (VMT) along the I-70 Mountain Corridor from the C-470/I-70 interchange to the Eagle County Regional Airport. As periods of traffic congestion have lengthened and peak traffic has increased, many shippers have modified delivery times and employee hours to avoid I-70 congestion. Some of these measures have their own set of costs, such as higher wages for truckers who make nighttime deliveries. Based on interviews conducted for the study, it has also become more common for carriers shipping freight cross country to avoid the corridor and take I-80 to the north or I-40 to the south. Indeed, during peak hours of traffic along the Mountain Corridor, trucks comprised just 0.6 percent of the VMT in 2017.

Another characteristic of the corridor is the lack of warehouse and distribution space. The lack of warehouse space results in more frequent deliveries to the corridor for nondurable goods such as food and beverage products, major inputs for the corridor’s leisure and hospitality companies. According to an analysis by CDOT, businesses within the corridor often control delivery times because of the lack of storage space at delivery locations. Delayed deliveries to the corridor can result in lost sales. Additionally, there are few alternatives to I-70 to reach the mountains. Routes such as US Highway 6 have limited capacity and greatly increase the risk and time needed for deliveries. In the Mountain Corridor Business Survey, 75 percent of respondents placed some level of importance on I-70 for their suppliers and vendors. About 86 percent of these respondents responded that I-70 was very to extremely important for their supply chain. When responding to the impact of congestion on the prices paid for shipments from suppliers and vendors, nearly 48 percent noted an increase in price in the last five years. The increase for many of these businesses was small, with 33 percent responding that the increase was less than 10 percent. However, nearly 15 percent noted an increase of 10 percent or more. These costs reduce profitability of businesses along the corridor.

⁵² Alan Hooper, “Cost of Congestion to the Trucking Industry: 2018 Update,” American Transportation Research Institute. October 2018. <https://atri-online.org/2018/10/18/cost-of-congestion-to-the-trucking-industry-2018-update>

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Based on the estimated annual truck traffic during the peak hour for each segment of the corridor, there were an estimated 87,600 peak trucks. Applying this number of peak trucks to the estimated hours of potential congestion each week for both directions of travel on I-70 as discussed in the travel time section of the Introduction, there were 424,500 trucks on I-70 in the Mountain Corridor during peak travel periods and 725,500 trucks traveling during other periods of time in 2017. Based on estimated delays during peak congestion and business hours, the total annual delay for trucks was an estimated 141,300 hours. Applying the cost of congestion to each truck, congestion increased shipping costs by about \$9 million in 2017. However, not all this cost was born by businesses in the I-70 Mountain Corridor. Based on traffic patterns for exits along the I-70 Mountain Corridor, an estimated 12 percent of truck traffic served local businesses in the mountain communities. Therefore, the cost to businesses in the corridor was an estimated \$1.1 million. While reducing congestion likely will result in shipping cost savings, the reduction in cost from reduced congestion and how the cost savings would be distributed between businesses and their customers is unknown.

Residents of both Metro Denver and the I-70 Mountain Corridor travel along I-70 regularly and for a variety of reasons, including commuting and business purposes, entertainment and recreation, and shopping or personal reasons. The most common use of I-70 for residents, especially regarding times of high demand and congestion, is related to entertainment and recreation.

I-70 MOUNTAIN CORRIDOR RESIDENT TRENDS

Population Growth

Colorado's population reached almost 5.7 million people in 2018. Over 56 percent, or roughly 3.2 million, reside in Metro Denver. Residents of Metro Denver continue to increase usage of I-70, with population growth playing a significant role in the increased congestion of the interstate. According to data from the Colorado Demography Office, the population of Metro Denver increased 1.6 percent per year from 2008 to 2018 and is expected to continue to expand by 1.3 percent per year over the next ten years. In the next ten years, all seven counties are projected to grow, with the largest absolute increases expected in Adams County (+106,737 residents), Denver County (+92,331 residents), and Arapahoe County (+83,821 residents).

Metro Denver Population by County

	2008	2018	2028	2038	Avg. Annual Population Growth		
					2008-2018	2018-2028	2028-2038
Adams	425,138	512,576	619,313	732,114	1.9%	1.9%	1.7%
Arapahoe	556,246	649,703	733,524	809,912	1.6%	1.2%	1.0%
Boulder	291,827	326,189	363,324	397,145	1.1%	1.1%	0.9%
Broomfield	54,400	70,063	93,435	95,746	2.6%	2.9%	0.2%
Denver	581,903	718,107	810,438	881,164	2.1%	1.2%	0.8%
Douglas	276,740	340,436	394,491	438,755	2.1%	1.5%	1.1%
Jefferson	530,565	579,631	620,058	647,289	0.9%	0.7%	0.4%
Metro Denver	2,716,819	3,196,704	3,634,582	4,002,124	1.6%	1.3%	1.0%

Source: Colorado State Demography Office.

Aside from the natural increase (births less deaths) in population, Metro Denver's population is expanding due to significant net migration, or the number of people moving into the region less the number moving out. Metro Denver's population is expected to expand by about 26,000 residents each year between 2018 and 2028 due to net migration alone. Many of these in-migrants are moving for job opportunities as the strong economy and job market attracts potential residents from around the country. Companies see proximity to the mountains as a significant asset for employee recruitment and retention.

I-70 Mountain Corridor Population by County

	2008	2018	2028	2038	Avg. Annual Population Growth		
					2008-2018	2018-2028	2028-2038
Clear Creek	9,294	9,694	10,345	11,352	0.4%	0.7%	0.9%
Eagle	50,301	55,349	64,973	75,443	1.0%	1.6%	1.5%
Gilpin	5,084	6,020	6,081	6,182	1.7%	0.1%	0.2%
Grand	14,535	15,454	18,006	21,110	0.6%	1.5%	1.6%
Summit	27,464	30,755	35,023	39,594	1.1%	1.3%	1.2%
Mountain Corridor	106,678	117,272	134,427	153,681	1.0%	1.4%	1.3%

Source: Colorado State Demography Office.

The population in the Mountain Corridor is also expected to experience significant growth. Between 2018 and 2028, the Mountain Corridor is forecasted to grow by 14.6 percent, or 1.4 percent per year, adding about 17,155 residents. Eagle County (+17.4 percent) and Grand County (+16.5 percent) are expected to experience the fastest rates of growth.

Income and Spending

Median household income in Metro Denver ranged from \$66,517 in Adams County to \$111,482 in Douglas County in 2017.⁵³ Over-the-year growth in income ranged from 0.7 percent in Adams County to 8.7 percent in Jefferson County. The low unemployment rate demonstrates that Metro Denver residents enjoy access to steady jobs, which in turn allows for robust consumer spending.

Median household income in the Mountain Corridor ranged from \$66,489 in Gilpin County to \$83,803 in Eagle County. Between 2016 and 2017, four of the five counties reported growth in median household income. Grand County reported the only decrease, falling by 1.7 percent. Gilpin (+7.4 percent) and Eagle (+6.4 percent) counties reported the largest increases. Unemployment in the Mountain Corridor was even lower than Metro Denver, again suggesting that the workforce has job opportunities from which to choose.

Residential Real Estate

Homeowners in Metro Denver have been experiencing rapid home price appreciation, which potentially leads to additional consumer spending as households feel wealthier. According to the S&P/Case-Shiller home price index, Metro Denver housing prices increased 5.5 percent from December 2017 to December 2018. Metro Denver tied with Minneapolis for the fourth-highest increase in home prices of the 20 cities included in the composite index. The national home price index increased 4.7 percent during the same time. According to home sales activity tracked by the Denver Metro Association of REALTORS, home price appreciation has been even higher than indicated by the Case-Shiller index, with a 6.9 percent increase in the median price of single-family detached homes and an 11.1 percent increase in single-family attached units from 2017 to 2018.

Residents of the Mountain Corridor are also experiencing rapid home price increases. Clear Creek County posted the fastest appreciation rate of single-family detached homes, with the median value of homes sold increasing

Denver Metropolitan Area Median Household Income

	2017
Adams	\$66,517
Arapahoe	\$75,357
Boulder	\$80,834
Broomfield	\$90,939
Denver	\$65,224
Douglas	\$111,482
Jefferson	\$80,616

Source: Census Bureau, American Community Survey.

I-70 Mountain Corridor Area Median Household Income

	2017
Clear Creek	\$68,534
Eagle	\$83,803
Gilpin	\$72,544
Grand	\$66,489
Summit	\$73,538

Source: Census Bureau, American Community Survey.

⁵³U.S. Census Bureau, American Community Survey, 2017 One-Year Estimates.

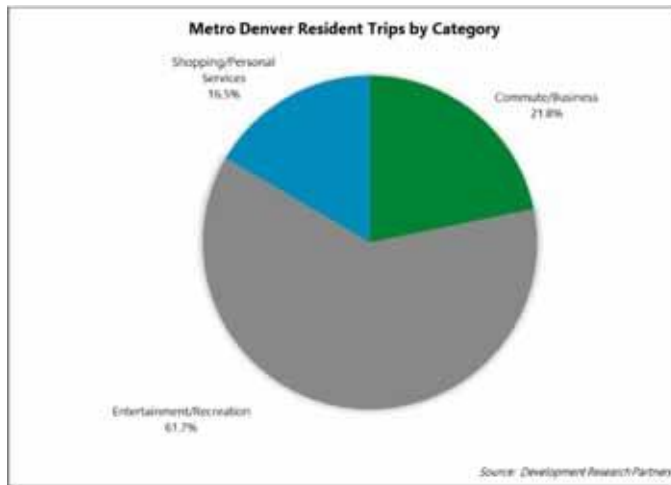
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20.9 percent from 2017 to 2018. Of the other four Mountain Corridor counties, appreciation rates for single-family detached homes sold ranged from 6.5 percent in Eagle County to 8.4 percent in Gilpin County. The more limited supply of and strong demand for single-family attached units resulted in generally higher rates of appreciation from 2017 to 2018. Except for a 1 percent decline in the median value in Clear Creek County and a 3.5 percent increase in Gilpin County, the median price of condominiums and townhomes sold during the period increased at double-digit rates in the Mountain Corridor.

Current I-70 Travel Patterns

Metro Denver Residents

The Metro Denver Resident Survey asked Metro Denver residents to share the frequency of travel along I-70 through the Mountain Corridor and categorize the types of



travel into three main groups: Commute or Business, Entertainment or Recreation, and Shopping or Personal Services.

Of all trips taken by Metro Denver residents to the Mountain Corridor, 61.7 percent were categorized as entertainment and recreation. Commuting or business was the next largest category, with 21.8 percent of trips taken for that purpose. The remaining 16.5 percent of trips were allocated to shopping or personal services.

Most trips on I-70 are made in personal vehicles (92.3 percent), with carpool or vanpool most of the remainder. Public transit and shared ride services were almost zero.

Mountain Corridor Residents

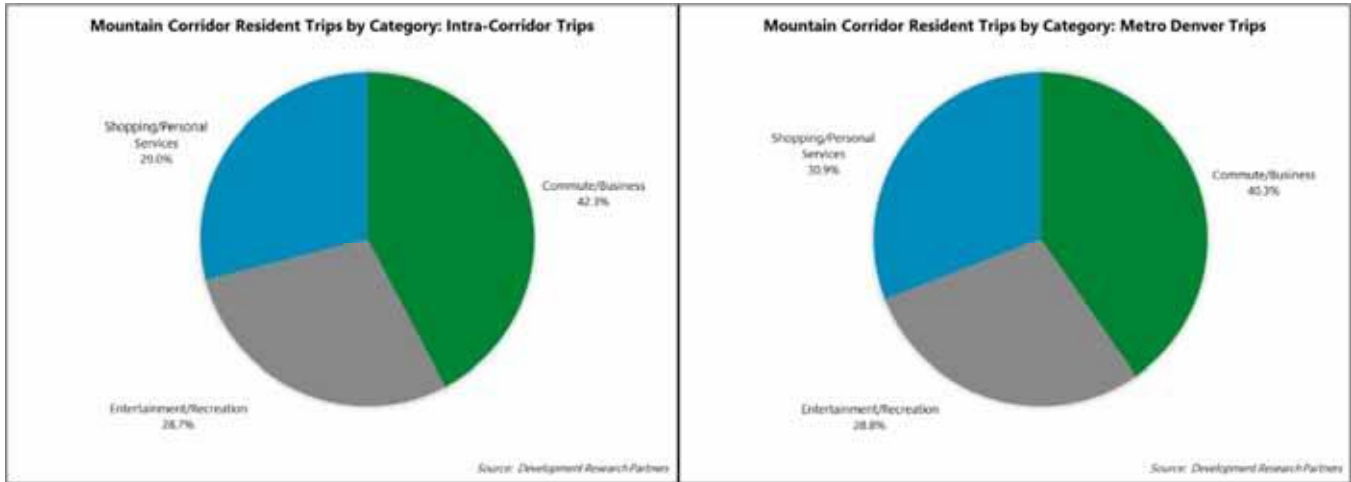
Mountain Corridor residents use I-70 for both intra-corridor trips and for trips to and from Metro Denver. Out of 4,463 intra-corridor trips identified by survey respondents, the majority (42.3 percent) were related to commuting or business purposes. Entertainment and recreation made up 28.7 percent of trips, while shopping or personal services accounted for the remaining 29 percent of trips taken.

For travel to Metro Denver, the number of trips was significantly less (2,238 trips), though the allocation of trips by purpose remained similar.

Median Price of Homes Sold

	2017	2018	% Change
Single-Family Detached			
Clear Creek	\$347,500	\$420,000	20.9%
Eagle	\$750,000	\$798,500	6.5%
Gilpin	\$351,450	\$381,000	8.4%
Grand	\$438,453	\$475,000	8.3%
Summit	\$930,000	\$993,500	6.8%
Metro Denver	\$412,000	\$440,500	6.9%
Single-Family Attached			
Clear Creek	\$199,000	\$197,000	-1.0%
Eagle	\$500,000	\$585,000	17.0%
Gilpin	\$297,000	\$307,500	3.5%
Grand	\$246,500	\$308,500	25.2%
Summit	\$427,000	\$475,000	11.2%
Metro Denver	\$270,000	\$300,000	11.1%

Sources: Colorado Association of REALTORS; Denver Metro Association of REALTORS.



ECONOMIC IMPACT OF HIGH-SPEED TRANSIT ON RESIDENTS

Congestion Influence

Most Metro Denver survey respondents reported that they would increase the number of trips they take to the mountains if congestion was not an issue. Positive responses were highly connected to the purpose of the trip, with 84 percent of respondents reporting that they would increase the number of trips they take on I-70 for entertainment and recreation purposes compared with 29 percent increasing travel for commuting or business. Congestion impacted shopping and personal services as well, with 54.6 percent of respondents increasing travel if congestion had not deterred them.

When asked how I-70 congestion impacts Mountain Corridor residents related to intra-corridor trips, residents were somewhat split. Fifty-six percent of respondents would increase their travel related to entertainment and recreation if there was no congestion, while only 29 percent of those commuting would change their behavior. Shopping and personal services was similar to entertainment and recreation, with 51 percent reporting that they would increase their travel if congestion was not an issue. Travel to Metro Denver had similar results, with residents explaining that congestion often impacts the time they travel, with more limited impact on the frequency of travel.

Expected Use of High-Speed Transit

Survey results indicated that Metro Denver residents generally viewed the opportunity to use a high-speed transit system positively. Respondents had some concerns, including the cost to use the system, frequency of stops, where the stops would be located, last mile connections, and the environmental impacts of construction. The ability to accommodate ski and other recreation equipment was also mentioned, and the ease of travel with such equipment from the transit system to the final destination was of concern. Others gave examples of times they may use the system or choose to instead take their

Metro Denver Residents: Would you travel by a high-speed transit system?

Response	Quantity	Percent
Yes	2,160	79.9%
No	251	9.3%
I Don't Know	287	10.6%
Not Applicable	5	0.2%

Source: Development Research Partners.

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own vehicles, like whether they would be traveling with children or carrying large amounts of luggage. Many were concerned about the current level of congestion and the projected future increase in population, suggesting a future of even more extreme congestion and lack of access to the mountains.

With the introduction of a high-speed system, Metro Denver residents suggested they would change their behavior to increase time spent in the mountains. Of those that would use a high-speed transit system, 60 percent of the additional trips would be taken for entertainment and recreation purposes, 22 percent for shopping and personal services, and 18 percent for commuting and business purposes.

While congestion does not play as large a role in the frequency of travel for Mountain Corridor residents, when asked if they would use such a system, the response was again positive. While time savings was not as much of an issue, convenience and safety were brought up by many residents. For example, the ability to travel through the Mountain Corridor or into Metro Denver during a snow storm without the fear of other drivers on the road was highly attractive to many mountain residents. Access to Denver International Airport (DEN) was mentioned often, as many would use the system for ease of travel to and from the airport. Attending events in Metro Denver was also highlighted, such as sporting events, concerts, and others related to arts and entertainment. Concerns about the last mile were frequently mentioned, as were issues with multiple stops or if the purpose included grocery shopping or another errand that requires the loading and unloading of goods.

Mountain Corridor Residents: Would you travel by a high-speed transit system?

Response	Quantity	Percent
Yes	506	70.4%
No	80	11.1%
I Don't Know	130	18.1%
Not Applicable	3	0.4%

Source: Development Research Partners.

Of those that would use a high-speed transit system for intra-corridor travel, 35 percent of the additional trips would be taken for entertainment and recreation purposes, 34 percent for commuting and business purposes, and 31 percent for shopping and personal services, so the responses were spread evenly. When asked about using the system to travel into Metro Denver, the percentage related to commute or business was higher, registering 40 percent of all trips. Shopping and personal services reported the next highest rate of 31 percent, followed by entertainment and recreation with the remaining 29 percent of all trips to Metro Denver.

Travel Cost Savings

As mentioned in the Visitor Impacts and Business Impacts sections of the report, high-speed transit offers cost savings to users through time savings and lower vehicle fuel and maintenance costs. Mountain residents that use a high-speed transit system for shopping and personal reasons represent 9.2 percent of travelers likely to use a high-speed transit system. The travel cost savings is calculated using the key assumptions described in the Introduction section of this report regarding trip length, travel time for vehicles versus high-speed transit, and transportation costs for vehicles versus transit. In addition, the value of travel time is based on 50 percent of the average hourly wage for all industries for the Mountain Corridor of \$20.14 per hour and an average of 2.42 people per vehicle.

Based upon these assumptions, the average estimated cost for a resident trip is \$47.99. Using a high-speed transit system rather than using a vehicle will save a resident \$2.08 per trip. Based on traffic counts and expected ridership, mountain residents would account for 494,059 high-speed

Mountain Resident Travel Cost Savings

Annual number of resident vehicle trips	2,326,089
Total annual time and vehicle costs (\$M)	\$111.6
Cost per Resident Vehicle Trip	\$47.99
Annual number of resident HST trips	494,059
Total annual time and HST costs (\$M)	\$22.7
Cost per Resident HST Trip	\$45.91
Cost savings per HST trip	\$2.08
Total Cost Savings (\$M)	\$1.0

Source: Development Research Partners.

transit trips annually, saving an estimated \$1 million per year. While the travel costs associated with either mode of transportation generally result in a redistribution of transportation dollars, the value of time saved may ultimately result in either increased work or increased recreation hours, which may result in additional spending, saving, and investing by mountain residents.

Mountain Corridor Resident Population Growth and Resident Spending Activity

The population in the Mountain Corridor communities is forecasted to increase by 1.4 percent per year between 2018 and 2028. In addition to this growth, a high-speed transit system would further increase the population. Economic growth throughout the region would be the main driver of the additional population growth, as greater demand for goods and services by visitors will encourage increased employment opportunities throughout the corridor. About 45 percent of the workers in the I-70 Mountain Corridor live in the I-70 Mountain Corridor, with the remaining workers coming from Metro Denver (27 percent) and other parts of the state (28 percent). Of the 4,660 employees needed to serve the additional visitors, it is assumed that over 2,100 of the workers will live in the Mountain Corridor. Based on 1.59 workers per household in the Mountain Corridor and an average household size of 2.46 people, it is estimated that the increase in Mountain Corridor population would be 3,346 additional people, or 1,361 additional households.

Based on the average annual wage earned by households supported by visitor and current resident spending activity, household income for the additional households in the corridor is estimated to be \$71.6 million. The increased income results in higher resident spending in the Mountain Corridor on goods and services. The estimated increase in retail spending is based on an estimated 34 percent of household income spent on retail goods, or about \$24.6 million. However, not all the retail spending will be captured at local businesses. Many industries are well supported in the corridor, such as food services, but other industries such as motor vehicle dealers are underserved, resulting in mountain residents travelling to the Metro Denver region for goods and services. Based on an analysis of retail trade per capita in the corridor compared with Metro Denver, local businesses will likely capture an estimated 68 percent of new resident spending on retail trade and food services.

In addition, the new households will spend a portion of their income on professional and health care services. Estimates of resident spending on local services were derived from county-level data from the U.S.

Economic Census for industries likely to serve local residents. Per capita revenue for the industries was then applied to estimates of the population increase, resulting in estimated spending of \$14.8 million.

After adjusting for both retail and services spending leakage, it is estimated that the new residents will spend \$31.5 million in the Mountain Corridor.

The increase in new household spending will drive demand for new employees. Based on the estimated square feet of space needed to accommodate the additional spending as described in the Development Impacts section of the report, increased resident spending will support 208 additional employees in the Mountain Corridor. Based on average annual wages for retail, food services, and other local professional and health care services, earnings of the new employees are an estimated \$9.2 million.

Economic Benefit of High-Speed Transit on Resident Spending Activity

Estimated Increase in Households	1,361
Estimated Household Income (\$M)	\$71.6
Total Retail Spending (\$M)	\$24.6
Total Services (\$M)	\$14.8
Less Non-Local Spending (\$M)	-\$7.9
Resident Spending Benefit (\$M)	\$31.5
Wages (\$M)	\$9.2
Employment	208

Source: Development Research Partners.

VI. DEVELOPMENT IMPACTS

The development impacts described in this section reflect total expected residential and commercial development throughout the corridor. No attempt was made to identify where the development may occur. The presence of transit stations in the corridor from a high-speed transit system may offer the opportunity for transit-oriented development in some of the mountain communities. However, development may or may not occur at the transit stops. This section does not include the benefits of constructing a transit station. Rather, it focuses on the private development that increased visitor and resident spending could bring to the I-70 Mountain Corridor broadly, both in proximity to transit stations and in or near towns.

RESIDENTIAL DEVELOPMENT

Existing Housing Characteristics

There were about 88,410 housing units in the I-70 Mountain Corridor in 2017.⁵⁴ A unique characteristic of the Mountain Corridor is the high percentage of second homes, condominium hotels, and other housing patterns indicative of resort communities that result in a low percentage of occupied housing units. Occupied housing units comprised just 45 percent of total units in the Mountain Corridor. The percentage varies widely among the corridor counties, with occupancy as high as 76 percent in Clear Creek County and as low as 31 percent in Summit County. For comparison, nearly 95 percent of housing units were occupied in Metro Denver over the same time. Eagle County has the highest number of housing units of the corridor counties (32,000), comprising about 36 percent of units. Summit County accounts for about 35 percent of the housing units despite comprising just 21 percent of the corridor's population.

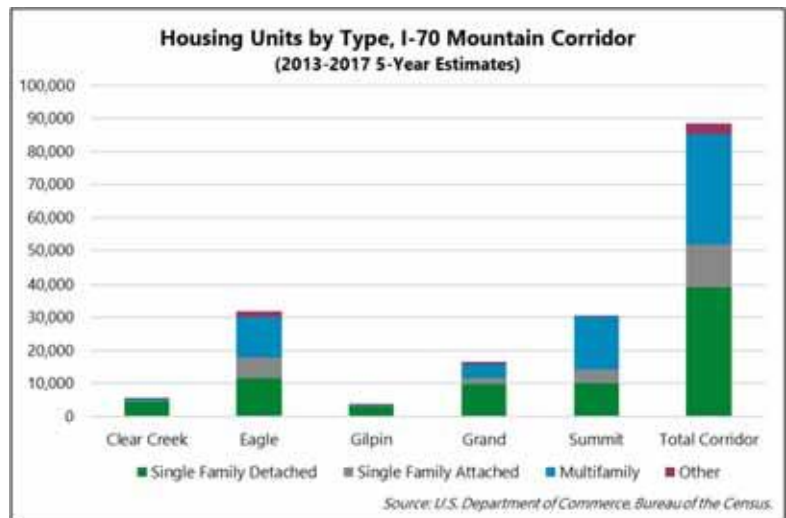
Most of the Mountain Corridor's housing units are single family units. Single-family detached units comprise about 44 percent of the corridor's housing stock, and single-family attached units comprise about 14 percent. A high percentage of units are multifamily units including condominiums and apartments. Multifamily comprised about 37.5 percent of units in the corridor, much higher than the 29 percent of units recorded in Metro Denver over the same time.

Housing units in the corridor are generally newer than in Metro Denver. The median year

**Housing Unit Characteristics, I-70 Mountain Corridor
(2013-2017 5-Year Estimates)**

County	Units	Percent	Occupied-Units	Percent
Clear Creek	5,756	6.5%	4,374	11.0%
Eagle	31,912	36.1%	17,765	44.5%
Gilpin	3,575	4.0%	2,603	6.5%
Grand	16,515	18.7%	5,724	14.3%
Summit	30,652	34.7%	9,455	23.7%
Total	88,410	100.0%	39,921	100.0%

Source: U.S. Department of Commerce, Bureau of the Census.



⁵⁴ U.S. Census Bureau, American Community Survey, 2013-2017 5-Year Estimates.

VI. DEVELOPMENT IMPACTS

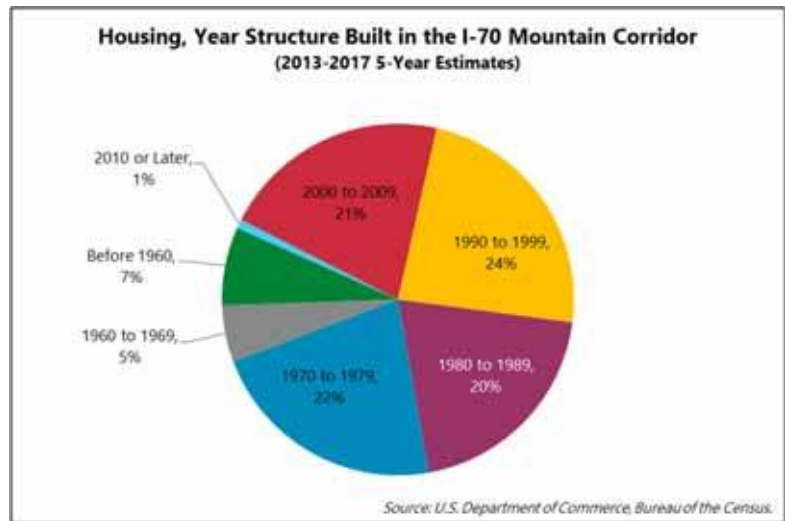
the housing stock in the Mountain Corridor was built ranged from 1973 in Clear Creek County to 1992 in Eagle County. The median year housing was built in Metro Denver was 1981. The oldest housing stock in the corridor was in Clear Creek and Gilpin Counties. Indeed, about 64 percent of the housing units in Clear Creek County were built prior to 1980, and about 52 percent in Gilpin County. Overall, only about 34 percent of housing units in the Mountain Corridor were built prior to 1980.

The value of housing in the Mountain Corridor varies widely both within and between the counties. For instance, Grand County had the lowest median value of owner-occupied housing in the Mountain Corridor from 2013 to 2017 at \$285,000. However, rural areas within Grand County such as Kremmling, where the median value was \$203,200, were much lower than the resort town of Winter Park where the median value was \$450,000. The two counties with the oldest stock of homes, Clear Creek and Gilpin Counties, also had lower median values. The highest value of owner-occupied housing was in Summit County, followed by Eagle County.

Potential Development Patterns after High-Speed Transit

Increased visitor and resident spending activity with the introduction of high-speed transit in the corridor will bring more employment opportunities and population growth to the mountain communities. Based on commuting patterns for the corridor, about 45 percent of employees in the I-70 Mountain Corridor are also residents of the corridor. As noted in the Resident Impacts section, additional spending activity in the corridor will result in an estimated increase in population in the corridor of 3,346 people in 1,361 households.

Many areas right along I-70 in the Mountain Corridor are close to full buildout. Some communities are restricted by topography and federal lands, with limited capacity for additional homes. Residential development in some areas of the corridor is also limited by zoning policies and restricted density requirements. For instance, in the joint master plan between Breckenridge, Blue River, and Summit County, policy actions are outlined that cap density to current zoning, limiting the redevelopment and rezoning opportunities in the area. An exception is for workforce housing projects. Planning documents in Vail and other areas have similar guidelines. However, there are areas in the corridor that could accommodate more residential development and are likely locations for workforce that can support expanded tourism opportunities. These include areas between Silverthorne and Kremmling, Leadville, the Town of Eagle and other Eagle County communities west of Vail, and Central City. Many of the mountain communities have enacted policies to encourage more workforce and affordable housing options for first-responders, resort workers, and other service workers. Consistent with the significant share of multifamily units in the existing housing mix, many of the new units attributed to a high-speed transit option will be for condominiums, townhomes, and other multifamily units. High-speed transit will improve the viability of



Median Value of Owner-Occupied Housing Units, I-70 Mountain Corridor (2013-2017 5-Year Estimates)

County	Value
Clear Creek	\$317,000
Eagle	\$471,100
Gilpin	\$301,700
Grand	\$285,000
Summit	\$547,700
Metro Denver	\$317,100

Source: U.S. Department of Commerce, Bureau of the Census.

VI. DEVELOPMENT IMPACTS

communities that supply many of the tourism-oriented workforce to the resort areas, such as the Town of Eagle. Indeed, from 2012 to 2017, Eagle County accounted for 36 percent of the corridor’s population growth, Summit County accounted for 33 percent, and Grand County for 15 percent. Clear Creek County development is limited, and the county comprised just 8 percent of the population growth in the corridor from 2012 to 2017. Gilpin County comprised 8.2 percent.

Based on a sample of listings of new for-sale condominium units in the Mountain Corridor, and weighting prices and square feet by the corridor’s recent population growth, the average value of a new unit for the 1,361 additional households in the corridor is an estimated \$470,000. The weighted size of new units in the corridor was about 1,080 square feet and were listed at about \$437 per square foot. The total estimated value of new housing associated with the new households supported by increased spending activity from a high-speed transit system is \$639.7million. The new development and increased activity will generate additional tax revenue for local governments and districts in the area, and support corridor workforce needs.

Estimated Residential Development Activity from High-Speed Transit in the I-70 Mountain Corridor

Population	3,346
Households	1,361
Valuation (\$M)	\$639.7

Source: Development Research Partners.

COMMERCIAL DEVELOPMENT

Market Conditions in the I-70 Mountain Corridor

The hotel market is unique in the I-70 Mountain Corridor, characterized by a large share of condominium hotels, seasonality, and high daily room rates. The ownership structure and seasonality lead to occupancy rates that are lower than typical resort properties nationwide. Hotel properties in the corridor are also highly dependent on economic, weather, and road conditions. According to the Colorado Hotel and Lodging Association’s Rocky Mountain Lodging Report, 2018 occupancy rates in the corridor ranged from 39 percent in Winter Park to 55.6 percent in Breckenridge. Across the U.S., occupancy at resort hotels was closer to 74 percent.⁵⁵ However, occupancy varies widely by season. During peak months in the winter, occupancy at the mountain resort properties can climb to more than 80 percent. In March 2018, occupancy ranged from 71 percent in Vail to 82 percent in Breckenridge.

Average daily rates (ADR) in the Mountain Corridor vary widely and in 2018 ranged from about \$98 in Idaho Springs to \$337 in Vail, as noted in the Visitor Impact section of the report. Like occupancy in the mountain communities, ADRs are subject to seasonality and rise as much as 40 percent or more in peak months. In March 2018, ADR rose as high as \$497 in Vail and \$316 in Breckenridge. The range in rates at the hotel properties reflects the type of hotel properties in each community. Accommodations in Clear Creek County are characterized by bed & breakfast locations and local inns. The Gilpin County market has several large casino and resort hotels. Properties in Summit County range from high-end resort hotels, to limited-service and chain hotel options in Silverthorne. The range is similar in Eagle County, with high-end resort hotels from Vail to Edwards and limited-service options further west toward the Town of Eagle.

The tourism-based economy of the Mountain Corridor is also reflected in other types of commercial real estate. The corridor communities lack significant amounts of warehousing space, and industrial properties are limited.

⁵⁵ CBRE. *Trends in the Hotel Industry* (USA Edition), 2018.

Most of the commercial real estate is absorbed by retail properties for stores and restaurants. Additionally, there are limited office properties in the corridor. Most of the office space is utilized for local services like government services, banks, real estate offices, doctors' offices, and dentists.

Commercial rents vary widely in the corridor based on use and location. Prime retail properties in Vail Village have rents as high as \$120 per square foot. In the Town of Eagle, rents are as low as \$15 per square foot.⁵⁶ Based on current listings for commercial property, the average rent for retail properties in the I-70 Mountain Corridor was an estimated \$27.65 per square foot in February 2019.⁵⁷ The average rent for office properties was \$17.61 over the same time. Nearly all the available properties were in Eagle and Summit Counties. Based on data for Eagle County, vacancy rates in the Mountain Corridor are low, ranging from 2.6 percent in towns such as Avon and Edwards, to 0.5 percent in Vail Village and Lionshead.²

Potential Development Patterns after High-Speed Transit

Increased demand for goods and services in the I-70 Mountain Corridor from new visitor and resident spending associated with a high-speed transit system will generate investment in new commercial real estate and increase the overall commercial stock in the corridor. Visitor spending will boost the level of hotel development, retail space, and to a lesser extent, office space.

Hotel Space

As outlined in the Visitor Impacts section of the report, there will be an additional \$145 million in spending on overnight lodging and accommodations with a high-speed transit system and an additional 692,000 room nights of demand. Given the low annual rate of occupancy in the corridor, there is opportunity for some of this demand to be absorbed into current lodging capacity during shoulder seasons when occupancy rates are low. However, as occupancy during peak seasons is at or exceeding a full level of occupancy, new visitor spending is also expected to boost new construction activity. The preference of visitors to boost occupancy at existing properties in the corridor, or the feasibility of new construction is beyond the scope of this analysis. Therefore, assuming that half of the new room nights of demand will be absorbed into existing supply, while half will result in new construction, high-speed transit will result in an increase of an estimated 1,760 hotel rooms in the Mountain Corridor. Based on an estimated 800 square feet of hotel space per room, the benefit of visitor spending from high-speed transit is an estimated 1.4 million square feet of new hotel space in the corridor. It should be noted that the prevalence of condominium hotels in the corridor, where many of the rooms are privately-owned condominium units that are managed by a hotel operator, could result in a share of the lodging development coinciding with the market for second homes in the corridor. This study does not establish the ownership structure of the hotel space.

The new space will increase the value of commercial property in the corridor and generate additional property tax revenue. Based on hotel operating data from CBRE, about 52 percent of resort hotel revenue is generated from rooms and operating expenses comprise an estimated 75 percent of gross revenue. Assuming a capitalization rate of 7.5 percent for hotel properties in the corridor, the market value of the new hotel space will total an estimated \$466.5 million. The actual valuation by county assessors for a property is typically lower than the market value of the property. The assessor's actual value of the new hotel space is estimated to be \$349.9 million.

⁵⁶ NAI Mountain Commercial, *2018 Annual Report: Commercial Market*, (Avon, CO: NAI Mountain Commercial, 2019), 13, www.naimountain.com/2018-annual-commercial-report.

⁵⁷ LoopNet, accessed February 27, 2019, www.loopnet.com.

Retail Space

Based on the estimated benefit of visitor spending from high-speed transit in the I-70 Mountain Corridor, there will be an increase of \$246.8 million in spending on food services and \$20.8 million for other retail spending such as apparel, sporting goods, and general merchandise each year. In addition, there is an increase in retail spending in the corridor from the new households of \$16.7 million. Combined, new spending from visitors and residents each year is an estimated \$284.2 million. This level of new spending will encourage the development of new retail space.

The use of retail space varies based on the type of business occupying the space. For the analysis, retail sales per square foot for various retail industries was examined and adjusted upward for price levels in the corridor compared with those in a similar mountain community.⁵⁸ Based on the data, prices were an estimated 6.6 percent higher in the corridor than in Metro Denver in 2018. Estimated sales per square foot in the Mountain Corridor ranged from an average of about \$390 per square foot for retail including food and beverage stores, apparel, sporting goods, and general merchandise, to \$510 per square foot for food services such as restaurants. Based on a retail occupancy rate of about 98 percent from local commercial real estate data mentioned above, the new visitor and resident spending will result in the demand for an additional 591,000 square feet of retail space in the corridor.

New retail space in the corridor will increase the value of commercial property and increase property tax revenue for local governments and districts. Based on estimated rents for retail space in the Mountain Corridor and assuming a 7 percent capitalization rate for retail properties, the 591,000 square feet of retail space demanded will have a market value of \$233.4 million. The actual valuation by county assessors for a property is typically lower than the market value of the property. The assessor's actual value of the new retail space is estimated to be \$163.4 million.

Office Space

New businesses and residents in the corridor will boost the demand for professional and technical services, health care services, financial services, and other industries that primarily serve the local community and utilize office space. Estimates of business spending on professional and technical services for corridor businesses were estimated from the U.S. Census Bureau's Economic Census data for firms in the accommodations, retail, and food services industries on a per employee basis. Estimates were then applied to estimated employment gains from visitor and resident spending as described in the Visitor and Resident Impact sections of the report. Not all the spending on professional and technical services will be captured locally. Many businesses contract with legal firms, accounting firms, consultants, and other services in the Metro Denver region and nationally. Based on the size of the market in the corridor compared with Metro Denver in terms of establishments, employees, and sales, local businesses will capture an estimated 2.5 percent of the business spending. Therefore, office-based services in the corridor will benefit from an increase in spending of an estimated \$109,000.

Estimates of resident spending were derived from county-level data from the Economic Census for industries likely to serve local residents. Per capita revenue for the industries was then applied to estimates of population increase from visitor and resident spending. In total, visitor and resident spending will benefit local professional and health care services industries by an estimated \$14 million annually.

Based on revenue per employee in the corridor for business and resident-serving office industries, the new visitor and resident spending will result in the demand for an estimated 113 office workers in the I-70 Mountain Corridor.

⁵⁸ Price level comparison from data published in the Council for Community and Economic Research, Cost of Living Index, 2018 annual report for the Denver-Aurora-Lakewood region and Glenwood Springs.

VI. DEVELOPMENT IMPACTS

Based on 250 square feet of office space per employee and assuming office has a vacancy rate similar to retail in the corridor, new visitor and resident spending will result in the demand for an additional 29,000 square feet of office space in the corridor.

New office space in the corridor will increase the value of commercial property and increase property tax revenue for local governments and districts. Based on estimated rents for office space in the Mountain Corridor and assuming a 7.5 percent capitalization rate for office properties, the 29,000 square feet of office space demanded will have a market value of \$4.1 million. The actual valuation by county assessors for a property is typically lower than the market value of the property. The assessor's actual value of the new office space is estimated to be \$3.2 million.

Estimated Commercial Development Activity from High-Speed Transit in the I-70 Mountain Corridor

Property Type	Square Feet	Valuation (\$M)
Hotel*	1,409,000	\$349.9
Retail	591,000	\$163.4
Office	29,000	\$3.2
Total	2,029,000	\$516.5

**Based on the ownership structure of new hotel space in the corridor, a portion of the new space may be developed with the addition of condominium units.*

Source: Development Research Partners.

TAX REVENUE

Property Tax

The addition of more than 2 million square feet of commercial space in the I-70 Mountain Corridor along with new residential development will generate property tax revenue for local governments and tax districts. The total value of the new commercial space is an estimated \$516.5 million. Based on the residential and commercial assessment rates of 7.2 percent and 29 percent respectively, and an average mill levy of 63.8168 that represents the total levy for all types of districts in the corridor, new visitor, business, and resident demand resulting from high-speed transit in the corridor will generate \$12.5 million in property tax revenue. The estimated property tax revenue is comprised of \$2.6 million for county governments, \$0.9 million for municipal governments, \$4.6 million for local school districts, and \$4.4 million for other special districts. Actual tax collections will vary depending on the distribution of development in the corridor and tax districts that will serve the new properties. Tax collections will also depend on the level of hotel development that has a condominium hotel ownership structure. This type of development is more likely in resort communities, and individual units are assessed at the residential assessment rate of 7.2 percent. However, the pattern of development and share of condominium hotels is beyond the scope of this analysis.

Estimated Annual Tax Revenue for Districts in the I-70 Mountain Corridor Associated with High-Speed Transit

District Type	Est. Rate or Levy	Annual Revenue (\$M)*
Property Tax		
County	13.1018	\$2.6
Municipal	4.7478	\$0.9
School	23.2498	\$4.6
Special	22.7174	\$4.4
Total	63.8168	\$12.5
Sales Tax		
State	2.9%	\$12.4
County	1.6%	\$6.8
Municipal	2.8%	\$11.8
Total	7.2%	\$31.0
Lodging Tax		
County	0.3%	\$0.4
Municipal	1.3%	\$1.9
Total	1.6%	\$2.3
Total All Sources		\$45.8

**Based on estimated average mill levies, sales, and lodging tax rates for each type of district in Clear Creek, Eagle, Gilpin, Grand, and Summit Counties.*

Source: Development Research Partners.

Retail Activity and Sales Tax

New visitor and resident demand for goods and services in the corridor will generate retail sales activity in the I-70 Mountain Corridor and sales tax revenue for state and local governments. Based on estimated retail trade and food services spending, and average state and local sales tax rates weighted by commercial valuations in each community, the estimated annual sales tax revenue is \$31 million. The tax revenue is comprised of an estimated \$12.4 million in state sales tax, \$6.8 million for county governments and \$11.8 million for municipal governments in the Mountain Corridor. Actual tax collections will vary depending on the distribution of development in the corridor and local governments that will serve the new properties.

Estimated Retail Sales Activity from High-Speed Transit in the I-70 Mountain Corridor

	Square Feet	Sales (\$M)
General Retail	90,000	\$35.4
Food Services and Drinking Places	501,000	\$248.8
	591,000	\$284.2

Source: Development Research Partners.

Lodging Tax

Visitor spending on lodging will generate lodging tax for local governments in the I-70 Mountain Corridor in addition to sales tax. Only two counties in the corridor impose a lodging tax, Clear Creek and Grand Counties. Several municipalities impose lodging tax in the corridor, ranging from 1.5 percent in Minturn to 4 percent in Avon. Based on an average county and municipal lodging tax rate weighted by commercial valuations in each community, the estimated annual lodging tax revenue from visitor spending is \$2.3 million. The tax revenue is comprised of \$435,000 for county governments and \$1.9 million for municipal governments in the Mountain Corridor. Actual tax collections will vary depending on the distribution of development in the corridor and local governments that will serve the new properties.

Total Tax Revenue

Combining property, sales, and lodging tax revenue generated from new visitor and resident spending in the I-70 Mountain Corridor, the benefit to the state, local governments, schools, and special tax districts is an estimated \$45.8 million each year.

However, this additional revenue is generally used to provide the additional governmental services required by more visitors, businesses, and residents. This report does not include a complete fiscal analysis as the additional tax revenue has not been offset by any additional cost of governmental services.

COMMUNITY INVOLVEMENT

The siting of transit stations, particularly for minor transit station locations, has both positive and negative impacts on the local jurisdiction. Obvious benefits are the increased number of riders who will utilize the station creating a more vibrant place, increased convenience purchases, and the higher profile exposure that most communities are expected to embrace. Improved access for local consumers, recreation enthusiasts, intra-corridor transportation, and direct access to Denver International Airport will also be beneficial to most towns and its residents.

On the con side, transit station communities will likely see more traffic and possibly parking issues. Perhaps a notable push back may be the opportunity cost of giving up a relatively large land assemblage that could support local tax revenue generating uses in exchange for a tax-exempt transit station. This could also entail dislodging

existing businesses who may or may not decide to reopen elsewhere in town. Ultimately, each community must weigh the pros and cons of hosting such a station and decide a course of action.

Focusing on development activity in the broadest sense, there could be three locational impact types: (1) the transit station itself; (2) private transit-oriented development around the station; and/or (3) private development located in or near town, but not necessarily near the station. Depending on the specific community and transit locations there are several opportunities in which local jurisdictions can participate with development activity.

Transit Station Site

Local jurisdiction participation may include:

- Land donation
- Providing grading equipment and crews, or other heavy equipment needed for site development.
- Full or partial development fee waivers possibly including permits, utility hook-ups, and other fees.
- Full or partial sales/use tax waivers if applicable.
- Partially sponsoring transit station operations.

Ways for the transit developer(s) to partner with the local jurisdiction should be explored. This may include shared town parking, which could serve new development around the station or provide needed general public parking at the station.

Private Development

The financial needs for any specific project will vary by the type (residential, commercial, or other property types), particular locations and site, and local government structures and community plans. Incentives, or public co-investment, can be expected to vary within different communities within the corridor. Local jurisdiction financial participation tools may include:

- Land donation.
- Full or partial development fee waivers possibly including permits, utility hook-ups, and other fees.
- Full or partial sales/use tax waivers or rebates.
- Urban renewal and tax increment financing (TIF).
- Capital grants or loans.
- Developer administered public improvement fees (PIF).
- Storefront facade improvement program.

The purpose of this study is to analyze the economic impacts of a high-speed transit system in the I-70 Mountain Corridor. Economic impact analysis is the analytical approach used to assess the measurable direct and indirect costs and benefits resulting from a project over a specific period. Only those impacts that can be measured or quantified are included, with the measurements generally consisting of employment, earnings, and the value of output or spending. However, there are other factors that should be considered in evaluating transportation options. The intent of this section is to highlight some of these other quantitative and qualitative factors, although it is beyond the scope of this study to provide any estimates of the associated costs and benefits. It should be noted that many of these other factors are part of the CDOT planning process.

TECHNOLOGY LEADER

The successful development and operation of an enhanced transportation system through the I-70 Mountain Corridor would position Colorado as a leader in innovative transportation options. CDOT's leadership in studying and advancing plans simultaneously for potential solutions will continue to keep the state at the forefront of mobility, be it high-speed transit, autonomous vehicle solutions, or technology connecting vehicles for a more efficient, safer ride under CDOT's RoadX program. CDOT's RoadX program seeks ways to improve traffic flows with technology solutions, which will continue to be part of the multi-faceted solution to congestion.

Through RoadX, Colorado was selected as one of 10 global finalists to build Hyperloop One, a magnetic levitation technology that can propel passenger or cargo pods up to 700 mph. With its unique geographical challenges, Colorado provides a platform for testing and validating new technologies under difficult conditions.

There may also be business development options related to a high-speed transit system, providing enhanced commercial and job opportunities directly tied to mobility, and business opportunities stemming from providing greater access to Colorado recreation areas. For example, in Helsinki, Finland entrepreneurs have developed a business to make transportation across all public and private sector modes seamless for commuters, residents, and visitors via a single planning and payment app, called Whim. Similarly, Lyft announced a partnership with the Regional Transportation District in Metro Denver to show its app users nearby public transportation routes and schedules.

TRANSPORTATION BETWEEN CORRIDOR COMMUNITIES

Efficient operation of a high-speed transit system will require enhanced circulator options throughout and between the I-70 Mountain Corridor communities and the Metro Denver region. This could take the form of expanded public transit systems, additional private sector options, and technology solutions.

There may be "trickle-down" impacts to the residents of the region related to both high-speed transit and enhanced circulator system options. For example, seniors living in the Mountain Corridor may now have new transportation options to access healthcare and other services. Medical professionals providing part-time services to the Mountain Corridor would be able to work or relax on a transit system or travel more efficiently from Metro Denver to medical facilities in the mountain communities. Students may be able to access K-12 or secondary education opportunities within the corridor or the Metro Denver region. Businesses in the Mountain Corridor will be able to increase their labor pool from within the Mountain Corridor and throughout Metro Denver. Mountain Corridor residents would have greater access to cultural and entertainment facilities in Metro Denver, and Metro Denver residents that had previously foregone a trip to the mountains due to traffic could enjoy the view as they head to resort destinations.

ENVIRONMENTAL IMPACTS

Development of any solution to congestion leads to impacts on our environment including air quality, vegetation, wildlife, and water. CDOT's *I-70 Mountain Corridor Record of Decision and Final Programmatic Environmental Impact Statement* from June 2011 provides due diligence on a range of impacts that would require mitigation under the various options to improve transportation flow in the I-70 Mountain Corridor.

Many business leaders and residents expressed good stewardship of the land and environment as an important goal in developing a solution to traffic congestion in the corridor. Automobile emissions remain the second highest cause of CO₂ emissions in Colorado at 32 percent of the total, just behind electricity generation, according to the most recent national data (2016) from the U.S. Environmental Protection Agency. Colorado's CO₂ emissions from vehicles has stabilized but not lowered significantly in the past ten years, and population increase plus growth in visitors contributes to more vehicles on the road and more miles traveled, despite new technologies lowering vehicle emissions. Implementation of a high-speed transit system running on a clean technology may lead to a decrease in negative influences on the natural environment.

HEALTH CONCERNS

Global, national, and state studies show that people residing in congested or high traffic volume areas have higher risks for asthma, cancer, and other major health conditions. The American Lung Association reviewed over 700 scientific studies around the world and found that people who live within 500 meters of major thoroughfares were at most risk. Studies showed that children were the most vulnerable to childhood asthma, chronic obstructive pulmonary disease (COPD), and cardiovascular disease. Adults also are more vulnerable to these and demonstrated a higher risk of dementia and heart attacks. The U.S. Environmental Protection Agency notes there are costs related to the negative impact on health. These include lower productivity and lost wages due to increased illness resulting from pollution, missed school, inability to engage in outdoor activities, and the costs of medical treatment.

The impact of traffic congestion, adverse weather, or other events can have a significant impact on travelers' mental health. Colorado ranked number two for road rage fatalities with 53 deaths related to road rage or aggressive driving in 2016, according to the U.S. Fatal Analysis Reporting System. Travelers experiencing delays are less friendly and can be harder on visitor center facilities, according to information from visitor centers in the Mountain Corridor. They tend to treat facilities poorly leading to higher maintenance costs, spend less time at some locations or do not stop at all, and spend significantly less money at restaurants and other shops.

EMERGENCY RESPONSE TIMES

The combination of adverse weather conditions, traffic congestion, and challenging geography can impact emergency response times in the event of traffic accidents or other events, including avalanche or rock slides along the I-70 Mountain Corridor. Emergency vehicles face difficulties in maneuvering through congested areas, particularly where shoulders are narrow or non-existent, increasing emergency response times. For example, Breckenridge first responders report normal response times are six to eight minutes; however, they have experienced response times of up to two-thirds longer when weekend events, prime winter snow sports conditions, weather events, and severe traffic congestion make it difficult for emergency vehicles to answer a call in a timely fashion.

Under current conditions, CDOT has worked to place tow trucks and wreckage vehicles in strategic locations along the corridor during high-demand times and adverse conditions to clear the highway more quickly. In addition, CDOT has established minimum standards for personal vehicles and provides alerts via electronic signage and online traffic apps, which allow travelers to check conditions before they travel. A high-speed transit system

incorporating the latest technology that either lowers the number of vehicles on the road or utilizes technology connecting vehicles has the potential to reduce accidents, provide greater roadway capacity, and improve emergency vehicle response times.

TAX REVENUE

More visitors and residents will create increased demand for government services so revenue streams to support infrastructure development, provide emergency services, and K-12 education, for example, will be essential. While the increased visitor and resident spending will lead to additional business activity throughout the region, which will likely lead to increased sales and property tax revenue in impacted communities, an analysis of the cost of providing governmental services compared with the rise in tax revenue may be insightful. A surplus of dollars potentially may be leveraged by impacted communities to partner with the high-speed transit system developer(s) on transit-oriented development, enhanced local public transportation, and other infrastructure requirements stemming from the increased inflows of visitors and residents. On the other hand, communities may have to develop strategies for overcoming any revenue shortfalls.

QUALITY OF LIFE

A transit system connecting the Mountain Corridor and the Metro Denver urban corridor provides an opportunity to improve the quality of life for people by reducing pollution, removing the stress of driving, potentially reducing personal transportation costs, and providing greater options for employment and housing options. A transit option gives people the freedom to work, relax, or engage in another activity while saving wear and tear on a personal vehicle. It may also give people the opportunity to opt out of owning a private vehicle altogether. A transit system that connects the Mountain Corridor to Metro Denver provides additional opportunities for businesses to employ workers across a broader labor shed and for employees to explore work options in areas previously out of their range.

Further, changes in private vehicle ownership may encourage changing development patterns. For example, obsolete parking lots may present an opportunity for redevelopment to maximize land use. Changing parking needs may provide options for new housing or business development in communities where transit stations are located.

FINANCING HIGH-SPEED TRANSIT

The cost of high-speed transit varies significantly depending on the technology and associated capital costs, operations and maintenance costs, footprint or right-of-way needed, and ridership.

CDOT's *Advanced Guideway System Feasibility Study* from 2014 looked at systems from the C-470/I-70 interchange to EGE with capital costs of between \$10.9 to \$32.4 billion depending on the technology, length, and route. Currently, there is no funding or financing, either through public or private sources, to implement a transit system, and Colorado voters rejected two ballot measures in November 2018 to increase transportation funding to provide for the state's long-term transportation infrastructure needs. Finding the funding for a high-speed transit system in the I-70 Mountain Corridor remains a significant challenge.

This report described and estimated the impacts of the introduction of a high-speed transit system in the I-70 Mountain Corridor based on its influence on three groups, consisting of visitors, businesses, and residents. Transportation is a key enabler of tourism and plays a vital role in moving visitors from their place of residence to their destination. Transportation connects the markets in tourism-generating regions to destinations and facilitates the internal movement of visitors between various components of the visitor experience, including accommodations, attractions, and commercial services.

Businesses rely upon the transportation system to move their goods and services, to receive needed supplies and raw materials, and to enable easy access to employees. Residents rely upon the transportation network to get to their job, to schools, to shopping and personal services, and to entertainment and recreation. An efficient and effective transportation infrastructure is critical to business and personal success.

The impacts revealed in this study related to visitors, businesses, and residents are added together and presented in four inter-related areas: economic impacts, new development supported, new tax revenue generated, and travel cost savings. The inter-relationship between these areas is depicted in the following graphic, with each area explained in detail below.



ECONOMIC IMPACTS

This study analyzed the direct economic impacts of the introduction of high-speed transit, or the change in business-to-business and consumer-to-business spending patterns resulting from HST. No indirect or economic

multiplier effects have been included, so the analysis is conservative and represents the low end of potential benefits.

High-speed transit will result in \$711.7 million more in economic activity each year in the I-70 Mountain Corridor, which will be produced by 6,428 employees earning \$227.2 million. This economic impact is generated from the three groups as follows:

- **New Visitors:** High-speed transit will make it easier for both in-state and out-of-state visitors to travel to the I-70 Mountain Corridor. An estimated 4.2 million additional visitors to the Mountain Corridor each year will generate **\$548.6 million in additional spending** on lodging, restaurants, entertainment, and other retail. This spending will directly support **4,660 more employees** in the I-70 Mountain Corridor, and these employees will earn about **\$153.3 million in wages**.
- **New Residents:** Increased employment opportunities generated from the new visitors will be the main driver of higher-than-trend population growth. Of the 4,660 employees needed to serve the additional visitors, it is assumed that over 2,100 of the workers will live in the Mountain Corridor. Based on 1.59 workers per household in the Mountain Corridor and an average household size of 2.46 people, it is estimated that the increase in Mountain Corridor population will be about 3,350 additional people, or 1,360 additional households. The new households will generate **\$31.5 million in additional spending** each year, resulting in the need for **208 additional employees** earning **\$9.2 million in wages**.
- **Enhanced Business Activity:** As the available labor force residing in the I-70 Mountain Corridor is already fully employed, businesses in the corridor tend to be understaffed and rely on commuters from outside the area to sustain profitability and business growth. A high-speed transit option through the corridor will improve connectivity from Metro Denver to the mountain communities, boosting corridor employment by an estimated **1,560 workers** from Metro Denver that will commute to the corridor via HST. More employment will be associated with an increase in **corridor output of \$131.6 million**, as more employees mean more customers served. Based on the type of positions likely to be filled by the Metro Denver commuters, the additional employees will have **earnings of about \$64.7 million**. Note that this employment increase is in addition to the employment supported by increased visitor and resident spending as these employees would be hired today by the existing businesses in the corridor to alleviate understaffing issues.

These direct economic impacts will occur annually assuming similar future spending patterns.

NEW DEVELOPMENT IMPACTS

The additional visitor and resident spending with the introduction of high-speed transit in the corridor will foster the development of over **1,360 new residential units and 2 million square feet of commercial space with a combined value of nearly \$1.2 billion**. The presence of transit stations in the corridor from a high-speed transit system may offer the opportunity for transit-oriented development in some of the mountain communities; however, the new development may or may not occur at the transit stops. No attempt was made to identify specifically where in the Mountain Corridor the development may occur.

- **Residential Units:** Increased visitor and resident spending activity will bring more employment opportunities and population growth to the mountain communities. As noted above, the introduction of high-speed transit will bring 3,350 more people than expected trend population growth due to enhanced employment opportunities. These additional people will require about **1,360 additional housing units valued at \$639.7 million**.
- **Commercial Development:** Increased demand for goods and services in the I-70 Mountain Corridor from new visitor and resident spending associated with a high-speed transit system will generate investment in new commercial real estate and increase the overall commercial stock in the corridor. The \$711.7 million in new

spending (economic impact) will boost the level of hotel development, retail space, and to a lesser extent, office space by about **2 million square feet valued at \$516.5 million**.

The construction of the new residential units and commercial development has a temporary economic impact in the I-70 Mountain Corridor from construction employment and purchases of construction materials and other related goods and services. The temporary economic impact, which occurs only during the construction period, is not included in this analysis.

NEW TAX REVENUE

New tax revenue from the increased economic activity and new development is estimated at **\$45.8 million each year**. This additional revenue is generally used to provide the additional governmental services required by more visitors, businesses, and residents. This report does not include a complete fiscal analysis as the additional tax revenue has not been offset by any additional cost of governmental services.

- **Property Tax:** The addition of 2 million square feet of commercial space and over 1,360 residential units will increase property tax revenue in the corridor by about **\$12.5 million** each year.
- **Sales Tax:** Based on estimated retail trade and food services spending by the additional visitors and new residents, the estimated annual sales tax revenue is **\$31 million**.
- **Lodging Tax:** Visitor spending on lodging will generate lodging tax of about **\$2.3 million** for local governments each year.

Actual tax collections will vary depending on the distribution of development in the corridor and which local governments provide services for the new properties.

TRAVEL COST SAVINGS

High-speed transit potentially offers cost savings to users through time savings and lower vehicle fuel and maintenance costs. While a shift from spending on fuel and vehicle maintenance costs to high-speed transit fares represents a redistribution of transportation dollars and not new spending, the **\$12.7 million in travel time saved** per year may lead to increased economic activity and enhanced productivity.

- **Visitors:** In-state visitors would save an estimated \$2.1 million per year using high-speed transit and out-of-state visitors would save \$1.2 million. The entire **\$3.3 million** in travel cost savings for visitors is due to travel time savings as high-speed transit fare costs are higher per person than vehicle travel costs.
- **Metro Denver and Mountain Corridor Commuters:** Metro Denver commuters could save more than \$9.2 million in fuel and vehicle maintenance costs and \$2 million in travel time. The savings for Mountain Corridor commuters is even higher, at \$14.6 million in fuel and vehicle maintenance costs and \$6.4 million in travel time. Commuters receive the highest benefit with travel time savings of **\$8.4 million**.
- **Residents:** Mountain Corridor residents would save an estimated **\$1 million** per year using high speed transit. The entire travel cost savings is due to travel time savings as high-speed transit fare costs are higher per person than vehicle travel costs.

The value of time saved may result in either increased work or increased recreation hours, which may result in either higher incomes and more spending power or enhanced quality of life. While travel cost savings are a benefit of high-speed transit, how the savings will translate into greater economic activity cannot be estimated. Transit riders may experience increased travel reliability, reduced stress, and opportunities for activities other than driving during the ride. The intrinsic value to an individual of a potentially more pleasant HST trip is not estimated.

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I-70 MOUNTAIN CORRIDOR BUSINESS SURVEY

Development Research Partners conducted a survey of businesses in the I-70 Mountain Corridor to understand the dynamics and potential increase in business activity in the corridor from a high-speed transit system. The survey was conducted through SurveyMonkey from October 23, 2018 to January 7, 2019; and included outreach from several I-70 Mountain Corridor economic development and community organizations to generate interest and responses. In total, there were 178 valid responses from business establishments across all 11 supersectors in the corridor and across all five corridor counties. The respondents accounted for an estimated 15 percent of the employment base in the corridor. An estimate of employment was derived by assigning each respondent an average of their identified size class category.

The responses were more heavily weighted to the leisure and hospitality supersector than exist in the I-70 Mountain Corridor, both in terms of establishments and employment. Responses were also more heavily weighted to Clear Creek County than the actual employment distribution. Results were analyzed excluding the leisure and hospitality supersector and Clear Creek County separately. Survey results were not significantly different in each case.

1. *What is the zip code of your primary business location?*

Survey Responses by Zip Code

Zip Code	Count
80422	1
80424	29
80427	4
80435	23
80436	3
80438	4
80442	6
80443	5
80444	21
80446	1
80447	2
80451	1
80452	20
80478	2
80482	18
80498	3
81620	6
81631	5
81632	4
81657	18
81658	2
Total	178

Survey Responses by County

County	Count
Clear Creek	48
Eagle	35
Gilpin	5
Grand	30
Summit	60
Total	178

APPENDIX A: BUSINESS SURVEY RESULTS

2. Which industry classification best describes your business?

Survey Responses by Supersector

Supersector	Count
Natural Resources & Construction	8
Manufacturing	2
Wholesale & Retail Trade	20
Transportation, Warehousing, & Utilities	4
Information	3
Financial Activities	19
Professional & Business Services	15
Health Care & Educational Services	6
Leisure & Hospitality	74
Other Services	14
Government	13
Total	178

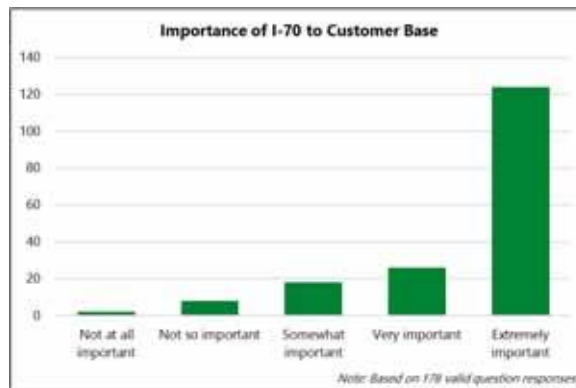
3. How many workers do you employ?

Employment by Supersector

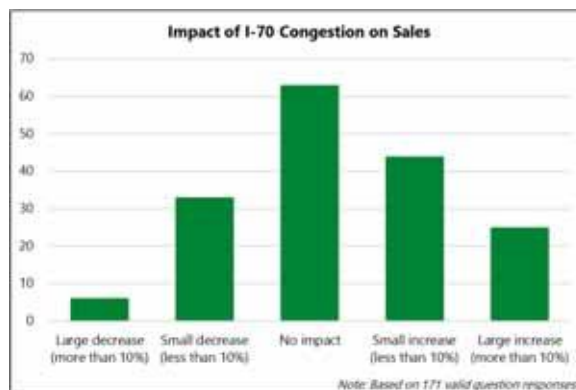
Supersector	Survey Respondents		I-70 Mtn Corridor		Difference (2) - (4)
	(1) Count	(2) Percent	(3) 2017 Employment	(4) Percent	
Natural Resources & Construction	600	5.9%	5,447	7.9%	-2.0%
Manufacturing	20	0.2%	745	1.1%	-0.9%
Wholesale & Retail Trade	340	3.3%	8,255	11.9%	-8.6%
Transportation, Warehousing, & Utilities	295	2.9%	1,228	1.8%	1.1%
Information	30	0.3%	469	0.7%	-0.4%
Financial Activities	648	6.3%	4,076	5.9%	0.5%
Professional & Business Services	200	2.0%	5,606	8.1%	-6.1%
Health Care & Educational Services	60	0.6%	4,481	6.5%	-5.9%
Leisure & Hospitality	6,530	64.0%	27,690	40.0%	24.0%
Other Services	230	2.3%	1,907	2.8%	-0.5%
Government	1,255	12.3%	8,171	11.8%	0.5%
Total	10,208	100.0%	69,205	100.0%	

APPENDIX A: BUSINESS SURVEY RESULTS

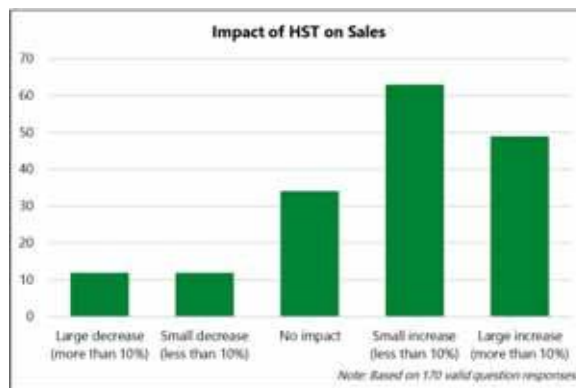
4. How important is the I-70 Mountain Corridor to your sales/customer base?



5. How has increased congestion in the I-70 Mountain Corridor impacted your sales over the past five years?



6. What impact would a high-speed transit system have on your sales?

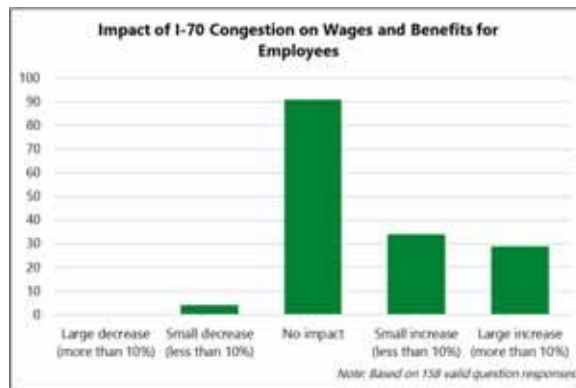


APPENDIX A: BUSINESS SURVEY RESULTS

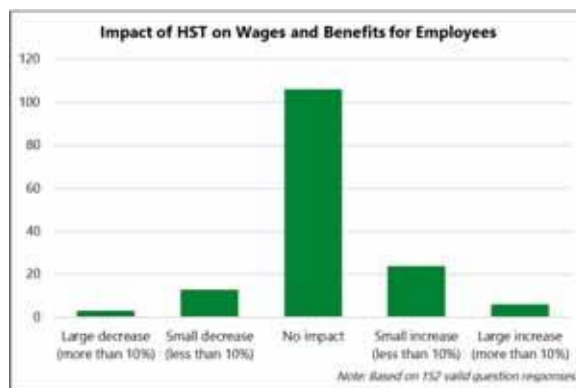
7. *How important is the I-70 Mountain Corridor to your ability to recruit and retain employees?*



8. *How has increased congestion in the I-70 Mountain Corridor impacted the wages and benefits you have offered to employees over the past five years?*

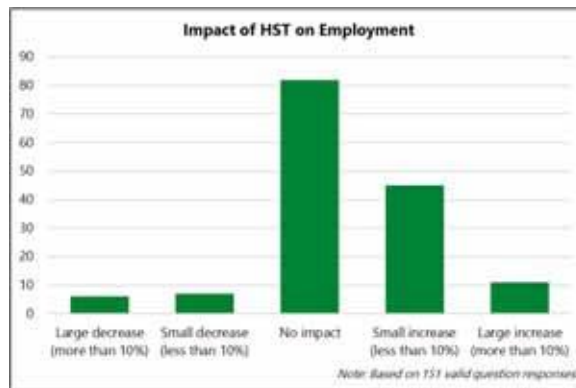


9. *What impact would a high-speed transit system have on the wages and benefits you would offer to employees?*



APPENDIX A: BUSINESS SURVEY RESULTS

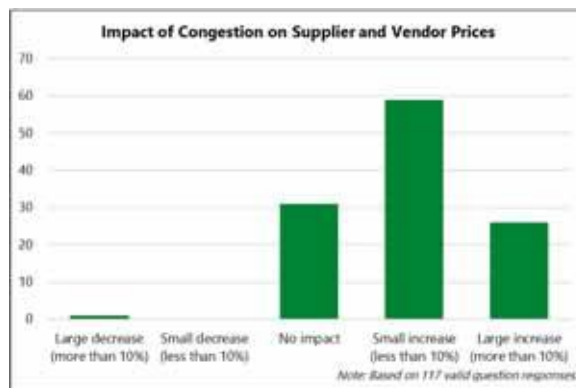
10. By how much might you adjust the number of employees because of a high-speed transit system?



11. How important is the I-70 Mountain Corridor to your main suppliers and vendors?

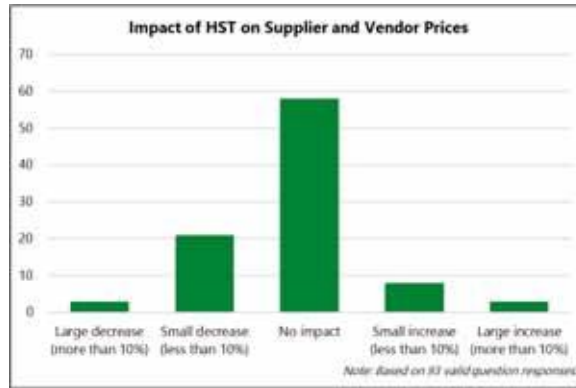


12. How has increased congestion on the I-70 Mountain Corridor impacted the prices charged by your suppliers and vendors over the past five years?

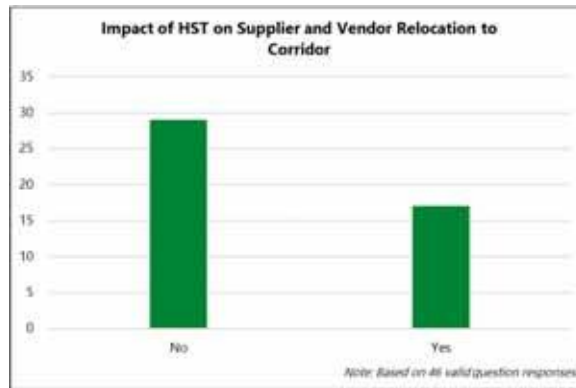


APPENDIX A: BUSINESS SURVEY RESULTS

13. What impact would a high-speed transit system have on the prices charged by your suppliers and vendors?



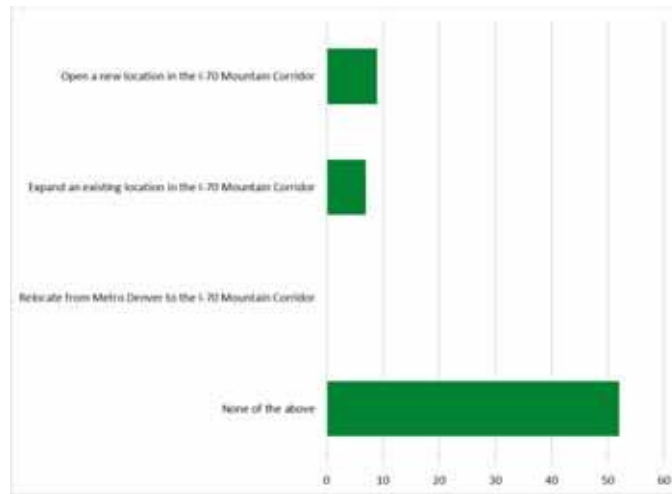
14. Do you have suppliers or vendors not currently located in the I-70 Mountain Corridor that may be likely to open an I-70 Mountain Corridor location because of a high-speed transit system?



METRO DENVER BUSINESS QUESTION

Development Research Partners conducted a single-question survey of Metro Denver businesses to understand the potential for business expansion into the I-70 Mountain Corridor due to a high-speed transit system. The survey was conducted through SurveyMonkey from February 18, 2019 through March 2, 2019. The survey was distributed to investors in the Metro Denver Economic Development Corp. In total, there were 67 valid responses.

1. *If high-speed transit existed, would your company be likely to (select all that apply):*



METRO DENVER RESIDENT SURVEY

Development Research Partners conducted a survey of Metro Denver residents to understand current travel patterns and the impact that high-speed transit might have on those patterns. The survey was conducted through SurveyMonkey from December 5, 2018 to January 13, 2019. The survey was distributed through 45+ county and economic development groups, and 30+ social media groups through FaceBook and NextDoor. In addition, local news outlets (Channel 7 news, Denver Business Journal, and Fox 31 News) distributed the survey via their online websites. In total, there were 2,705 valid responses from residents in the seven-county area.

The survey results and data were collected to enhance our understanding of the relevant issues and impacts of a potential high-speed transit system in the I-70 Mountain Corridor. The results were not tested for validity and general representativeness of the analysis area. While various subgroups of the survey may have results that are statistically significant, these statistics were not calculated as the survey results were not used in a manner requiring statistical significance.

1. *What is the zip code for your primary residence?*

County	Count
Adams	184
Arapahoe	312
Boulder	154
Broomfield	55
Denver	740
Douglas	356
Jefferson	904
Total	2,705

2. *Do you own a second home in the I-70 Mountain Corridor, consisting of Gilpin, Clear Creek, Grand, Summit, and Eagle Counties?*

Response	Count
Yes	219
No	2,390

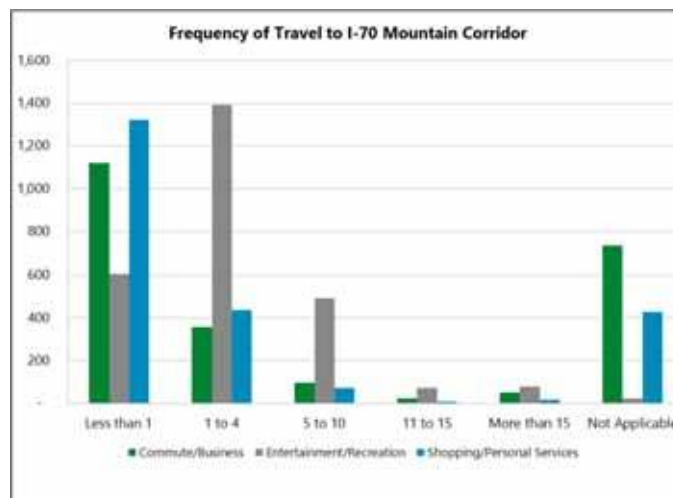
APPENDIX C: METRO DENVER RESIDENT SURVEY RESULTS

3. *If yes, what is the zip code for your secondary mountain corridor residence?*

Survey Responses

Zip Code	Count
80422	1
80424	40
80435	24
80436	2
80442	8
80443	19
80444	3
80446	6
80447	13
80451	1
80452	3
80459	1
80468	2
80478	7
80482	14
80497	9
80498	28
81620	18
81631	2
81632	6
81657	21
Total	228

4. *How many days per month do you travel from Metro Denver to the I-70 Mountain Corridor for the following reasons:*



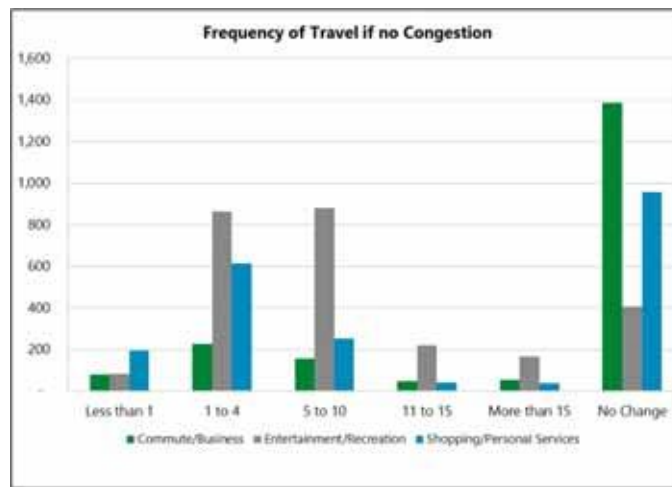
APPENDIX C: METRO DENVER RESIDENT SURVEY RESULTS

5. *When you travel from Metro Denver to the I-70 Mountain Corridor, do you primarily travel by:*

Survey Responses by Transportation Type

Type	Count
Travel Alone or With Family	2,492
Car Pool/Van Pool (Not Family Members)	177
Public Transit	4
Shared Ride Services (Uber, Lyft, etc.)	1
Other (please specify)	27

6. *If there was no traffic congestion, how many more days per month would you travel from Metro Denver to the I-70 Mountain Corridor for the following reasons?*



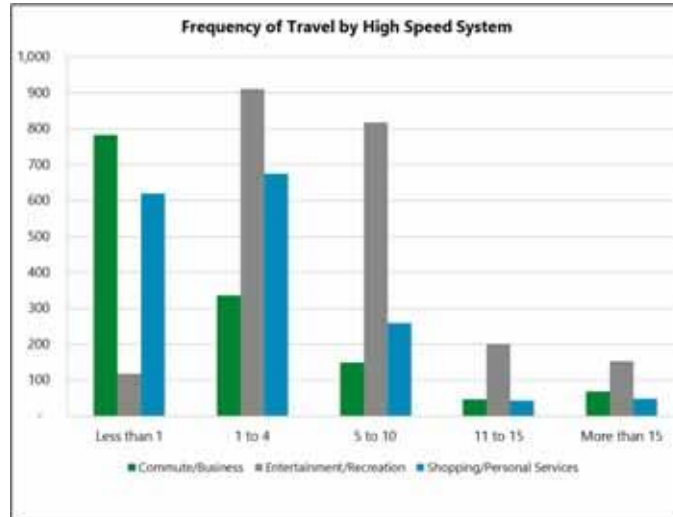
7. *Would you travel on a high-speed transit system between Metro Denver and the I-70 Mountain Corridor if one were in place?*

Survey Responses

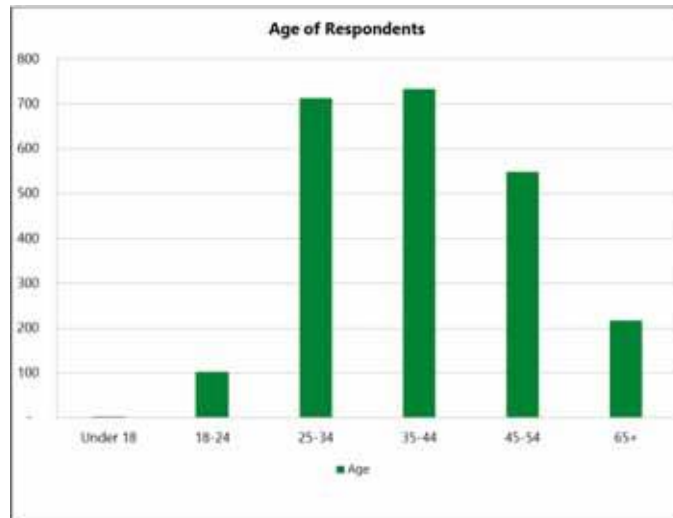
Response	Count
Yes	2,160
No	251
I Don't Know	287

APPENDIX C: METRO DENVER RESIDENT SURVEY RESULTS

8. *If yes to the previous question, how many days per month would you use high-speed transit between Metro Denver and the I-70 Mountain Corridor for the following reasons:*

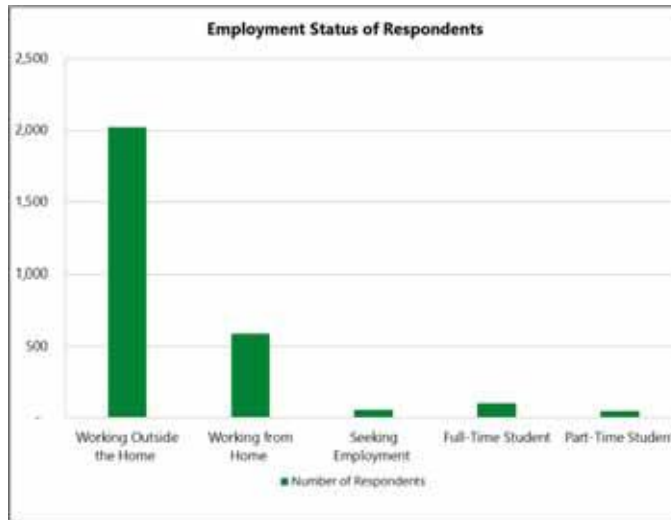


9. *What is your age?*

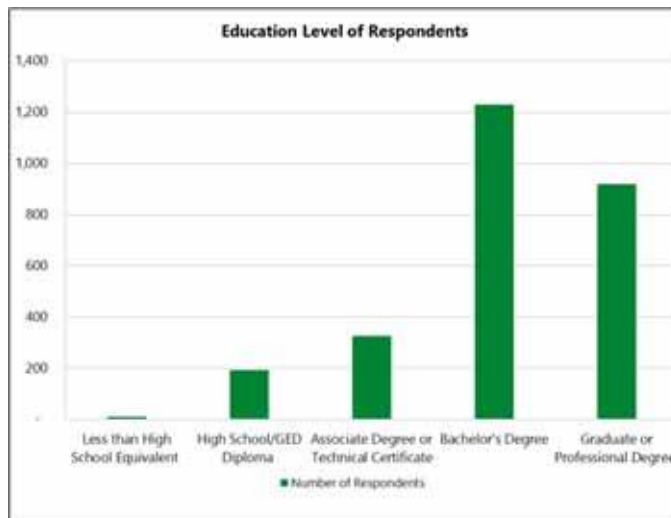


APPENDIX C: METRO DENVER RESIDENT SURVEY RESULTS

10. Are you currently (check all that apply):

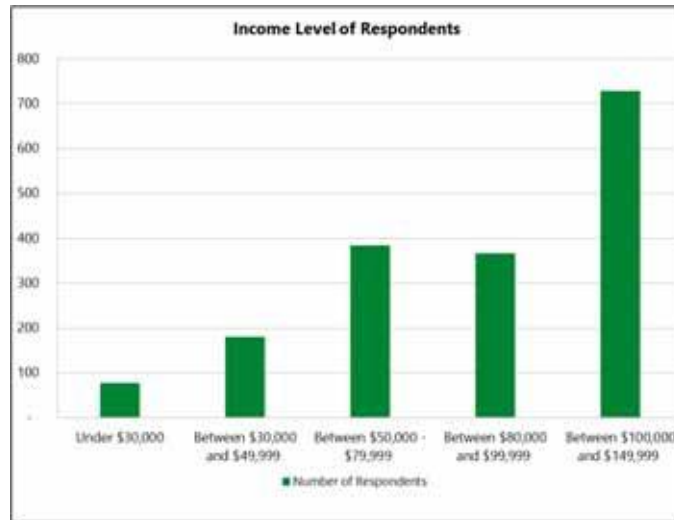


11. What is your highest education level?



APPENDIX C: METRO DENVER RESIDENT SURVEY RESULTS

12. What is your annual household income?



I-70 MOUNTAIN CORRIDOR RESIDENT SURVEY

Development Research Partners conducted a survey of I-70 Mountain Corridor residents to understand current travel patterns and the impact that high-speed transit might have on those patterns. The survey was conducted through SurveyMonkey from December 5, 2018 to January 13, 2019. The survey was distributed through several I-70 Mountain Corridor economic development and community organizations, 30+ social media groups through FaceBook and NextDoor, and the online websites of local news outlets (Summit Daily, Channel 7 news, Denver Business Journal, and Fox 31 News). In total, there were 757 valid responses from residents in the five-county area.

The survey results and data were collected to enhance our understanding of the relevant issues and impacts of a potential high-speed transit system in the I-70 Mountain Corridor. The results were not tested for validity and general representativeness of the analysis area. While various subgroups of the survey may have results that are statistically significant, these statistics were not calculated as the survey results were not used in a manner requiring statistical significance.

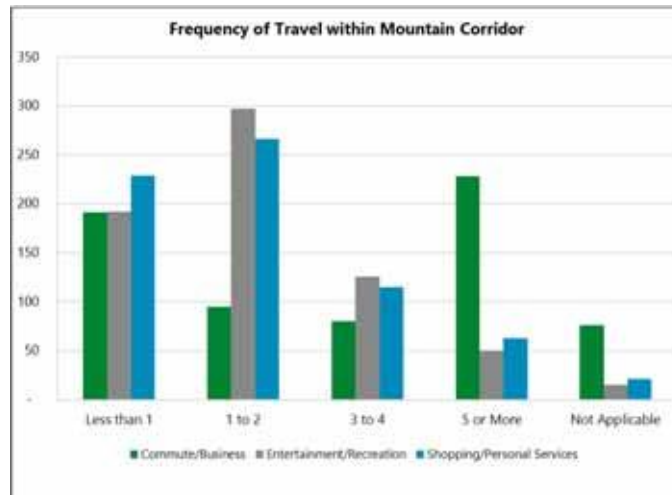
1. What is the zip code for your primary residence?

Survey Responses by County

County	Count
Clear Creek	132
Eagle	257
Gilpin	7
Grand	34
Jefferson*	157
Summit	170
Total	757

*Only includes zip code 80439.

2. How many days per week do you travel within the I-70 Mountain Corridor for the following reasons?



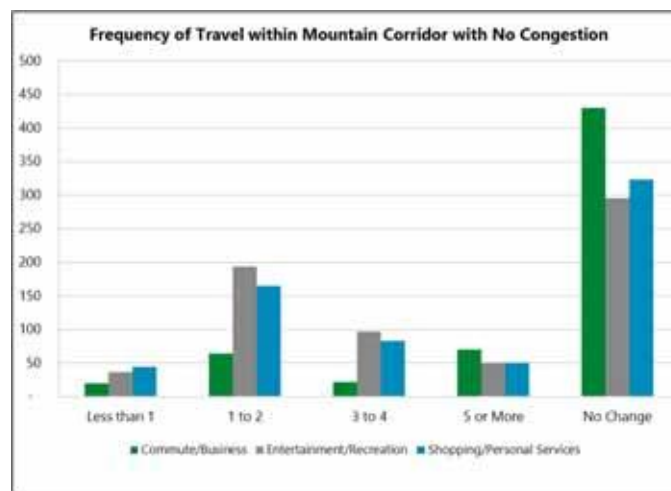
APPENDIX D: MOUNTAIN CORRIDOR RESIDENT SURVEY RESULTS

3. When you travel within the I-70 Mountain Corridor, do you primarily travel by:

Survey Responses by Transportation Type

Type	Count
Travel Alone or With Family	701
Car Pool/Van Pool (Not Family Members)	5
Public Transit	4
Other (please specify)	8

4. If there was no traffic congestion, how many more days per week would you travel within the I-70 Mountain Corridor for the following reasons?



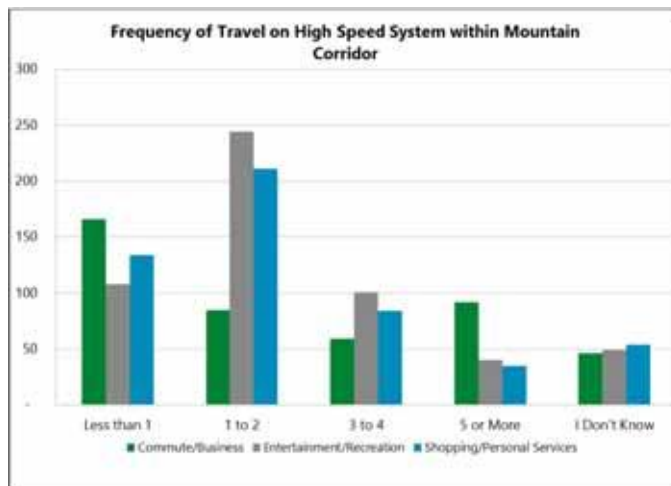
5. Would you travel on a high-speed transit system within the I-70 Mountain Corridor if one were in place?

Survey Responses

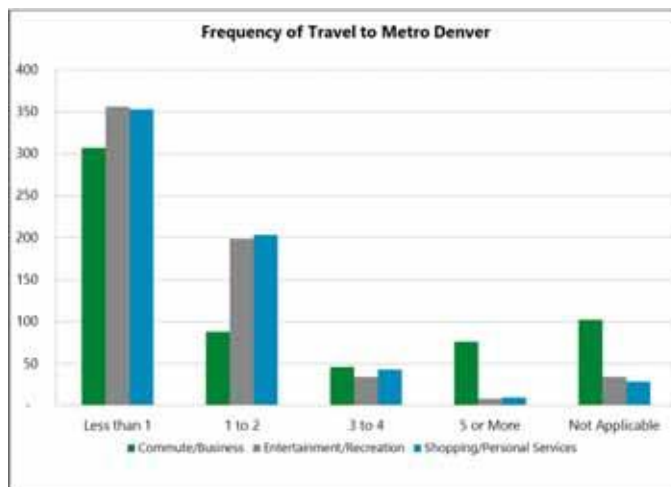
Response	Count
Yes	506
No	80
I Don't Know	130

APPENDIX D: MOUNTAIN CORRIDOR RESIDENT SURVEY RESULTS

6. *If yes to the previous question, how many days per week would you use high-speed transit within the I-70 Mountain Corridor for the following reasons:*



7. *How many days per week do you travel between the I-70 Mountain Corridor and Metro Denver for the following reasons?*



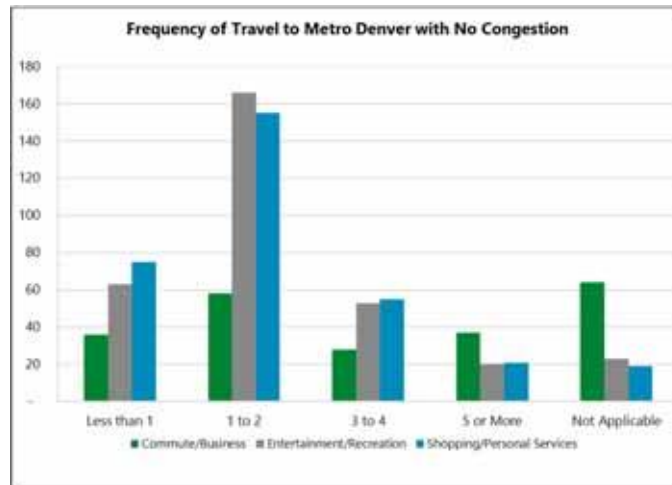
APPENDIX D: MOUNTAIN CORRIDOR RESIDENT SURVEY RESULTS

8. When you travel from the I-70 Mountain Corridor to Metro Denver, do you primarily travel by:

Survey Responses by Transportation Type

Type	Count
Travel Alone or With Family	637
Car Pool/Van Pool (Not Family Members)	4
Public Transit	3
Other (please specify)	13

9. If there was no traffic congestion, how many more days per week would you travel between the I-70 Mountain Corridor and Metro Denver for the following reasons?



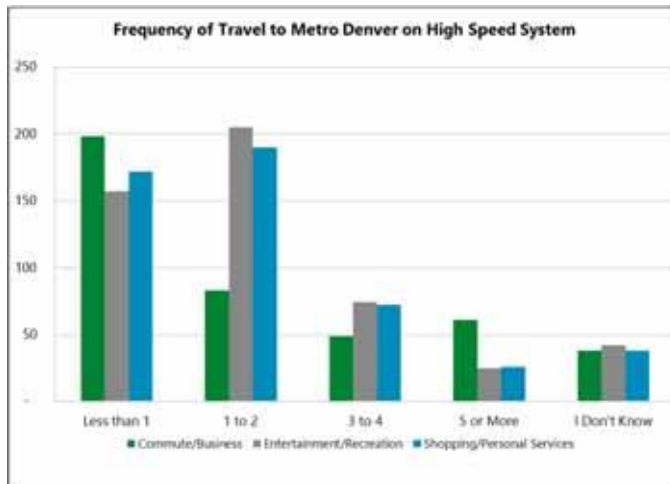
10. Would you travel on a high-speed transit system from the I-70 Mountain Corridor to Metro Denver if one were in place?

Survey Responses

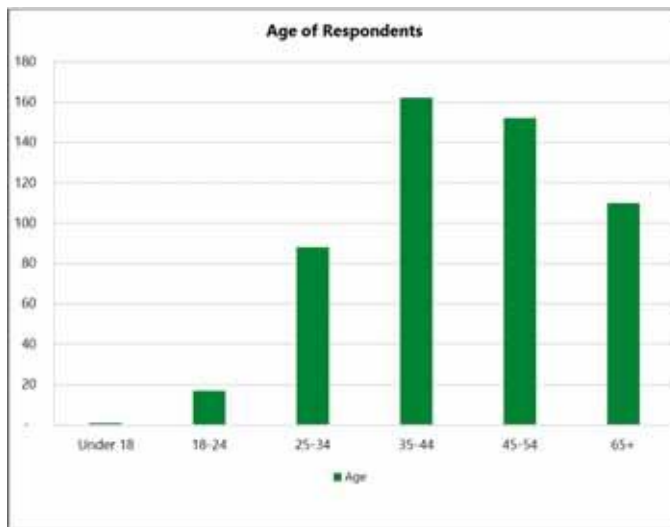
Response	Count
Yes	487
No	64
I Don't Know	106

APPENDIX D: MOUNTAIN CORRIDOR RESIDENT SURVEY RESULTS

11. If yes to the previous question, how many days per week would you use high-speed transit from the I-70 Mountain Corridor to Metro Denver for the following reasons:

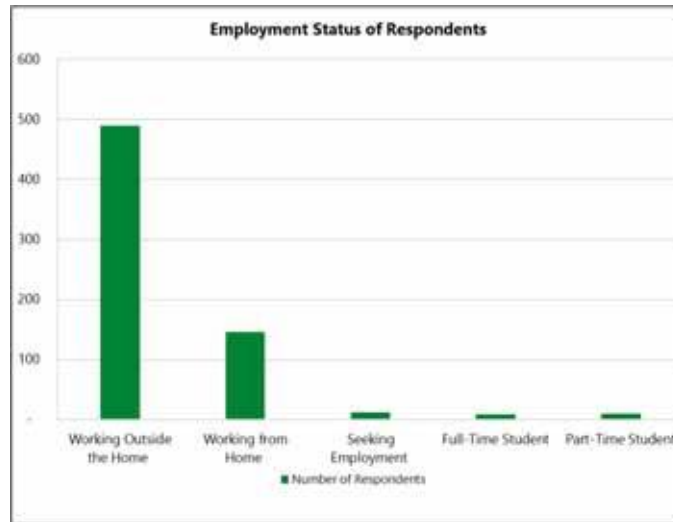


12. What is Your Age?

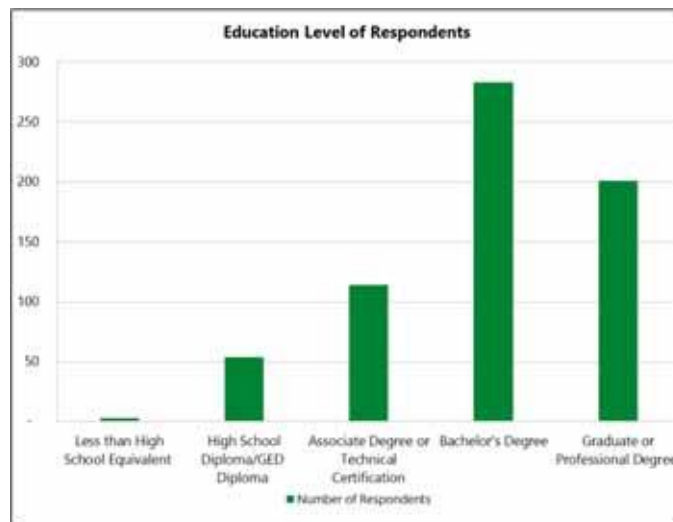


APPENDIX D: MOUNTAIN CORRIDOR RESIDENT SURVEY RESULTS

13. Are you currently (check all that apply):

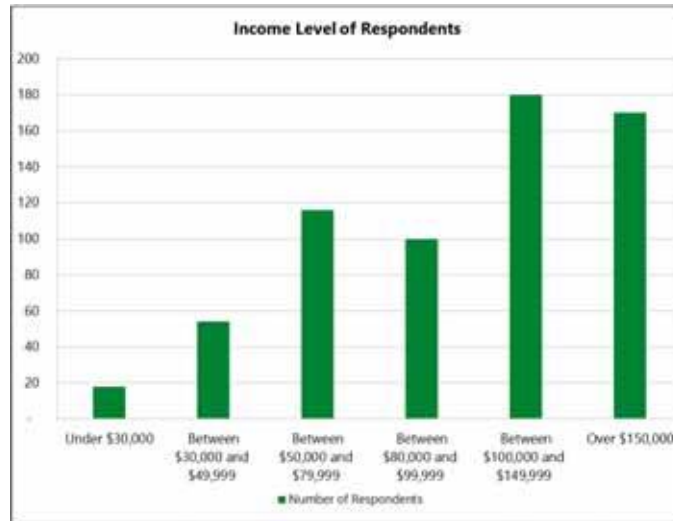


14. What is Your Highest Education Level?



APPENDIX D: MOUNTAIN CORRIDOR RESIDENT SURVEY RESULTS

15. What is your annual household income?



INTERVIEWS CONDUCTED

Development Research Partners conducted a number of interviews with businesses, visitor organizations, and governmental entities to gather more specific information and provide contextual information for the analysis. Interviews were conducted from September 2018 through February 2019.

Business Interviews

Alpine Bank, Eagle/Vail/Steamboat	Hestra USA
Alpine Bank, Summit County	Hill Aevium
Beau Jos	ifurnish
Big Horn Crossing Development	Johnny Z Casino
City of Black Hawk/Silver Dollar Metro District	Kaiser Permanente
Climax Molybdenum Company	Next Home Choice
Colorado Motor Carriers Assoc.	Shotcrete Technologies
Colorado Mountain College, Eagle County	The Outlets at Silverthorne
Colorado Mountain College, Summit County	Tiga Advertising
CoorsTek	Winter Park/Fraser Chamber
Grand County Gazette	

Visitor Interviews

Arrivalist	Gateway (Georgetown) Visitor Center
AVA Rafting and Zipline	Georgetown Loop Railroad
Breckenridge Tourism Office	Johnny Z Casino
Colorado Ski Country USA	Loveland Ski Area
Colorado Tourism Office	Mary Jane Loevlie
Colorado Welcome Center at Silverthorne	Peak 1 Shuttle Service
Copper Mountain Resort	Vail Welcome Centers/Town of Vail
Denver International Airport	Visit Denver
Frisco/Copper Information Center	Visit Idaho Springs/Heritage Visitor Center

Development Impacts/Government Outreach

City of Black Hawk	I-70 Collaborative Effort
City of Central City	James Real Estate Services, Inc.
City of Denver, Dept. of Public Works	Jefferson County
Denver International Airport	Town of Breckenridge
Gilpin County	Town of Silverthorne
I-70 Coalition	Town of Vail

Economic and Demographic Research
Industry Studies
Fiscal and Economic Impact Analysis
Real Estate Economics



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